

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

**STANDARDS DETERMINATION DOCUMENT
May, 2010**

**Authorization 2700045
Term Grazing Permit Renewal on the
North Butte (00502) Allotment**

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Standards and Guidelines Assessment

The Standards and Guidelines for Nevada's Northeastern Great Basin Area were developed by the Northeastern Great Basin Resource Advisory Council (RAC) and approved in 1997. Standards and guidelines are likened to objectives for healthy watersheds, healthy native plant communities, and healthy rangelands. Standards are expressions of physical and biological conditions required for sustaining rangelands for multiple uses. Guidelines point to management actions related to livestock grazing for achieving the standards.

This Standards Determination Document evaluates and assesses livestock grazing management achievement of the Standards and conformance with the Guidelines for the North Butte Allotment in the BLM Ely District. This document does not evaluate or assess achievement of the Wild Horse and Burro or the Off Highway Vehicle Standards or conformance to their respective Guidelines.

The Standards were assessed for the North Butte Allotment by a BLM interdisciplinary team. Documents and publications used in the assessment process include the Soil Survey of White Pine County (USDA-NRCS 1997); Ecological Site Descriptions for Major Land Resource Area 28B (USDA-NRCS 2003); Interpreting Indicators of Rangeland Health (USDI-BLM et al. 2000); Sampling Vegetation Attributes (USDI-BLM et al. 1996); and the National Range and Pasture Handbook (USDA-NRCS 1997); A complete list of references is included at the end of this document. All are available for public review in the BLM Ely District Office. The interdisciplinary team used rangeland monitoring data, professional observations, and photographs to assess achievement of the Standards and conformance with the Guidelines.

The North Butte Allotment occurs entirely within White Pine County, and is situated approximately 42 miles northwest of Ely, Nevada (Appendix II, Figure 1). This allotment encompasses approximately 27,856 public land acres within the Ely BLM District with 40 acres of private land. Elevation ranges within 6,200 feet in Butte Valley to 8,600 feet in the Butte Mountains. Average precipitation at the Lages Weather Station (~ 27 miles to the northeast) was 7.9 inches from 1984 to 2009. No allotment boundary fences exist separating the North Butte Allotment from adjacent allotments. North Butte is within the Triple B Wild Horse Herd Management Area. The only known available water source is the Robinson Well located in the east central portion of the allotment (Appendix II, Figure 1). This allotment is located within, sage-grouse, deer, elk, and antelope habitat. No wilderness exists within the North Butte Allotment. In 2001, the Robinson Well fire burned approximately 1,056 acres on the Butte Mountains.

The current term permit is issued for the period of 4/15/2004 to 4/15/2014. This is a cattle permit with a total grazing preference of 698 AUMs from February 15 to April 15 and August 1 to October 1. Of these 698 AUMs, 180 AUMs are active and 518 AUMs are suspended nonuse (Appendix II, Figure 3).

Native vegetation varies throughout the North Butte Allotment and includes Utah juniper (*Juniperus osteosperma*), singleleaf pinyon pine (*Pinus monophylla*), winterfat (*Krasheninnikovia lanata*), basin big sagebrush (*Artemisia tridentata* var. *tridentata*), Wyoming big sagebrush (*Artemisia tridentata* var. *wyomingensis*), mountain big sagebrush (*Artemisia tridentata* var. *vaseyana*), black sagebrush (*Artemisia nova*), black greasewood (*Sarcobatus vermiculatus*), shadscale (*Atriplex confertifolia*), basin wildrye (*Leymus cinereus*), Indian ricegrass (*Achnatherum hymenoides*), squirreltail (*Elymus elymoides*), needleandthread (*Hesperostipa comata*), and bluebunch wheatgrass (*Pseudoroegneria spicata*).

Three key areas have been established on the North Butte allotment as monitoring points (Appendix II, Figure 2). These areas were selected based on accessibility and general use by livestock, vegetation, and ecological range sites. Key areas represent range conditions, trends, seasonal degrees of use, and resource production and values, which aid in evaluating the allotment.

PART 1. STANDARD CONFORMANCE REVIEW

Standard 1. Upland Sites

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

As indicated by:

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

Determination:

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 causal factor to not achieving the standard.

Livestock are not a causal 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

Rangeland monitoring data and professional observation indicate that infiltration and permeability rates are appropriate for the North Butte Allotment. Cover values measured at key areas in 2009 using the line-point intercept method exceeded cover values presented in the Ecological Site Descriptions (ESD) (Appendix I, Table 1.1 and 1.2).

Key areas 1 and 3 occur within a saline terrace 5-8 in. precipitation zone (P.Z.) ecological site (028BY047NV) based on soil surveys and ecological site descriptions developed by the Natural

Resource Conservation Service (NRCS) (USDA – NRCS. 2003). This site occurs on axial-stream floodplains, floodplain terraces and alluvial plains. Slope gradients of 0 to 2 percent are most typical. Elevations are 4,500 to 5,500 feet. The plant community is dominated by sickle saltbush and western wheatgrass. Indian ricegrass, bottlebrush squirreltail, and winterfat are other important species associated with this site based on the ecological site description. Live vegetation cover estimated for this ecological site is 5-10 percent (USDA – NRCS. 2003). Vegetation cover values measured in 2009 for key areas 1 and 3 were 25 and 28 percent respectively. Litter, embedded litter, and rocks composed an additional 10 percent and 19 percent ground cover for key areas 1 and 3 respectively. Additional indicators of infiltration and permeability rates (i.e. rills, gullies, water flow patterns, pedestals, wind scouring, blowouts, depositional features, microbiotic crust presence, etc.) were appropriate to soil type, climate, and land form.

Key area 2 occurs within a coarse, silty 6-8 in. P.Z ecological site (028BY084NV). This site occurs on inset fans, fan piedmont summits, off-set bars, lake terraces and fan skirts. Slopes range from 0 to 15 percent, but slope gradients of 2 to 8 percent are most typical. Elevations are 5,800 to 6,500 feet. The soils in this site are typically coarse textured throughout the profile, or at least in the upper profile. Permeability is moderate to moderately rapid with low available water holding capacity. Potential for sheet and rill erosion is slight. Dominant vegetation for this site is typically winterfat and Indian ricegrass based on the ecological site; however, Sandberg's bluegrass is currently the dominant grass at this key area. Vegetation cover for this ecological site is expected to be 10-20 percent based on the ecological site description (USDA – NRCS. 2003). Vegetation cover measured in 2009 was 22 percent. Litter, embedded litter, and rocks composed an additional 19 percent ground cover; therefore a total of 41 percent total ground cover occurred at this key area. Additional indicators of infiltration and permeability rates (i.e. rills, gullies, water flow patterns, pedestals, wind scouring, blowouts, depositional features, microbiotic crust presence, etc.) were appropriate to soil type, climate and land form.

Standard 2. Riparian and Wetland Sites

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

As indicated by:

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

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

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

Determination:

X Not Applicable

- Achieving the Standard
- Not Achieving the Standard, but making significant progress towards
- Not Achieving the Standard, and not making significant progress toward standard

No known riparian areas occur on the North Butte Allotment.

Standard 3. Habitat:

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

As indicated by:

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

Determination:

- Achieving the Standard
- X** Not Achieving the Standard, but making significant progress towards
- Not Achieving the Standard, not making significant progress toward standard

Causal Factors

- Livestock are a causal factor to not achieving the standard.
- X** Livestock are not a causal factor to not achieving the standard
- X** Failure to meet the standard is related to other issues or conditions

Guidelines Conformance:

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

Rangeland monitoring data (Appendix I) and professional observations indicate that the North Butte allotment is providing suitable wildlife habitat as a function of vegetation structure, distribution, and productivity. However, vegetation composition diverges from values presented in the ESD's for all key areas. When viewing the 2009 dataset, it is important to acknowledge that this was a favorable year for some plants (e.g. sickle saltbush) due to abundant spring precipitation.

Vegetation cover measured in 2009 at key areas 1, 2, and 3 were 25, 22 and 28 percent, respectively, which exceeds the range presented in the ESD's (5-10%, 10-20%, and 5-10% respectively) (Appendix I, Table 1.2). Production at key areas 1 and 3 was 1,200 and 1,588 lbs/acre respectively, which exceeds the range presented in the ESD (i.e. 200-500 lbs/acres). At key area 2, production was measured at 524 lbs/acre, which is within the range of 400-900 lbs/acre presented in the ESD (Appendix I, Table 1.3a). Key area 1 had a shrub, grass, forb, and weed composition by weight of 79.8, 3.3, 0, and 17 percent, respectively, which diverges from ESD estimates of 80 percent shrubs, 15 percent grasses, and 5 percent forbs (Appendix I, Table 1.3b). Shrub, grass, forb, and weed composition by weight for key area 2 was 97.7, 2.3, 0, and 0 percent respectively, which diverges from the ESD (35% shrubs, 55% grasses, 10% forbs) (Appendix I, Table 1.3b). Key area 3 had a shrub, grass, forb, and weed composition by weight of 100, 0, 0, and 0 percent, respectively, which diverges from ESD estimates of 80 percent shrubs, 15 percent grasses, and 5 percent forbs (Appendix I, Table 1.3b). Total vegetation production is appropriate for key area 2 and high at key areas 1 and 3. Key area 1 has an altered compositional component in that halogeton has replaced the grass and forb component (Appendix I, Table 1.3b). Key areas 2 and 3 are also altered in that no forbs and very little grasses exist; while shrubs are dominant (Appendix I, Table 1.2). Vegetation richness is also slightly below richness described in the ESD (Appendix I, Table 1.4); however, the data was collected 11/18/2009 which makes it difficult to assess richness since many of the forbs are decomposed at this time. Vegetation structure and distribution is appropriate based on professional observation.

Utilization by livestock has not been measured since 1995, which precedes the 2001 FMUD. Since the FMUD, licensed livestock use only occurred in 2007 when 183 AUM's were licensed. Based on annual photographic monitoring, it is suspected that livestock grazing occurred at key area 3 in 2003 and at all key areas in 2004. Since there are no allotment boundary fences, it is possible for livestock to drift onto the North Butte allotment from adjacent allotments. In reviewing photographs from 1992 to 2009, key area trends appeared stable for key areas two and three. However, key area one has had a slight increase in halogeton since 2004.

Special Status Species

The greater sage-grouse (*Centrocercus urophasianus*) is listed on the BLM sensitive species list in Nevada as a result of requiring special management consideration to promote their conservation and reduce the likelihood and need for future listing under the ESA. It has been identified as an "umbrella" species by the BLM Ely District, and chosen to represent the habitat needs of the sagebrush (*Artemisia* spp.) obligate or sagebrush/woodland dependent guild (BLM 2007; p. 4.7-10). There is one lek with unknown status within the allotment and zero leks within three miles surrounding the allotment according to the NDOW data (2009). Based on data that is coarse in nature that the Nevada Department of Wildlife and Bureau of Land Management (2001) constructed for the 2008 Resource Management Plan, the North Butte Allotment contains nesting, summer, and winter sage-grouse habitat. The allotment has some of the Buck/Butte Valley/White Pine Population Management Units (PMUs). All three key areas are located in vegetation types that are not considered to be important sage-grouse habitat (Connelly et al. 2000). Therefore, two random points were generated within sagebrush habitat and cover was sampled using the line-point intercept method (Appendix I, Tables 5.1 – 5.3).

The two random points used for monitoring sage-grouse habitat occur within a loamy 8-10 in. P.Z. ecological site (028BY010NV) (Appendix I, Table 1.2) based on soil surveys and ecological site descriptions (NRCS) (USDA – NRCS. 2003). This site occurs on fan piedmonts, rock pediments and low rolling hills. Slopes range from 2 to 50 percent, but slope gradients of 4 to 15 percent are most typical. Elevations are 5,000 to 6,500 feet. The soils in this site are moderately deep to deep and well drained. The available water holding capacity varies with soil texture and soil depth, ranging from low to moderate. Surface soils are 3 to 10 inches thick and are moderately coarse to medium textured. Many soils are modified with a high volume of gravels, cobbles or stones throughout the profile. Runoff is medium. The potential for sheet and rill erosion is moderate to high depending on slope. Wyoming big sagebrush, Indian ricegrass, and needle-and-thread grass are dominant. Live vegetation cover estimated for this ecological site is 10-20 percent (USDA – NRCS. 2003). Vegetation cover measured in 2009 at random sites 1 and 2 was 45 and 29 percent, respectively, exceeding the range presented in the ESD's. Random site 1 had a shrub, grass, and forb composition by cover of 98, 2, and 0 percent, respectively, which diverges from compositional weight estimates presented in the ESD of 35 percent shrubs, 55 percent grasses, and 10 percent forbs (Appendix I, Table 5.2). Shrub, grass, and forb composition by cover for key area 2 was 100, 0, and 0 percent respectively, which diverges from the ESD (45% shrubs, 50% grasses, 5% forbs) (Appendix I, Table 5.2). Both random sagebrush points 1 and 2 have an altered compositional component in that no forbs and very few grasses were sampled within the transect; while shrubs are dominant at both sites (Appendix I, Table 5.2). However, additional species were observed at the site that were not sampled within the transect (Appendix 1, Table 5.4). Vegetation richness is appropriate for site 1, while at site 2, richness is below that described in the ESD (Appendix I, Table 5.4). Vegetation height was measured at the location the pin intersected the vegetation. Therefore, the heights measured do not represent the tallest part of the vegetation, which is commonly measured in sage-grouse habitat studies (DeLong et al. 1992, Drut et al. 1994, Sveum et al. 1998). Average height measured at the location the pin intersected the shrub at site 1 was 13.1 in, ranging from 2 to 24 in. Average Wyoming big sagebrush height at site 2 was 10.1 in, ranging from 2 to 24 in.

These random sites sampled may provide suitable winter habitat as sage-grouse have been reported to occur in greater than 20 percent sagebrush canopy cover (Eng and Schladweiler 1972, Wallested 1975). However, the lack of herbaceous cover at these sites do not provide suitable nesting or brood-rearing habitat (DeLong et al. 1992, Drut et al. 1994, Gregg et al. 1994, Sveum et al. 1998, Connelly et al. 2000). Based on multiplying ESD estimated ground cover by the composition by weight estimates, these sites do not possess the potential to provide suitable nesting or brood-rearing habitat (DeLong et al. 1992, Drut et al. 1994, Gregg et al. 1994, Sveum et al. 1998, Connelly et al. 2000).

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

According to the Standards and Guidelines for Nevada's Northeastern Great Basin Area, it must be determined if livestock grazing is a significant factor in the non-attainment of the Standards and Guidelines (BLM 1997).

Standard #1: Upland Sites

The Standard is being achieved.

Standard #2: Riparian and Wetlands

Not applicable.

Standard #3: Habitat

The North Butte allotment is not achieving the standard, but is making significant progress towards achieving the standard. Vegetation composition is currently skewed towards the shrub component at key areas 1, 2 and 3, while halogeton has replaced the grass and forb component at key area 1. It is currently unknown why halogeton has replaced the grass and forb component. Vegetation composition at the random sagebrush sites (i.e. sage-grouse habitat plots) is also skewed towards the shrub component, possessing very little grass cover and no forb cover. Since the 2001 FMUD, livestock grazing on the allotment has occurred once, even though livestock utilization is suspected to have occurred due to drift during 2003 and 2004 based on photographic monitoring. Livestock are not considered a causal factor to not achieving the standard since approximately 11 percent of the AUMs from 2001 to 2009 were utilized based on licensed use. (Appendix I, Figure 2.1). Even speculating that livestock drift occurred in 2003 and 2004, the percent of AUMs utilized would remain minimal. Therefore, failure to meet the standard is related to other issues or conditions. Such other issues may include historical (> 50 years ago) livestock overgrazing, current overgrazing by wild animals (i.e. wildlife and wild horses), a lack of natural disturbance (e.g. entomological outbreaks, fire), and drought.

Based on professional observation and viewing photographs from 1992 to 2009, the skewed composition distribution towards the shrub component is within the natural range of variability (Pellant et al. 2005). Based on professional judgment, the ESD's do not adequately reflect this high degree of variability as viewed in photographs for these key areas. Average precipitation over the past eight years (i.e. below average) may explain this skewed vegetation composition (Appendix 1, section 4). Annual photographic evidence from 1992 to present indicates that the lack of grasses at key areas 1, 2, and 3 is a function of high precipitation years. In 1998 the nearest weather station received the maximum precipitation over a 26 year period (i.e. 13.2 inches). This coincided with the greatest grass production (especially squirreltail) observed in any year. As such, it is observed in the photographs that grasses and shrubs wax and wane as a function of precipitation amounts and timing. Therefore, the skewed composition towards the shrub component is not considered to be a causal factor to not achieving the standard. Rather, the skewed composition presented in this data set is the result of a one point in time assessment, conducted at a point in time favoring shrubs over herbaceous species. However, the skewed composition as a result of recent drought conditions, in combination with the wild horse population exceeding the Appropriate Management Level (AML) (AML is 250 -518), may be

skewing the compositional outside the natural variation range. However, site specific horse utilization data is lacking. As for the two random sampled sites, live sagebrush cover and standing dead sagebrush is high with little herbaceous cover. This indicates that no natural disturbance (e.g. fire) has occurred on these sites recently. Furthermore, recent drought conditions are further exacerbating the skewed composition component in these sagebrush dominant communities. As a result of no recent disturbance and recent drought, natural vegetation succession in sagebrush communities will move toward a shrub dominant state. Additionally, historical (> 50 years ago) overgrazing, current overgrazing by wildlife and wild horses, and drought may be influencing the lack of herbaceous species found within sagebrush communities.

PART 3. GUIDELINE CONFORMANCE REVIEW AND SUMMARY

Standard #1: Upland Sites

The allotment is conforming to the guidelines.

Standard #2: Riparian and Wetlands

Not applicable.

Standard #3: Habitat

The allotment is conforming to the guidelines.

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

Allotment Management Plan

- I. The allotment goal is to use grazing animals to promote sustainable, healthy, productive, and diverse populations of desirable plants and plant communities, providing for multiple-use benefits.
- II. Objectives were established at all key areas in order to measure management success. Cover objectives were selected instead of production objectives since cover is less sensitive to precipitation variation from year to year. When comparing monitoring data to these objectives, the BLM must consider that these cover values were measured during a productive year. Objective values presented below reflect parameters that should be achievable during normal and above normal precipitation years. These objectives only apply for a 10 year period, at which time an evaluation will decide if objectives are achieved or not. If the objectives are not achieved, then the cause must be stated. If grazing is the cause of not achieving the following objectives, then management changes need to be made.
 - A. Key Area 1
 1. Objective 1: Maintain \geq 10% sickle saltbush cover (currently 17% cover).
 2. Objective 2: Maintain \geq 2% perennial grass cover (currently 3% cover).
 3. Objective 3: Maintain \leq 7% halogeton cover (currently 6% cover).
 - B. Key Area 2
 1. Objective 1: Maintain \geq 10% winterfat cover (currently 20% cover).

- 2. Objective 2: Maintain \leq 1% halogeton cover (currently 0% cover).
- C. Key Area 3
 - 1. Objective 1: Maintain \geq 15% sickle saltbush cover (currently 28% cover).
 - 2. Objective 2: Maintain \leq 1% halogeton cover (currently 0% cover).

III. BLM’s responsibilities towards accomplishing goals and objectives, achieving the Northeastern Great Basin Area Standards, and conforming to the guidelines:

- A. Continue monitoring:
 - 1. Photographs should be taken at key areas every year.
 - 2. Utilization should be taken every two years; however, it is recommended every year.
 - 3. Cover and production data should be collected once every ten years; however, it is recommended that it is collected every three to five years.

IV. Permittee’s responsibilities towards accomplishing goals and objectives, achieving the Northeastern Great Basin Area Standards, and conforming to the guidelines:

A. Mandatory Terms and Conditions (proposed for new permit)

Livestock #	Kind	Grazing Begin	Grazing End	% Public Land	AUM's
21	Cattle	8/1	2/28	100	146
21	Cattle	3/1	4/15	100	32

180 total AUMs available

Refer to Appendix II, Figure 3 for current Mandatory Terms and Conditions. 180 active AUM; 518 suspended AUMs; 698 total permitted use AUMs. Changes made to the Mandatory Terms and Conditions for the proposed permit include the seasons of use increased from 8/1 to 4/15. This season of use change will open up the winter season for grazing. Winterfat and sickle saltbush are preferentially selected for by livestock during the winter season over grasses. In addition, grazing during this season, when grasses are dormant, does not discourage growth during the following growing season. Utilizing shrubs during the winter removes photosynthetic material, slowing resource (e.g. water, nutrients) acquisition by shrubs the following spring. In response, grasses are able to acquire additional resources, promoting grass production. Since very little grasses exist at key areas currently, opening up and promoting use during the winter season will encourage grass production and a better compositional balance. However, limiting the season of use to winter is not recommended based on the following history taken from the 1995 allotment evaluation and 2001 FMUD.

“The season of use prior to 1995 was from 11/15 to 4/15. In a 1995 allotment evaluation, the season of use changed to 8/1 – 10/31 and 2/15 – 4/15 in order to encourage better livestock distribution. The change helped reduce livestock drift off the North Butte allotment and onto neighboring allotments during the months when snow and cold temperatures naturally entice livestock to drift toward the southern end of Butte Valley.” However, the permit for North Butte Allotment

has changed between three operators; therefore, different livestock may not drift and/or different owners may have improved control methods. As such, winter grazing is the desired season of use if livestock are kept within the allotment boundary, in order to encourage grass production.

B. Other Terms and Conditions

1. Livestock numbers are flexible as long as permitted use (i.e. 180 AUM's) is not exceeded during the authorized season of use.
2. Leave enough photosynthetic material to promote production and re-growth. Maximum utilization levels will be established as follows:
 - Perennial native grasses: 50% current year's growth
This use level is necessary to allow desirable key herbaceous species to 1) develop above ground biomass for protection of soils, 2) to contribute to litter cover, and 3) develop roots to improve carbohydrate storage for vigor, reproduction, and improve/increase desirable perennial cover.
 - Perennial shrubs and half-shrubs: 50% use on current annual production.
This use level is necessary to allow desirable perennial key browse species to develop branchlets and woody stature able to withstand the pressure of grazing use. Use would be read in April or prior to the spring re-growth. Use during spring contributes to following season's use level.
3. Livestock will be moved to another authorized pasture or removed from the allotment when utilization objectives are met or no later than 5 days after meeting these objectives. Any deviation in livestock movement will require authorization from the authorized officer.
4. Salt and/or mineral supplements for livestock shall be located at least ½ mile from water sources, riparian areas, winterfat bottoms, sensitive sites, and cultural resource sites. Such supplements should be used to encourage livestock distribution.

C. Additional Stipulations Common to All Grazing Allotments:

1. Livestock numbers identified in the Term Grazing Permit are a function of seasons of use and permitted use. Deviations from those livestock numbers and seasons of use may be authorized on an annual basis where such deviations would not prevent attainment of the multiple-use objectives for the allotment.
2. Deviations from specified grazing use dates will be allowed when consistent with multiple-use objectives. Such deviations will require an

application and written authorization from the authorized officer prior to grazing use.

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

V. Other Recommendations

- A. Prescribed burning or mowing in the decadent sagebrush stands lacking an understory. *Drought, historical overgrazing, and fire suppression has created a disjunction in natural fire regime within these plant communities. The benefits received from a successful prescribed fire may include, but is not limited to: 1) restore the natural functionality of ecosystem processes (i.e. water, nutrient, and energy cycling), 2) restore community resilience, 3) restore the compositional and structural components necessary for providing adequate habitat to a diversity of wildlife species (may be of particular importance to sage-grouse nesting habitat*

with a lek nearby [Connelly et al. 2000]), and 4) provide forage for wildlife, wild horses, and livestock.

VI. Adaptive Management

A. Adaptive management will be employed as part of this allotment management plan. Adaptive management conforms with the Ely District Approved Resource Management Plan which states

“The Interior Departmental Manual 516 DM 4.16 defines adaptive management as “a system of management practices based on clearly identified outcomes, monitoring to determine if management actions are meeting outcomes and, if not, facilitating management changes that would best ensure that outcomes are met or re-evaluate the outcomes.” The Ely District Office recognizes that specific knowledge regarding natural resource systems is sometimes uncertain and in those situations, adaptive management is the preferred management method.

Adaptive management is a formal, systematic, and rigorous approach to learning from the result of management actions, accommodating change, and improving management. It involves synthesizing existing knowledge, exploring alternative actions, and making explicit forecasts about their results. Management actions and monitoring programs are carefully designed to generate reliable feedback and clarify the reasons underlying results. Actions and objectives are then adjusted based on this feedback and improved understanding. In addition, decisions, actions, and results are carefully documented and communicated to others, so that knowledge gained through experience is passed on rather than lost when individuals move or leave the organization.

Goals, objectives, special designations, and allocations could not be changed through adaptive management. Plan amendments would be required to change these decisions. Implementation or activity level decisions could be adapted. Future activity level plans would follow NEPA procedures and involve the public.”

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APPENDIX I DATA SUMMARY

1. KEY AREAS AND ECOLOGICAL SITES

A key area is a relatively small portion of a pasture or allotment selected because of its location, use, or grazing value as a monitoring point for grazing use. It is assumed that key areas, if properly selected, will reflect the current grazing management over the pasture or allotment as a whole (NRCS 1997). Key areas represent range conditions, trends, seasonal degrees of use, and resource production and values. Table 1.1 depicts the North Butte Allotment key area ecological sites and dominant native vegetation associated with each site.

Table 1.1 North Butte allotment Key Areas

<u>Key Area</u>	<u>Ecological Site</u>	<u>Dominate Species</u>
1	Saline Terrace 5-8 P.Z. (028BY047NV)	sickle-cell saltbush, western wheatgrass, Indian ricegrass
2	Coarse Silty 6-8 P.Z. (028BY084NV)	winterfat, Indian ricegrass
3	Saline Terrace 5-8 P.Z. (028BY047NV)	sickle-cell saltbush, western wheatgrass, Indian ricegrass

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

1.2. COVER AT KEY AREAS

Foliar cover was measured at all key areas in 2009 using the line-point intercept method (Table 1.2). Foliar cover is the percent of ground covered by a vertical projection of the aerial portions of the plants (USDA — USFS, NRCS, USDI — BLM, 1996). The line-point intercept method is a commonly used method for determining the relative percent live foliar cover of a range site by plant class (tree, shrub, grass, forb) or by plant species. Point contacts were recorded every 12 inches along one 100-ft transects for a total of 100 points. Results can be interpreted in a general rangeland health framework and/or compared to the ESD's estimated cover values.

Table. 1.2 Vegetation cover measured in 2009 and estimates from the Ecological Site Description (ESD).

<u>Key Area</u>	<u>Estimated Ground</u>	<u>Ground Cover</u>	<u>Composition by cover measured in 2009</u>			
	<u>Cover from ESD</u>	<u>Measured in 2009</u>	<u>Shrubs</u>	<u>Grasses</u>	<u>Forbs</u>	<u>Weeds*</u>
1	5-10%	25.0%	65.4%	11.5%	0.0%	23.1%
2	10-20%	22.0%	90.9%	9.1%	0.0%	0.0%
3	5-10%	28.0%	100.0%	0.0%	0.0%	0.0%

*Includes: Halogeton, russian thistle, mustard species, bur buttercup, European stickseed

Cover values at key areas measured in 2009 commonly exceeded cover values presented in the ESD. However, the composition by cover was generally skewed towards shrubs and away from the herbaceous component (grasses and forbs).

1.3. WEIGHT AT KEY AREAS

Above ground annual production was estimated in 2009 using the double weight sampling method (Table 1.3a). Above ground annual production is the amount of air dry biomass (lbs/acre) produced annually. The double weight sampling method is a commonly used method for estimating the annual production amount for a range site by plant class (tree, shrub, grass, forb) or by plant species. Results can be interpreted in a general rangeland health framework and/or compared to the ESD's estimated production values.

Table 1.3a Annual production measured in 2009 and estimates from the Ecological Site Description (ESD).

Key Area	Estimated Annual Production from			*Measured Annual
	ESD*			Production from 2009
	Favorable	Normal	Unfavorable	
1	500	350	200	1200
2	900	700	400	524
3	500	350	200	1588

*Annual Production measured in Air Dried Weight (LBS/Acre)

*Includes shrubs, grasses, forbs, and weeds.

Key area two was within the range of values described in the ESD (Table 1.3a). However, the composition by weight was skewed towards shrubs (Table 1.3b). Key areas 1 and 3 exceeded the range of values described in the ESD (Table 1.3a). However, weeds resulted in 17% of the community by weight for key area 1 and values for key area 3 were skewed toward the shrub component (Table 1.3b).

Table 1.3b Composition by weight measured in 2009 and from the Ecological Site Description (ESD).

Key Area	Estimated Composition by						
	Weight from ESD			Composition by Weight measured in 2009			
	Shrubs	Grasses	Forbs	Shrubs	Grasses	Forbs	*Weeds
1	80%	15%	5%	79.8%	3.3%	0.0%	17.0%
2	35%	55%	10%	97.7%	2.3%	0.0%	0.0%
3	80%	15%	5%	100.0%	0.0%	0.0%	0.0%

*Includes: Halogeton, russian thistle, mustard species, bur buttercup, European stickseed

1.4. SPECIES PRESENT AT KEY AREAS – SPECIES RICHNESS

Table 1.4. Species found at each key area.

Key Area		
1	2	3
Sickle-cell saltbush	Winterfat	Sickle-cell saltbush
Indian ricegrass	Budsage	Indian ricegrass
Squirreltail	Indian ricegrass	Halogeton
Sandberg's bluegrass	Squirreltail	
Halogeton	Sandberg's bluegrass	
	Halogeton	

Data was collected 11/18; therefore some forbs may have been missed.

1.5. UTILIZATION AT KEY AREAS

Utilization has not been measured since 1995, which precedes the 2001 FMUD.

2. LICENSED LIVESTOCK USE

Since the 2001 FMUD, licensed livestock use only occurred in 2007 when 183 AUM's were licensed. Between 2001 and 2009, 11 percent of the total AUM's were licensed.

Table 2.1. Actual Animal Unit Months (AUM) Licensed between 2001 and 2009.

Year	AUMs Licensed	AUMs on Permit	% Actual Use of Permitted Use
2001	0	180	0.0%
2002	0	180	0.0%
2003	0	180	0.0%
2004	0	180	0.0%
2005	0	180	0.0%
2006	0	180	0.0%
2007	183	180	101.7%
2008	0	180	0.0%
2009	0	180	0.0%

11% of the total AUM's were licensed between 2001 - 2009.

3. PHOTOGRAPHIC TREND AT KEY AREAS

In reviewing photographs from 1992 to 2009, key area trends appeared stable for key areas two and three. However, key area one has had a slight increase in Halogeton since 2004.

4. PRECIPITATION DATA

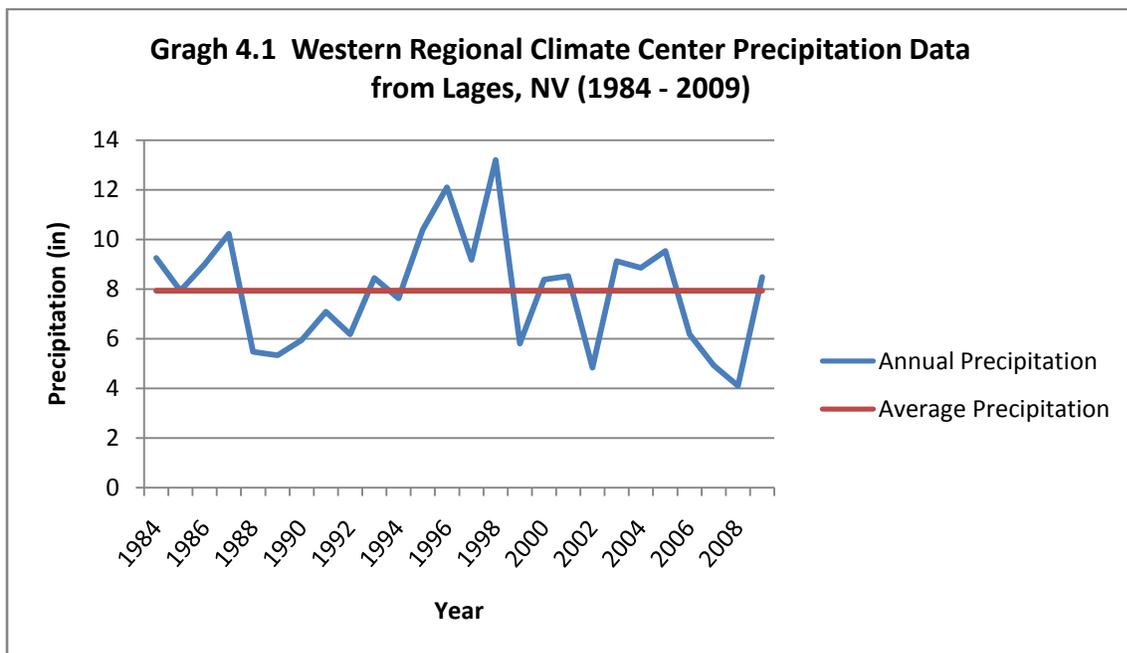
Annual precipitation greatly influences growing condition of forage species and is often correlated to available forage. Historical climate data from the Western Regional Climate Center at the Lages, Nevada weather station is being used to represent the annual precipitation on the North Butte Allotment. Table 4.1 and Graph 4.1 summarize annual precipitation data collected since 1984. Average precipitation in the past eight years is 7 inches/year, which is below the average over the 26 year period the weather station has been in operation.

Table 4.1 Western Regional Climate Center Precipitation Data from Lages, NV from 1984-2009.

Year	Annual Precipitation (inches)	Year	Annual Precipitation (inches)	Year	Annual Precipitation (inches)
1984	9.25	1993	8.45	2002	4.83
1985	7.93	1994	7.63	2003	9.13
1986	8.99	1995	10.39	2004	8.85
1987	10.23	1996	12.1	2005	9.54
1988	5.47	1997	9.18	2006	6.18
1989	5.33	1998	13.2	2007	4.92
1990	5.94	1999	5.81	2008	4.1
1991	7.09	2000	8.38	2009	8.48
1992	6.18	2001	8.52		

*January - August

Average = 7.9; Min = 4.1; Max = 13.2



5. GREATER SAGE-GROUSE HABITAT DATA

The methodology used for selecting random points within sage-grouse habitat is as follows: A sagebrush vegetative cover layer was created in ArcGIS 9.3 by selecting only sagebrush cover types from the complete regap data set. Specifically, the two categories selected were called “Great Basin Xeric Mixed Sagebrush Shrubland” and “Inter-Mountain Basins Big Sagebrush Shrubland”. The resulting layer was further reduced by clipping out all private land parcels. This layer was then clipped by using the allotment of interest. Finally, the ‘create random points’ tool was used within ArcToolbox to generate the desired number of random points within the sagebrush layer within an allotment, which was the constraining feature class during random point generation.

The following instructions were included for those persons sampling vegetation at these random points:

All points should be within sagebrush habitat (i.e. black, Wyoming, Mountain). However, if a point is dominated by trees, low sage, winterfat, a road, or some other inappropriate habitat type for sage-grouse, please document this and move an appropriate distance away in a random direction, or go to the next point on the list.

Vegetation height was measured at the location the pin intersected the vegetation. Therefore, the heights measured do not represent the tallest part of the vegetation, which is commonly measured in sage-grouse habitat studies (DeLong et al. 1992, Drut et al. 1994, Sveum et al. 1998).

Table 5.1 Ecological sites of random sagebrush sites sampled within the North Butte allotment.

<u>Site</u>	<u>Ecological Site</u>	<u>Dominate Species</u>
1	Loamy 8-10 P.Z. (028BY010NV)	Wyoming big sagebrush, Indian ricegrass, and needleandthread grass
2	Loamy 8-10 P.Z. (028BY010NV)	Wyoming big sagebrush, Indian ricegrass, and needleandthread grass

Table. 5.2 Vegetation cover measured in 2009 at random sagebrush sites and estimates from the Ecological Site Description (ESD).

<u>Site</u>	<u>Estimated</u>	<u>Ground Cover</u>	<u>Estimated Composition</u>			<u>Composition by cover</u>		
	<u>Ground Cover</u>	<u>Measured in 2009</u>	<u>by Weight from ESD</u>			<u>measured in 2009</u>		
	<u>from ESD</u>		<u>Shrubs</u>	<u>Grasses</u>	<u>Forbs</u>	<u>Shrubs</u>	<u>Grasses</u>	<u>Forbs</u>
1	10-20%	45%	35%	55%	10%	98%	2%	0%
2	10-20%	29%	45%	50%	5%	100%	0%	0%

Table 5.3 Vegetation height (inches) measured at random sagebrush sites by species in 2009.

<u>Site</u>		<u>Wyoming</u>		
		<u>Big Sagebrush</u>	<u>Green Rabbitbrush</u>	<u>Sandberg's Big Bluegrass</u>
1	<i>n</i>	46.0	1.0	1.0
	<i>mean</i>	13.1	2.0	5.0
	<i>min</i>	2.0	2.0	5.0
	<i>max</i>	24.0	2.0	5.0
2	<i>n</i>	30.0		
	<i>mean</i>	10.1		
	<i>min</i>	2.0		
	<i>max</i>	24.0		

Table 5.4 Species found at each key area.

<u>Key Area</u>	
<u>1</u>	<u>2</u>
Wyoming big sagebrush	Wyoming big sagebrush
Green rabbitbrush	Indian ricegrass
Indian ricegrass	Squirreltail
Squirreltail	Cryptantha sp.
Sandberg's bluegrass	Halogeton
Wild cabbage	
Phlox	
Mustard sp.	

APPENDIX II
MAPS

Figure 1. North Butte Allotment Map

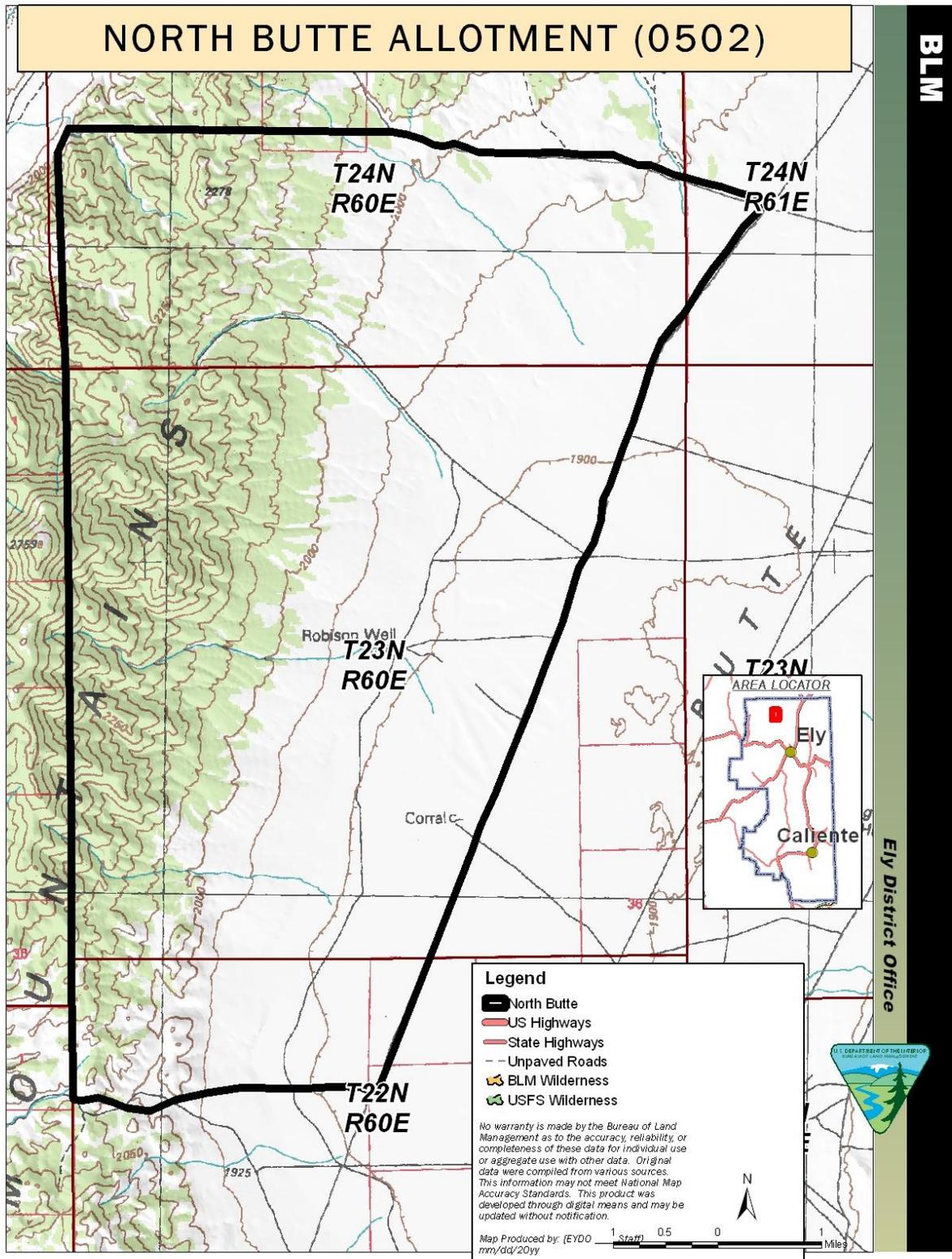


Figure 2. North Butte Allotment Key Areas

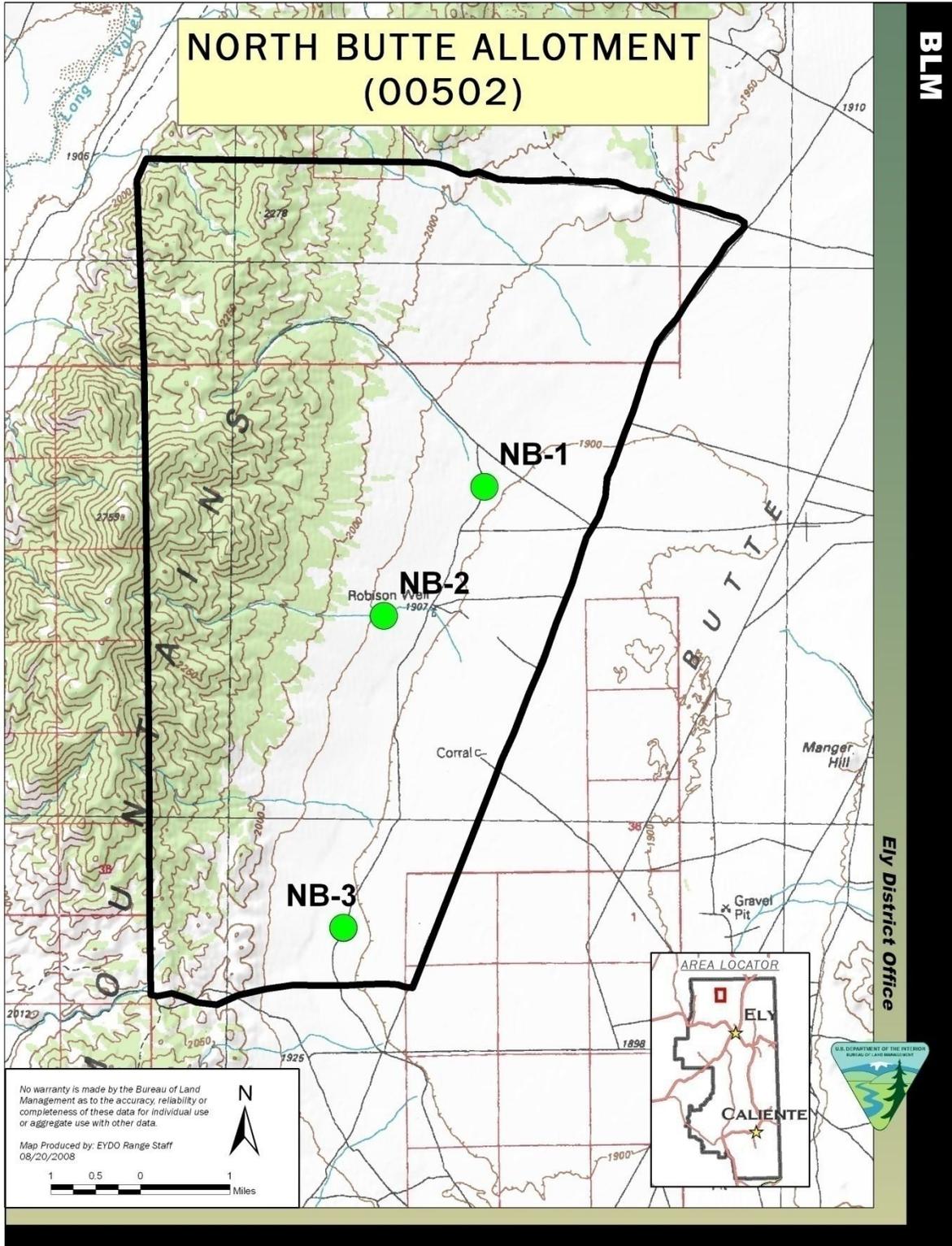


Figure 3. North Butte number of Animal Unit Months (AUMs) and Use dates for authorization # 2700045 permit from 4/15/2004 to 4/15/2014.

Livestock #	Kind	Grazing Begin	Grazing End	% Public Land	AUM's
34	Cattle	2/15	4/15	100	67
67	Cattle	8/1	10/31	100	112

180 total AUMs

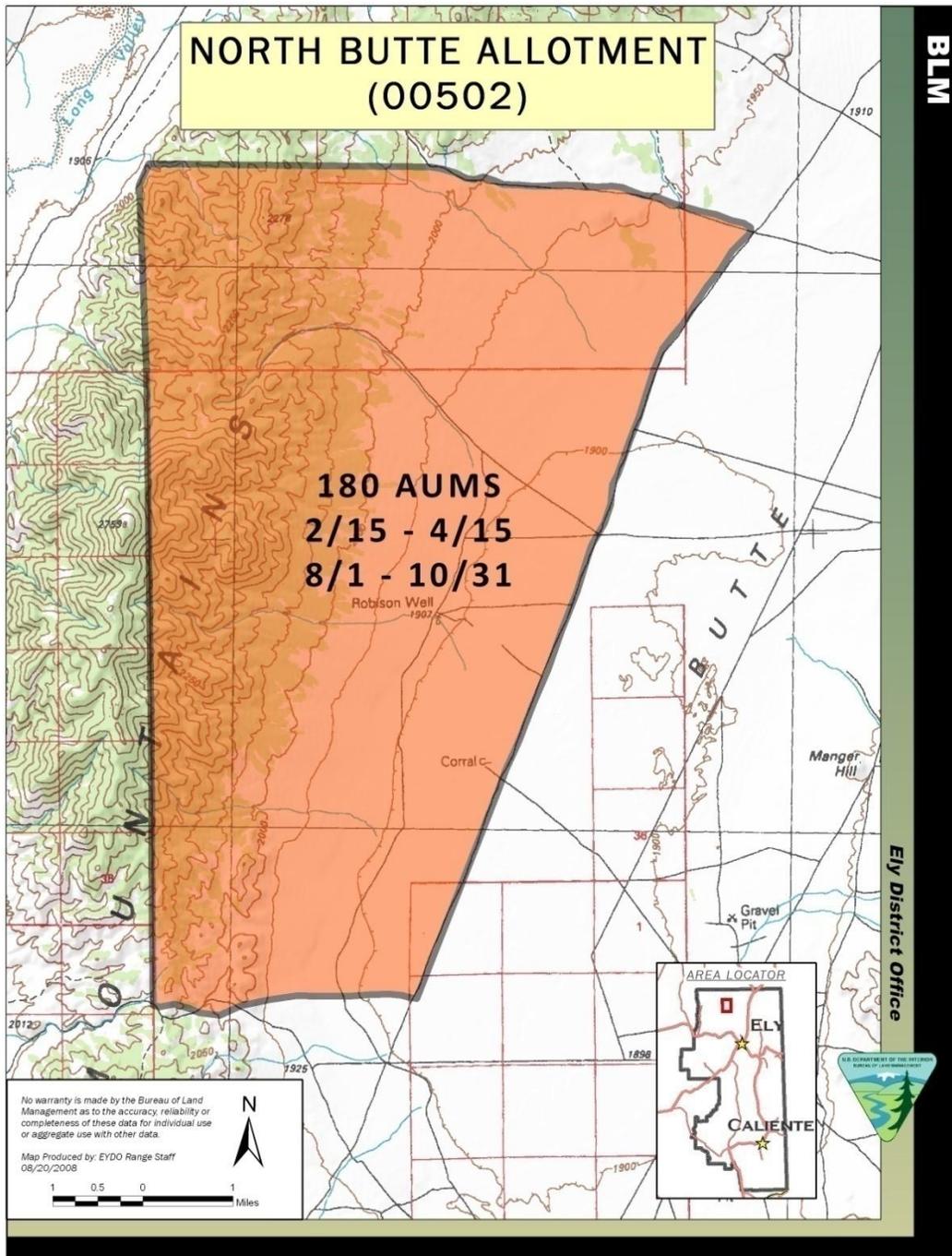


Figure 4. Random sagebrush sites sampled for sage-grouse habitat.

