

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

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**Draft Standards Determination Document  
Gulley Grazing Allotment  
May 2014**



**PREPARING OFFICE**

U.S. Department of the Interior  
Bureau of Land Management  
Elko District Office  
Wells Field Office  
Elko, Nevada 89801  
775-753-0200

[http://www.blm.gov/nv/st/en/fo/elko\\_field\\_office.html](http://www.blm.gov/nv/st/en/fo/elko_field_office.html)



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**Cover photo: Shack Creek by Jeff Moore, Rangeland Management Specialist**

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# Gulley Allotment Standards Determination Document

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## **DRAFT STANDARDS DETERMINATION DOCUMENT Gulley Allotment**

### **Introduction**

The Northeastern Great Basin Area Resource Advisory Council (RAC) developed the Standards and Guidelines for Nevada's Northeastern Great Basin Area in 1997. Standards and guidelines are likened to objectives for healthy and functioning watersheds, native plant communities, and 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 Nevada's Northeastern Great Basin Area for the Gulley Allotment in the Elko District. This document does not evaluate or assess achievement of the Wild Horse and Burro Standards and Guidelines or the Off Highway Vehicle Administrative Guidelines.

The Gulley Allotment is located in northeastern Elko County, Nevada, approximately sixty miles north of Wells and fifteen miles west of Jackpot, both in Nevada. Map 1 displays the location of this allotment. The allotment is bordered by the Humboldt-Toiyabe National Forest on the west, the Idaho State Line to the north, the North Fork of Salmon Falls and Bear Creeks to the east, and the East Buckhorn Allotment to the south. Topography varies from high plateaus in the west and northwest parts of the allotment to rolling hills in the east and southeast, punctuated by the narrow and often deep canyons through which the perennial streams flow. The elevation of the allotment ranges from 6,008 feet along the southern end of the allotment to 7,418 feet in the northwestern corner of the allotment.

There are no pasture fences within the allotment. One fenced private field exists within the southern portion of the allotment, and temporary electric fence exclude livestock from the portion of Shack Creek on public land. An irrigation reservoir fed by water diverted from Shack Creek and channeled through an irrigation canal provides much of the livestock and wildlife water in the southern portion of the allotment. Developed springs and perennial streams provide water on the rest of the allotment. See Map 2 for a detailed map of these features.

Vegetation in the Gulley Allotment is primarily sagebrush steppe and is dominated by big sagebrush, antelope bitterbrush, snowbrush ceanothus, and rabbitbrush. The herbaceous understory is dominated by Idaho fescue, bluebunch wheatgrass, and a wide variety of forbs. Upper elevations support extensive mountain mahogany woodlands and scattered white firs. Willows are common along perennial streams and springs, and dense aspen stands exist around springs and streams and in snow pockets. A general view of vegetation communities is shown on Map 3.

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Several wildland fires have occurred within the Gulley Allotment in recent decades and are shown on Map 4. Recent fires include the Shack Creek and Gulley fires in 1977 (perimeters not available); Cottonwood (406 acres) and Gulley Ranch (1,545 acres) fires in 1981; the Gulley fire (5,795 acres) in 1987; and the Scott Creek fire (4,414 acres within the Gulley Allotment) in 2007.

The Gulley Allotment is classified by NDOW as summer habitat for elk (*Cervus elaphus*), mule deer (*Odocoileus hemionus*), and pronghorn (*Antilocapra americana*). There are areas of occupied bighorn sheep (*Ovis canadensis nelsoni*) habitat to the west and south but no bighorns inhabit the allotment, nor is it designated as potential habitat. The allotment provides habitat for animals such as coyotes (*Canis latrans*), rabbits (*Lepus* spp. And *Sylvilagus* spp.), badgers (*Taxidea taxus*), bobcats (*Lynx rufus*), grey and red foxes (*Urocyon cinereoargenteus* and *Vulpes vulpes*), sagebrush obligate birds such as Greater Sage-Grouse (*Centrocercus urophasianus*; sage-grouse) and Sagebrush Sparrow (*Artemisiospiza nevadensis*), and other small mammals, reptiles, and invertebrates. Several other species of migratory birds occur within the allotment. Shack Creek supports populations of resident native redband trout and Columbia spotted frogs.

A summary of the public and private acres is summarized in Table 1. The livestock permittee for the allotment is J.R. Simplot SRDT.

<b>Table 1. Public and private acres.</b>			
<b>Allotment Name</b>	<b>Public Acres</b>	<b>Private</b>	<b>Total</b>
Gulley	11,195	1,967	13,162

<b>Table 2. Summary of animal unit months (AUMs), season of use, and kind of livestock.</b>					
<b>Allotment Name</b>	<b>Pasture</b>	<b>Grazing Preference (AUMs)</b>	<b>Season of Use</b>	<b>Percent Public Land</b>	<b>Kind of Livestock</b>
Gulley	--	1,633	7/1-10/15	91	Cattle

## Grazing History

The Gulley Allotment historically has been part of the O’Neil Range Unit. The reservoir above Gulley Ranch, together with the irrigation diversions in Shack Creek, the ditches conveying the water to the reservoir, and the ditch system irrigating the land below the reservoir, are all shown as existing facilities in a map drawn in June 1911 as part of a water rights filing. The allotment was predominately grazed by sheep in the era since the passage of the Taylor Grazing Act; for instance, the 1938 grazing license was for 100 cows, 75 horses, and 4,500 sheep. A range line agreement carved the Gulley Allotment out of the O’Neil Unit in 1958, and a new fence completed in that year effectively ended the open drift of domestic animals into and out of the Gulley Allotment that had been common until then.

The allotment was grazed principally by sheep until 1985, when the BLM processed an application to change the kind of livestock from sheep to cattle. This change resulted in

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declining riparian conditions across the allotment. When the current permittee purchased the base property associated with the grazing privileges on the allotment in 1999, BLM implemented a number of terms and conditions designed to improve riparian conditions, including the following:

*- The permittee will be required to implement appropriate actions to ensure progress toward attainment of multiple use objectives for the Gulley Allotment and conformance with Nevada's approved standards and guidelines. Such actions will include one or more of the following: riding or herding livestock, salting, adjusting the season or duration of livestock use and/or livestock stocking rates (within the specified permitted season of use outlined above), or fencing.*

*-Livestock management practices will be considered adequate when:*

*A) The public land portions of Shack and Bear Creeks are rated as being Functional At Risk with Upward Trend or in Proper Functioning Condition (PFC) using procedures described in BLM Technical Reference 1737-15.*

*B) Maximum allowable annual use levels for upland habitats do not exceed 50% for key native perennial grass species and 60% for crested wheatgrass as measured at selected monitoring area locations.*

*- During the 2000 and 2001 grazing seasons, the permittee is required to ride and herd livestock in a manner that will reduce grazing utilization levels on public portions of Shack and Bear Creeks and reverse patterns of downward trend as measured by PFC assessment procedures described above.*

*- If PFC assessment monitoring indicates that the pattern of downward trend continues by the end 2001 grazing year, and the BLM and the permittee can't agree as to what the appropriate corrective management action(s) that will be effect the next grazing year (2002), grazing during the hot season (7/1 to 8/31) will not be authorized and the season of use authorized under this permit shall be 5/01 to 6/30 and 9/01 to 10/15.*

Shack Creek did not show any improvements in condition class by the end of the 2000 grazing season. In the spring of 2002, BLM and the permittee reached an agreement to erect a temporary electric fence around Shack Creek. When built, the fence was intended to be in place for three years, during which time "...BLM and the permittee would determine if it is beneficial to eliminate the fence or to reconstruct it as a permanent barbed wire or buck and pole fence. Proper NEPA documents will be completed at that time." The fence has generally worked to exclude livestock from the public portions of the creek but has been prone to failures due to multiple causes. Livestock continued to graze the allotment during the 7/1-10/15 time period until the summer of 2007, when the Scott Creek/West Basin fire complex burned the allotment. The allotment remained closed to grazing through the 2007- 2009 time period. Livestock have used the allotment within the 7/1-10/15 time frame since 2010.

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## Monitoring

Monitoring data BLM has collected on the Gulley Allotment includes plant community trend and composition (nested frequency and production studies), utilization, actual use, line intercept, cover board, stream survey, lentic and lotic Proper Functioning Condition (PFC) assessments, and water quality. Map 5 displays the location of trend key areas, water quality sites, and stream survey stations. Data from these studies is discussed in the Draft Determinations section and presented in the Appendices to this document.

BLM has collected upland monitoring data at four key areas, as follows:

- Key Area 3221-01-01. This key area represents the Loamy 12-14" precipitation zone. The site lies approximately 0.75 miles from live water and is representative of the average utilization within the allotment.
- Key Area 3221-01-02 represents of the portion of the allotment seeded to crested wheatgrass after the 1962 Gulley Fire. The site lies 0.5 miles from water and represents average utilization for this vegetation type. Two more fires burned this key area, the 1987 Gulley Fire and the 2007 Scott Creek fire.
- Key Area 3221-01-03 represents the portion of the allotment burned in 1981 Gulley Ranch fire. The site lies 0.5 miles from water (Shack Creek) and is representative of average utilization on the burned area. This key area burned again in the 2007 Scott Creek fire.
- Key Area 3221-01-04 was established to represent the sheep use then occurring on the benches of the Gulley Allotment. Two fires have burned over this key area location, the 1977 Shack Creek fire and the 1987 Gulley fire.

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## DRAFT DETERMINATIONS

### PART 1. Standard Achievement 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 the potential of the site.

**Guidelines:**

- 1.1 Livestock grazing management is appropriate when in combination with other multiple uses they 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 livestock grazing management alone is not likely to restore areas of low infiltration or permeability, land management treatments should be designed and implemented where appropriate.
- 1.3 Livestock grazing management is adequate when significant progress is being made toward this standard.

The above indicator is appropriate to the potential of the ecological site.

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**This standard is being met, and livestock grazing is in conformance with the guidelines.**

BLM has available data from three key areas to help make this determination.

**Key Area 3221-01-01** is most representative of Ecological Site 025XY027NV, Loamy 12-14” Precipitation Zone. As per the Rangeland Ecological Site Description, approximate ground cover (basal and crown) is 40-50%.

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<b>Table 3: Key Area 3221-01-01 Point Cover Summary</b>		
Date: 27 September 2010		
Point Cover Type	Total Hits	Percentage
Vegetation (Basal)	19	3.17%
Vegetation (Canopy)	341	56.83%
Litter	213	35.50%
Bare Ground	27	4.50%
Rock	0	0.00%
Cryptogamic Crust	0	0.00%
<b>Total</b>	<b>600</b>	

**Key Area 3221-01-02** is also likely on Ecological Site 025XY027NV; however, the site was seeded to crested wheatgrass following a 1962 fire and has burned twice since, in 1987 and again in 2007.

<b>Table 4: Key Area 3221-01-02 Point Cover Summary</b>				
Date	12 July 2005		29 Sept. 2010	
Point Cover Type	Total Hits	Percentage	Total Hits	Percentage
Vegetation (Basal)	70	11.67%	27	4.50%
Vegetation (Canopy)	138	23.00%	203	33.83%
Litter	355	59.17%	193	32.17%
Bare Ground	103	17.17%	176	29.33%
Rock	71	11.83%	1	0.17%
Cryptogamic Crust	9	1.50%	0	0.00%
<b>Total</b>	<b>746</b>		<b>600</b>	

**Key Area 3221-01-03** lies within Ecological Site 025XY056NV, Loamy 14-16" Precipitation Zone. As per the Rangeland Ecological Site Description, approximate ground cover (basal and crown) is 40-60%. This site burned in 2007.

<b>Table 5: Key Area 3221-01-03 Point Cover Summary</b>				
Date	12 July 2005		28 Sept. 2010	
Point Cover Type	Total Hits	Percentage	Total Hits	Percentage
Vegetation (Basal)	89	14.83%	50	8.33%
Vegetation (Canopy)	208	34.67%	168	28.00%
Litter	230	38.33%	298	49.67%
Bare Ground	273	45.50%	82	13.67%
Rock	9	1.50%	2	0.33%
Cryptogamic Crust	0	0.00%	0	0.00%
<b>Total</b>	<b>746</b>		<b>600</b>	

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While the basal and crown cover on Key Areas 3221-01-02 and 3221-01-03 both fall below the approximate ground cover ranges in the respective Ecological Site Descriptions, both of these key areas burned in 2007, and the resulting lack of shrub cover would be expected to be lower than optimum condition. However, the amount of ground cover recorded at both sites, especially litter, would be sufficient to protect the soil surface. Furthermore, the vegetation trend monitoring collected at all three key areas as reported in Appendices 5 and 6 shows long-term maintenance of native plant communities appropriate to site potential.

## **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.

### **Guidelines:**

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

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## Draft Determination

**Standard 2 is partially met** for the Gulley Allotment. Water quality standards are being met for all water resources, and lotic riparian areas are functioning properly, but some lentic riparian areas are rated as functional at risk. **Guidelines are partially met** because there are no existing treatments on lentic riparian areas at risk. Permitted grazing management is expected to continue to maintain water quality and lotic riparian areas, but will likely lead to continuing issues for lentic riparian areas.

## Rationale

Water resources on public land in the Gulley Allotment include the several named and unnamed perennial streams, eight spring source areas, diversion ditches, a 25-50 acre reservoir, and numerous ephemeral streams. Perennial water resources are capable of supporting riparian areas and these have been evaluated using techniques described in Prichard, et al 1998, and Prichard, et al 1994. BLM has also collected water quality data in Bear Creek and Shack Creek and submitted results to the Nevada Bureau of Water Quality Planning. These riparian condition assessments and water quality data are used to determine achievement of the standard and guideline above. These determinations are also supported by other data such as stream survey and water resources inventory. Following is a summary of these methodologies and results. A detailed record of data used to make this determination is included in Appendix 8.

## **Proper Functioning Condition (PFC) Assessments**

PFC is a qualitative assessment of riparian areas based on quantitative science. The methodology evaluates the functionality of riparian areas based on hydrological, vegetation, and soils/erosional factors, within the context of the geologic setting and the potential of the area. Prichard et al. (1998) presented the following definition for streams: “A riparian-wetland area is considered to be in proper functioning condition when adequate vegetation, landform, or large woody debris is present to: dissipate stream energy associated with high waterflow, thereby reducing erosion and improving water quality; filter sediment, capture bed load, and aid floodplain development; improve flood-water retention and ground-water recharge; develop root masses that stabilize streambanks against cutting action; develop diverse ponding and channel characteristics *to provide* the habitat and water depth, duration, and temperature necessary for fish production, waterfowl breeding, and other uses; and support greater biodiversity.”

When applied to spring and lentic areas, this definition must be adjusted to better describe these areas. Prichard et al. (1994) suggests the following definition break down: “Lentic riparian-wetland areas are functioning properly when adequate vegetation, landform, or debris is present to: dissipate energies associated with wind action, wave action, and overland flow from adjacent sites, thereby reducing erosion and improving water quality; filter sediment and aid floodplain development; improve flood-water retention and ground-water recharge; develop root masses that stabilize islands and shoreline features against cutting action; restrict water percolation; develop diverse ponding characteristics to provide the habitat and water depth, duration, and temperature necessary for fish production, waterbird breeding, and other uses; and support greater biodiversity”

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PFC assessments result in ratings of riparian area functionality on a continuum from Non Functional (NF) through Functioning At Risk (FAR) to Proper Functioning Condition (PFC). Ratings of Functioning At Risk are further classified into downward trend (FARD), no apparent trend (FARN), or upward trend (FARU).

## Lotic Assessments

Riparian monitoring within the Gully Allotment indicates that riparian areas throughout the allotment have been on an improving trend for the last 30 years. Bear Creek, Shack Creek, Wilson Creek, and North Fork Salmon Falls Creek either flow through the allotment or border the allotment. Portions of the creeks may pass through blocks of land with private ownership within the allotment. The initial surveys sometimes contained information from private lands but later survey efforts concentrated solely on BLM lands. The private lands are not included in this assessment.

Monitoring information (PFC) for the riparian areas on these creeks dates back to the 1980's. Table 6 contains information from the most recent monitoring efforts for each section of stream on public property. Streams were re-visited on a somewhat regular 5-10 year interval to track changes in riparian conditions. Early data and photographs illustrate NF to FAR riparian conditions. The grazing management within the allotment has since been implemented in a manner that has allowed for the establishment of riparian vegetation and the restoration of functioning riparian conditions on most of the public portions of the streams. PFC data taken in 2003 on Shack Creek indicated FAR conditions at sites S3 and S6 but whatever issues existed were corrected and the two sites received PFC ratings in 2007.

Table 6: Streams, Miles and, Most Recent PFC Assessments				
Stream Name	Length of Stream Accessible from Allotment (miles)	Length of Stream Accessible from Allotment on Public (miles)	Most Recent PFC Assessment (year)	Most Recent PFC Ratings by Stream Reach
Bear Creek	4.18	1.65	2008	S2 dry, S3 PFC
Shack Creek	3.43	2.31	2007	All Public PFC
Wilson Creek	2.4	2.4	2006 (2007)	S4-S7 PFC (PFC) S4-S7 PFC (PFC)
North Fork Salmon Falls	3.99	1.5	2008	S14 PFC*

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## Stream Survey

Stream survey uses techniques described in BLM Manuals 6671 and 6720-1. These studies measure specific site characteristics which are then used to calculate values or Riparian Condition Indices (RCI). Results are reported as a percentage of optimum conditions. The indices provide a way to evaluate streambank stability and streambank cover in a simplified manner:

- Index scores >80% indicate excellent riparian condition.
- Scores between 60-80% indicate good riparian condition
- Scores between 40-60% indicate fair riparian condition.
- Scores < 40% indicates poor riparian condition.

Table 7: Bear Creek Summary				
Stream Survey Results				
Station	2008	1998	1994	1980
S-2	Dry	68%	49%	78%
S-3	96%	88%	75%	97%

Table 8: Wilson Creek Summary		
Stream Survey Results		
Station	2006	1980
S-4	78%	73%
S-5	86%	86%
S-6	88%	84%
S-7	84%	84%
Average	84%	82%

Table 9: Shack Creek Summary					
Stream Survey Results					
Station	2010*	2003+	1998	1989	1980
S-3	97%	58%	60%	45%	38%
S-4	100%	-	93%	88%	88%
S-5	100%	-	59%	63%	59%
S-6	58%	-	40%	38%	30%
S-A1	-	75%	70%	70%	67%
Average	88%	67%	64%	61%	56%

\*Limited data by Intermountain Range Consultants and Simplot Livestock Co. 6/19/10  
 +Limited data by BLM.

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10: North Fork Salmon Falls Creek Summary		
Stream Survey Results		
Station	2008	1980
S-12	-	63%
S-13	-	-
S-14	83%	95%

Wilson Creek and North Fork Salmon Falls Creek border a portion of the allotment on the west and east sides respectively. Both streams exist in a v-shaped or canyon type valley bottom with steep adjacent slopes which limit livestock use of these riparian areas. North Fork Salmon Falls Creek meanders up to and away from the Gulley allotment boundary further limiting the exposure to livestock use from the Gulley allotment. Although, there is a portion of North Fork Salmon Falls Creek outside the allotment boundary that is exposed to possible livestock use due to the lack of fencing in this area but again, the topography acts as somewhat of a barrier and the livestock use of the area is minimal. Currently all lotic water bodies are rated at PFC through the public land portions of the Gully allotment. Stream Survey data analysis indicates a stable to improving trend in lotic habitat conditions throughout the allotment.

### Lentic Assessments

BLM Wells Field Office conducts Lentic riparian assessments for riparian areas that are within and adjacent to springs, seeps, and ponded waterbodies on public land. In the Gulley Allotment, nine of these areas which consist of about 10 acres, were identified and assessed in 2003 and 2010. Additional lentic riparian area is associated with the reservoir on public land within the allotment, but this area was not assessed. Results are shown in table 11.

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Table 11: Gulley Allotment Lentic PFC Summary			
Lentic Area ID	Location (all T47N, R62E, MDB&M)	2003 PFC Rating	2010 PFC Rating
Gulley01	Section 29: NW1/4SE1/4	FARD	PFC
Gulley02	Section 29: SE1/4NW1/4	FARD	PFC
Gulley03	Section 27: NE1/4SW1/4	FARD	
Gulley04	Section 28: NW1/4NW1/4	FARD	FARU
Gulley05	Section 16: SW1/4SW1/4	FARD	PFC
Gulley06	Section 16: NE1/4SW1/4	FARD	FARN
Gulley07	Section 4: SE1/4NW1/4	FARD	PFC
Gulley08	Section 8: SE1/4NE1/4	FARD	FARN
Gulley09	Section 10: NE1/4NE1/4	FARD	PFC

Note: Lentic Area 03 -is influenced by water seeping underneath the dam impounding Gulley Reservoir and is not necessarily supported by a natural spring.

The assessments indicate that condition of riparian areas within the Gulley Allotment range from FARN to PFC and that the condition of many areas improved between 2003 and 2010. Field notes indicated that improved conditions in 2010 resulted from lack of grazing for 3 years following the Scott Creek fire in 2007. BLM field observations indicate functionality of these springs have declined since the fire closure ended, though no subsequent PFC assessments have been completed.

The condition of lentic riparian areas in the Gulley allotment appears to be heavily influenced by livestock grazing practices. Causal factors for functional at risk ratings include direct physical disturbance and impacts to site hydrology from livestock hoof action, impacts to vegetation composition as a result of livestock grazing, and anthropogenic impacts to site hydrology as a result of water diversion. Recent rest and management have improved conditions, but there is no guarantee that these changes will persist and allow for full functionality under current management. In addition, the unassessed area surrounding Gulley Reservoir is not managed as a riparian resource and would likely rate poorly if assessed.

### Water Quality Data

Water quality data collected in Shack Creek and Bear Creek along with lentic and lotic PFC assessments and stream survey are used to make the determination whether standard 2 is met with respect to achievement of state water quality criteria. Results of water quality sampling are compared with criteria set by the Environmental Protection Agency (EPA) for beneficial uses of water resources as determined by the Nevada Department of Environmental Protection (NDEP). Beneficial uses and associated numeric Criteria are specified in Nevada Administrative Code (NAC) 445A are designated for North Fork Salmon Falls Creek which is within the Gulley allotment, and also applies to its tributaries such as Bear Creek, Shack Creek which also flow within the allotment. Beneficial uses of these streams are identified as: recreation not involving contact with the water, recreation involving contact with the water, propagation of wildlife

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municipal or domestic supply; irrigation, industrial supply, aquatic life, and watering of livestock.

BLM data from Shack Creek and Bear Creek were submitted to NDEP and included in their Draft Nevada 2012 Integrated report which fulfills Nevada's reporting responsibility to EPA under the Clean Water Act. The report expresses that all beneficial uses are currently being fully supported by existing water quality. Although monitoring was not completed on North Fork Salmon Falls Creek or its other tributary within the allotment, these streams exhibit a similar condition to those sampled and are likely also fully supporting their beneficial uses.

Numeric criteria do not apply to springs and seeps in the allotment that are not tributary to North Fork Salmon Falls Creek. Instead, the State of Nevada has established narrative standards. These standards contained in NAC 445A.121 apply to all surface waters of the state and require waters to be "free from" various pollutants. The state of Nevada has not listed any waters within the allotment as being in violation of narrative standards. The BLM has not observed any attributes that would result in a violation of the narrative standard.

## Water Resources Inventory

BLM conducted water resource inventory in the Gulley Allotment in 1980, 1992, 2003, and 2010. These inventories included measurements of flow and simple water chemistry and observers also took photos and recorded observations at nine spring areas within the allotment. Flow is less than one gallon per minute for most springs, but changes based on yearly precipitation variability. Spring temperature and chemistry also indicate that most of the water coming from springs is from local groundwater influenced by short term precipitation trends. Photos and observations indicate that some riparian areas have experienced heavy livestock use in the past, and that similar impacts continue to occur within the allotment. Many spring sources have been developed to increase availability of water for livestock use.

## **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, heights, or age classes)
- Vegetation distribution (patchiness, corridors);
- Vegetation productivity; and
- Vegetation nutritional value.

### **Guidelines:**

3.1 Livestock grazing management will promote the conservation, restoration and maintenance

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- of habitat for threatened and endangered species, and other special status species as may be appropriate.
- 3.2 Livestock grazing intensity, frequency, season of use and distribution 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 Livestock grazing management should be planned and implemented to allow for integrated use by domestic livestock, wildlife, and wild horses and burros consistent with land use plan objectives.
  - 3.4 Where livestock grazing is 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 Livestock grazing management is adequate when significant progress is being made toward this Standard.

## **Draft Determination**

**Standard 3 is not being met, though significant progress towards achieving the standard is being made. Livestock grazing is in conformance with the guidelines.**

## **Rationale**

The primary wildlife habitat within the allotment is sagebrush-steppe. Often, patches of low sage occur within a larger matrix of basin and mountain big sagebrush, and vice versa. Additional habitats that occur in smaller proportions include lentic and lotic riparian, aspen patches, willow, subalpine woodland, mountain brush, and cliff substrates.

The effects of wildfire within and adjacent to the allotment over the previous three decades have been widespread and significant, affecting both composition and cover of vegetation communities. Thus, data collected at key areas that have recently burned have limited utility for evaluating the effects of current livestock management on habitat condition and trend.

Key Area 3221-01-01 has not recently burned, therefore it represents vegetation condition and trend under the current livestock management regime without the confounding effects of wildfire. Key Area 3221-01-02 burned in 1987 and 2007 and 3221-01-03 burned in 1981 and 2007. All three key areas are all located on sagebrush ecological sites.

### **Key Area 3221-01-01**

Based on plant species presence, this site is a 025XY027NV ecological site (basin big sagebrush-Idaho fescue). Line-intercept cover in 1987 was 47.7, 6.0, and 0.08%, for shrubs, grasses and forbs, respectively. Since that time, cover of both grasses and forbs increased substantially, while total shrub cover decreased (Appendix 10; Table 29, Figure 1). Generally, this trend was supported by other data. For example, the frequency of Idaho fescue increased from 1989-2005-2010, but the frequency of both antelope bitterbrush and sagebrush did not change significantly

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(Appendix 5; Table 23). In addition, production (by dry weight) data from 1984-2010 indicate a rapid change in vegetation composition, from a shrub-dominated to a grass-dominated vegetation community (Appendix 10; Figure 2). In 1984 dry weight composition was 7.4% grasses, 0.9% forbs and 91.6% shrubs; in 2010, dry weight composition had shifted to 66% grasses, 14% forbs, and 20% shrubs, indicating a positive trend in habitat conditions over the last 30 years (based on other data and professional observation, the magnitude of this trend is questionable, but the direction is believed to be accurate). Density board data also indicate that vertical cover, composed primarily of shrubs, decreased slightly from 1987-2013, from 53% to 46%. While direct comparison of vegetation composition data from production and cover methods is not appropriate, collectively, these data indicate a positive trend in vegetation composition toward that described in the Ecological Site Description: about 70% grasses, 10% forbs and 20% shrubs (by weight). Thus, multiple types of data recorded at this key area indicate that the vegetation community and the wildlife habitat it provides have improved over the past 30 years and are currently providing suitable feed, water, cover and living space for animal species.

The site is classified by the NDOW as elk, mule deer and pronghorn summer range and also is likely used by deer to a lesser extent during winter. Age class distribution of antelope bitterbrush in 2012 was 7% young, 83% mature, and 10% decadent. Summer habitat condition ratings for pronghorn increased in value but remained in the Fair category between 1990 (40) and 2013 (50; Appendix 12). Summer habitat condition ratings for deer remained in the Good category between 1990 (65) and 2013 (63; Appendix 12). Utilization on antelope bitterbrush on May 30, 2013 was slight (18.5%, Key Forage Plant Method), attributed entirely to wildlife. There was no use on the herbaceous vegetation component.

### Key Area 3221-01-02

This key area lies within a 025XY017NV (low sagebrush/Idaho fescue-bluebunch wheatgrass) ecological site, however, it was converted to a crested wheatgrass seeding in 1962. Seedings typically provide poor wildlife habitat (Reynolds and Trost 1980), but key native species do return over time and habitat quality increases concomitantly. This key area burned in 1987 and again in 2007. Expectedly, antelope bitterbrush (a weak re-sprouter following wildfire) cover decreased in frequency following each wildfire, then exhibited increases as recovery progressed; following the 1987 fire PUTR2 decreased from 42.5 to 7%. Frequency then increased to 21.5% by 2005, followed by another wildfire in 2007, resulting in a decrease to 11% frequency by 2010 (Appendix 5; Table 19).

Utilization on PUTR2 was 40% on Sep. 29, 2010 while age class distribution in 2013 was 6% young, 88% mature, 6% decadent (these were plants that survived in unburned islands during the 2007 wildfire). Antelope summer habitat ratings were Good in both 1988 (73) and 2013 (67). The mule deer summer habitat rating was Fair (51) in 2013, with no previous ratings available. No sagebrush was recorded during frequency and production monitoring in 2010, demonstrating a lack of an important vegetation component on this ecological site. Thus, this key area and the wildlife habitat do not provide suitable feed, cover and living space for many animal species due to historic seeding of non-native crested wheatgrass and two wildfires within the recent past.

### Key Area 3221-01-03

This key area is a 025XY024NV (low or black sagebrush/Idaho fescue-*Poa*) Mountain Ridge

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site. Black sage and low sage are generally found on the ridgetops and side-slopes, respectively, with Idaho fescue and other perennial grasses in the inter-spaces. In 1987, six years following the 1981 wildfire, sagebrush cover was 8.1% and bitterbrush was not recorded on the transect. In 2005, 24 years later, sagebrush and bitterbrush cover were 24.7% and 4.5%, respectively. Three years following the 2007 wildfire, sagebrush was not recorded on the transect, bitterbrush was 0.5% and green rabbitbrush was 2.2%. These data illustrate the negative effects of wildfire on shrub cover but also the potential for recovery of key shrub species. This key area and the wildlife habitat it represents are not meeting the Standard due to two wildfires within the recent past, however, they are progressing toward the Standard.

## Lentic riparian wildlife habitat

The value of riparian areas to wildlife cannot be overstated; in the western US, riparian areas comprise less than one percent of the land area yet are used by terrestrial wildlife more than any other habitat type (Thomas et al. 1979 in Rich 2002). Lentic riparian areas throughout the allotment were generally found to be heavily impacted as a result of livestock overutilization (Appendix 8). The result was decreased cover for wildlife while watering, degraded riparian condition for riparian obligates or associates, and other potentially deleterious effects on riparian wildlife habitat.

## **Special Status Species**

### *Greater Sage-Grouse*

As a sagebrush-obligate, landscape-scale species and current Candidate for listing under the Endangered Species Act, sage-grouse is often an appropriate “umbrella” species to represent the habitat needs of a suite of sagebrush-obligate and near-obligate species, including, but not limited to sage thrasher (*Oreoscoptes montanus*), pygmy rabbit (*Brachylagus idahoensis*), Brewer’s sparrow (*Spizella breweri*) (all BLM Sensitive Species), sagebrush sparrow (*Artemisiospiza nevadensis*) and sagebrush vole (*Lemmiscus curtatus*). It is assumed that managing for habitat characteristics that benefit the sage-grouse will also benefit other species that fall under the sage-grouse umbrella (Rowland et al. 2006).

The entire allotment is classified as Preliminary Priority Habitat. Preliminary Priority Habitat is comprised of areas that have been identified as having the highest conservation value for sustaining Greater Sage-Grouse populations. These include breeding, late brood-rearing and winter concentration areas (BLM Instruction Memorandum 2012-043). The allotment contains one active and one pending status lek, both located in the southern portion. Eleven (3 active, 4 inactive, 4 pending results of future surveys) additional leks are located within four miles of the allotment boundary, including one lek of unknown status in Idaho.

Utilization of key species at all key areas was slight to light in the fall over the past several years, compatible with ensuring adequate residual herbaceous cover is available to nesting hens the following spring. This included two years of complete rest in the allotment following the 2007 Scott Creek Fire. The livestock turnout date (July 1) has been advantageous to breeding and nesting grouse as hens have completed nesting by this time. Direct disturbance by livestock to lekking and nesting activity and occupied nesting habitat has therefore been absent.

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At key area 3221-01-01, canopy cover of sagebrush in 2013 was 17.8% (with 35% total shrub cover, including sagebrush, bitterbrush [11.4%], and rabbitbrush [5.8%]) with an adequate herbaceous understory (20.6% grass cover, 6.3% forb cover) for sage-grouse nesting and brood-rearing (Connelly et al. 2000; Table 12). Recent work by Coates et al. (2010) indicated that nesting hens in northern Nevada may benefit from sagebrush cover between 20-30% or total shrub cover exceeding 40% in areas where common raven (*Corvus corax*) numbers are artificially high, such as in much of northern Nevada. Coates et al. (2010) also suggested that when total shrub cover is sparse, herbaceous cover becomes increasingly important. The mean height of grasses (23 cm) exceeded the minimum (18 cm) recommended by Connelly et al. (2000), while mean height of sagebrush (94 cm) slightly exceeded the recommended range (40-80 cm). In addition, there was no cheatgrass or other undesirable invasive, annual species present at the site. These metrics indicate that the site represents excellent nesting/brood-rearing habitat for sage-grouse. The site also meets guidelines for sage-grouse winter habitat, which include sagebrush canopy cover of 10-30% and average height of at least 25-35 cm regardless of snow depth (Connelly et al. 2000).

Table 12. Characteristics of sagebrush habitats needed for productive sage-grouse habitat, from Connelly et al. (2000).

	Breeding		Brood-rearing		Winter <sup>e</sup>	
	Height(cm)	Canopy(%)	Height(cm)	Canopy(%)	Height(cm)	Canopy(%)
Mesic sites <sup>a</sup>						
Sagebrush	40–80	15–25	40–80	10–25	25–35	10–30
Grass–forb	>18 <sup>c</sup>	≥25 <sup>d</sup>	variable	>15	N/A	N/A
Arid sites <sup>a</sup>						
Sagebrush	30–80	15–25	40–80	10–25	25–35	10–30
Grass/forb	>18 <sup>c</sup>	≥15	variable	>15	N/A	N/A
Area <sup>b</sup>	>80		>40		>80	

<sup>a</sup> Mesic and arid sites should be defined on a local basis; annual precipitation, herbaceous understory, and soils should be considered (Tisdale and Hironaka 1981, Hironaka et al. 1983).

<sup>b</sup> Percentage of seasonal habitat needed with indicated conditions.

<sup>c</sup> Measured as “droop height”; the highest naturally growing portion of the plant.

<sup>d</sup> Coverage should exceed 15% for perennial grasses and 10% for forbs; values should be substantially greater if most sagebrush has a growth form that provides little lateral cover (Schroeder 1995)

<sup>e</sup> Values for height and canopy coverage are for shrubs exposed above snow.<sup>1</sup>

Despite the suitable sage-grouse habitat characteristics found at key area 3221-01-01 and the sagebrush habitat it represents, 61% of the allotment (including the other two key areas) has burned since 1981, including 34% of the allotment in 2007 and much of it at least twice. Connelly et al. (2000) recommended at least 80% of the landscape should contain suitable habitat conditions for breeding. Thus, habitat conditions are lacking for sage-grouse and other sagebrush-dependent species throughout a large portion of the allotment, particularly the mature

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sagebrush component. In addition, lentic riparian areas were found to be in degraded condition and do not provide suitable habitat for riparian-associated species or other wildlife that may use riparian areas. Therefore, the Standard is not currently being met, but significant progress is being made, at least within the terrestrial habitats.

### *Columbia spotted frog*

Columbia spotted frogs (*Rana luteiventris*) are a Candidate species for listing under the ESA. The frogs were identified in Shack Creek in 2002 (NDOW database).

Spotted frogs live in spring seeps, meadows, marshes, ponds and streams, and other areas where there is abundant vegetation. They often migrate along riparian corridors between habitats used for spring breeding, summer foraging and winter hibernation. The largest known threat to spotted frogs is habitat alteration and loss, specifically loss of wetlands used for feeding, breeding, hibernating, and migrating. Reduction or loss of habitat can be attributed at least in part to recent drought conditions, spring developments, wetland degradation, water diversions, road construction, dam construction, fire, and loss of native beavers (USFWS 2014).

### *Redband trout*

Redband trout are present in Shack Creek and Bear Creek.

Degradation and fragmentation of habitat, and the introduction of non-native species are primary factors that influenced the status and distribution of redband trout. Redband trout evolved in a variety of habitats from montane forests to high desert stream environments that are characterized by unpredictable and intermittent flows, high summer water temperatures, high alkalinity, drought, and fire. As a result, redband trout have historically been subject to naturally high levels of population fluctuation, and evolved traits that allow them to survive in conditions inhospitable to other types of trout.

Like other species of trout, redband trout abundance has been strongly correlated with riparian cover components, including undercut banks, large woody debris, and overhanging vegetation. Good redband trout habitat is associated with higher gradient channels, often in riffles or with substrates dominated by boulders, cobbles, and pocket water. Redband trout also occupy lower gradient streams. Pools, which provide important holding and rearing habitat, resting places, over-wintering areas, and refuges from floods, drought, and extreme temperatures for juvenile and adult salmonids, should be available, and requirements for spawning include loose gravelly substrates to provide for oxygenation of eggs and embryos in redds in streams(USFWS 2012).

### *California floater*

California floater could be present in the perennial streams, but the elevation may be too high and they have not been observed. There is very limited knowledge of the habitat requirements and distribution of the California floater.

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## **Standard 4. Cultural Resources**

**Land use plans will recognize cultural resources within the context of multiple-use.**

### **Guidelines:**

4.1 Rangeland management plans will consider listings of known sites that are National Historic Register eligible or considered to be of cultural significance and new eligible sites as they become known.

**This standard is being met, and livestock grazing is in conformance with the standards.**

Based on the evaluation of existing information pertaining to range improvements and grazing, cultural resources are being recognized within the context of multiple use management in the Gulley Allotment.

## **Standard 5. Healthy Wild Horse and Burro Populations**

This standard is not applicable on the Gulley Allotment.

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## **PART 2. ARE LIVESTOCK A CONTRIBUTING FACTOR TO NOT MEETING THE STANDARDS?**

### Summary Review

Livestock grazing has not been identified as a factor for not meeting any of the standards; however, continuation of current livestock grazing management is likely to contribute to non-attainment of the standards for lentic riparian areas in the short term.

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## **PART 3. GUIDELINE CONFORMANCE REVIEW AND SUMMARY**

Livestock grazing has been determined to be within the guidelines for all standards. However, continuation of current livestock grazing management is likely to cause non-conformance with the guidelines as they pertain to lentic riparian areas in the short term.

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## **PART 4. MANAGEMENT PRACTICES TO CONFORM TO GUIDELINES AND ACHIEVE STANDARDS**

### Management Recommendations:

1. Maintain current permitted use of 1,633 AUMs. Though the calculated carrying capacities conclude more forage is available, the BLM is not recommending an increase at this time. Any increase in forage would likely serve to intensify livestock use around riparian areas and would not likely increase use in the upland areas. Adopting the current conservative use would also ensure residual forage remains for wildlife utilization and cover.

2a: Future grazing management with range improvements.

- Continue current season of use (7/1-10/15)
- Construct the following range improvements: (1) Replace existing temporary electric fence around Shack Creek with a barbed wire fence; (2) Construct exclosures around springs 01, 02, 04, 05, 06, 08, and 09. None of these springs would be developed, and existing reservoirs below springs would remain as watering sources for livestock and wildlife.

2b: Future grazing management without range improvements.

- Season of use would be changed to 5/1-6/30 and 9/1-10/15.
- Existing electric fence around Shack Creek would be removed.

3. Permittee would be expected to continue existing riding and herding efforts.

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US Fish and Wildlife Service. *Species Profile, Columbia spotted frog*. Web. 10 April 2014

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## **List of Maps**

MAP 1: Location, showing placement of allotment within Elko County.

MAP 2: Detail, showing locations of fences, streams, springs, and other features

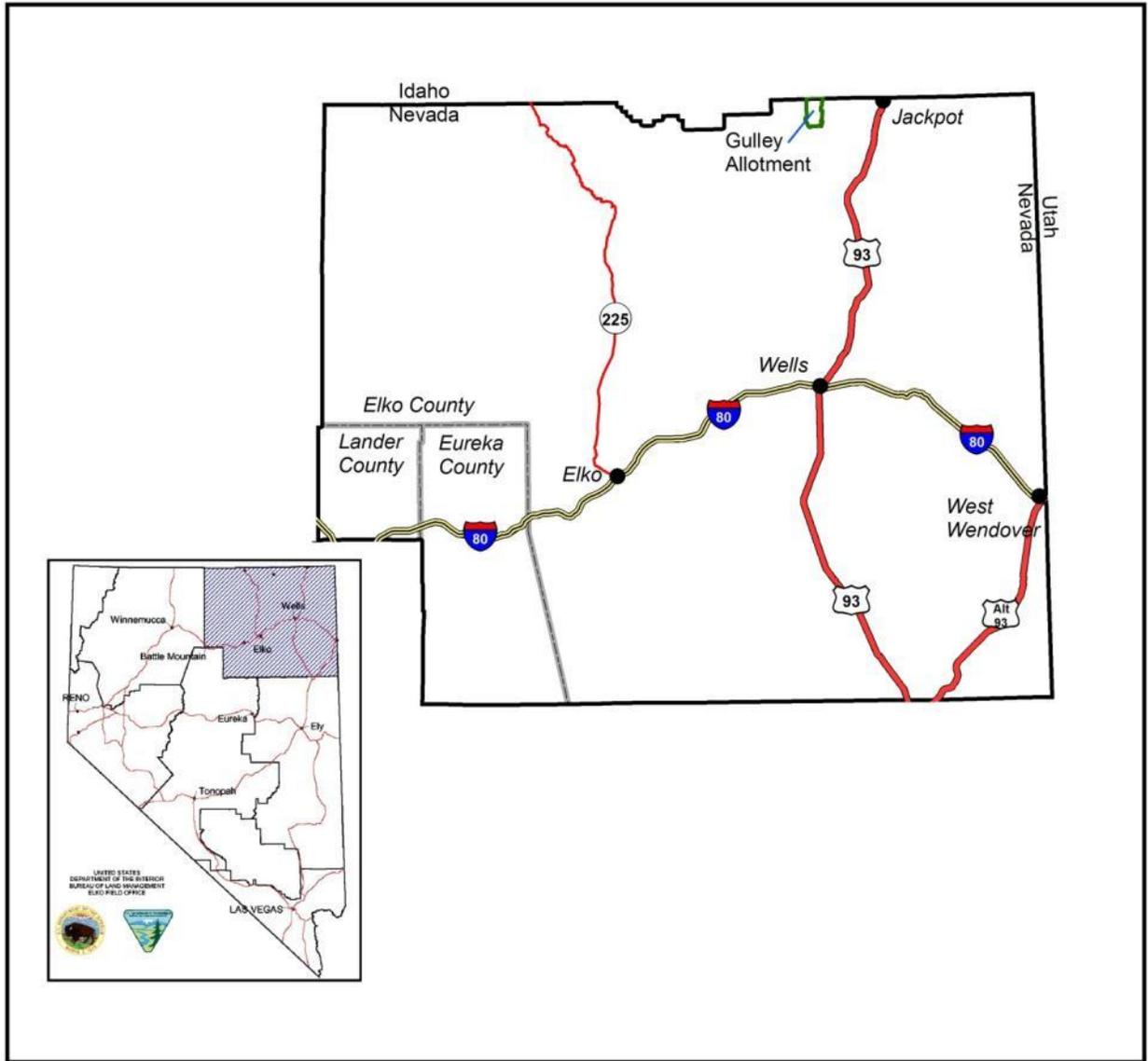
MAP 3: Vegetation, showing vegetation communities

MAP 4: Fire History

MAP 5: Monitoring Locations

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Map 1  
Gulley Allotment  
General Location Map



0 5 10 20 30 40 Miles

1:2,000,000



**Legend**

**Major Roads**

- Interstate Route
- U.S. Route
- State Route
- Grazing Allotments
- State Boundary
- District Boundary
- County Boundary

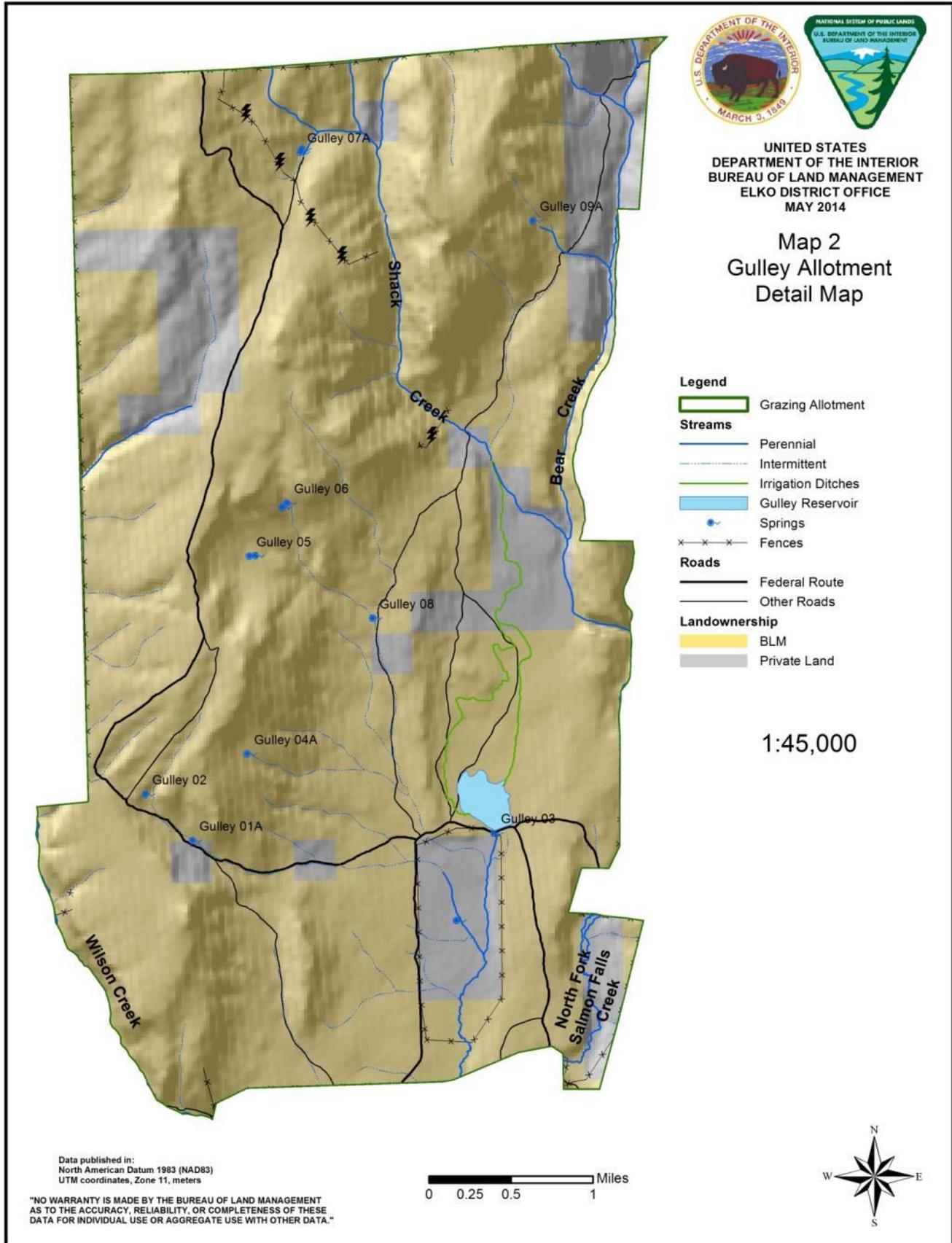
Data published in:  
North American Datum 1983 (NAD83)  
UTM coordinates, Zone 11, meters

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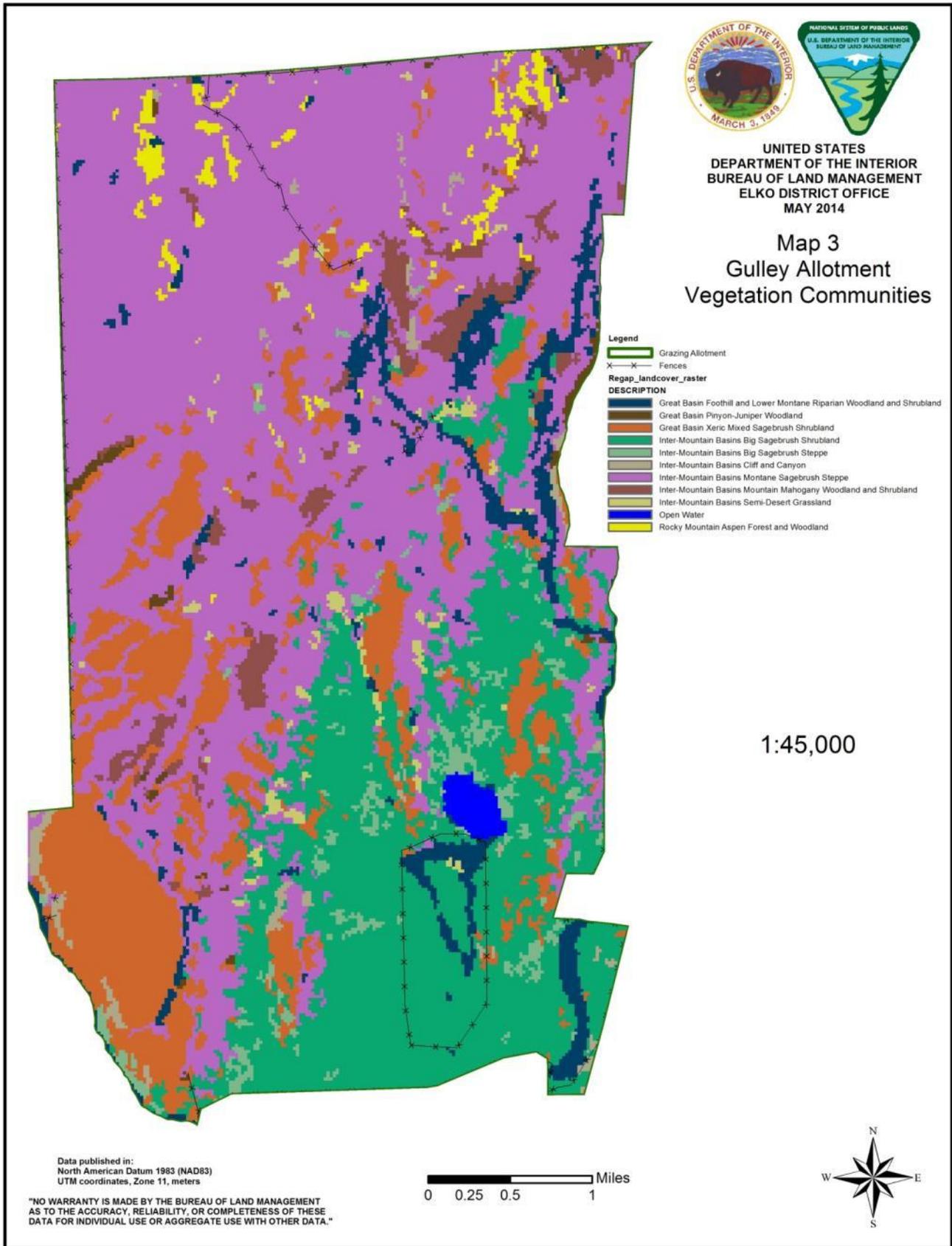


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DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT  
ELKO DISTRICT OFFICE  
MAY 2014

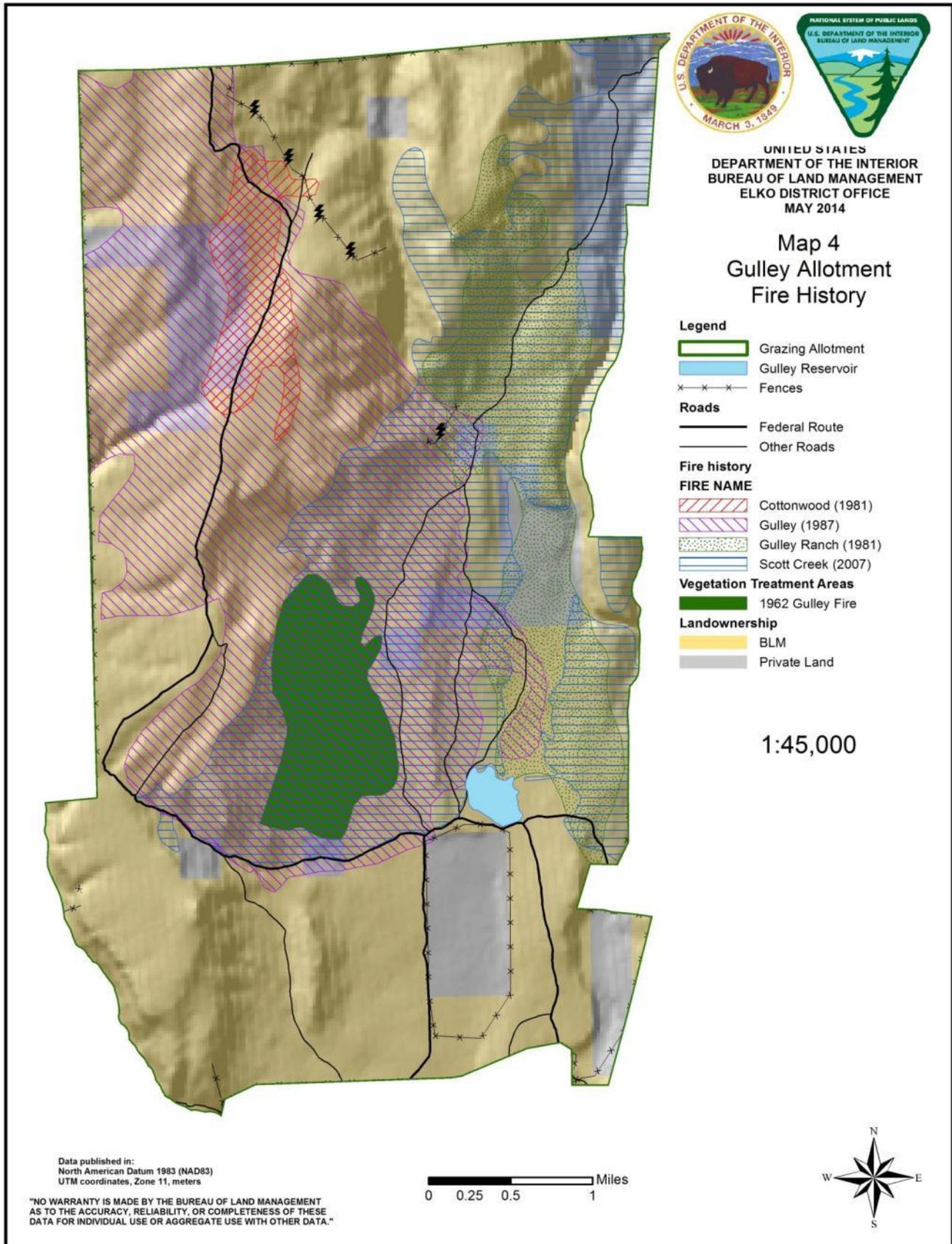
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