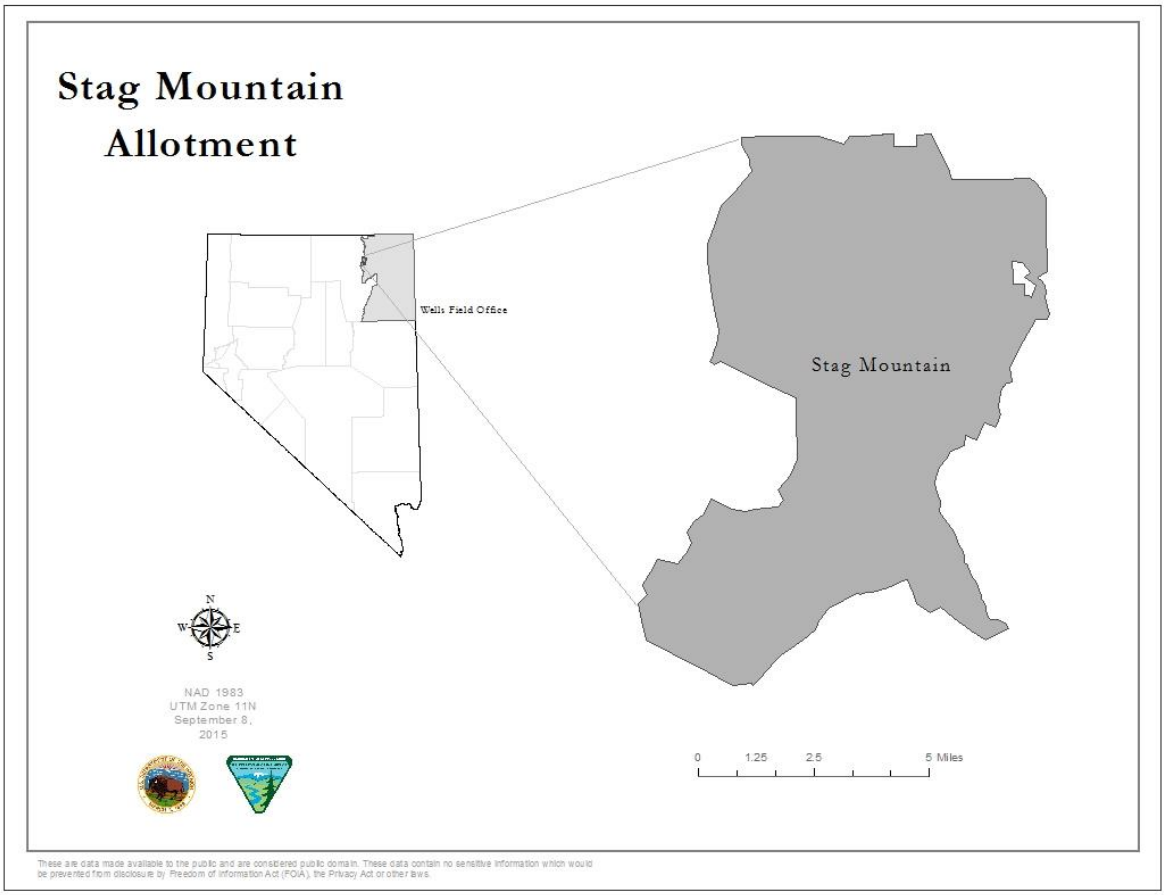
U.S. Department of the Interior
Bureau of Land Management

Draft Standards Determination Document

Stag Mountain Allotment

September 2015



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It is the mission of the Bureau of Land Management to sustain the health, diversity, and productivity of the public lands for the use and enjoyment of present and future generations.

1 STAG MOUNTAIN ALLOTMENT STANDARDS DETERMINATION

1.1 INTRODUCTION

The Stag Mountain Allotment is located in north-central Elko County, Nevada, about 45 miles northeast of Elko, Nevada and 30 miles northwest of Wells, Nevada. The map above displays the general location of this allotment. The northern and eastern parts of the allotment are within the Bruneau River watershed that drains north into Idaho while the southern and western parts of the allotment are in the North Fork of the Humboldt River watershed that drains to the south. Topography varies from the more mountainous terrain of Stag Mountain in the central to southern parts of the allotment, and mountainous terrain along the northwest edge of the allotment associated with Lookout Mountain and the East Fork of Beaver Creek, to rolling hills on the north and western/southwestern parts of the allotment. Elevations of the allotment range from 8,204 feet on top of Stag Mountain, and 6,846 feet on top of Lookout Mountain, down to about 6,200 feet in the rolling hill country on the north and about 5,600 feet in the rolling hill country in the southwest part of the allotment. There are two large pastures and three small pastures in the allotment. The large pastures are named Stone Flat and McIntyre, and the small pastures are named the Horse Pasture, Wendy's Exclosure, and Chevelier Exclosure. See Map 1 in Appendix A for pasture locations. Water is available along the East Fork of Beaver Creek on the western edge of the allotment, and from spring flows emerging at various locations around Stag Mountain, and in the rolling hill country to the north. Additional details regarding water locations are provided in the evaluations of Upland and Wetland Sites.

Vegetation in the Stag Mountain Allotment is primarily sagebrush steppe dominated by big sagebrush and low sagebrush communities. In 2006, the Charleston Fire burned most of the allotment which killed the sagebrush; however, sagebrush has been reestablishing across the allotment although it is still at relatively low levels. Rabbitbrush is also a common component in the sagebrush communities and has become more prominent since the loss of sagebrush in the fire. Patches of bitterbrush and snowberry are also scattered around the mountainous areas. There are aspen patches in the upper elevations of Stag Mountain, some of which are associated with snow pockets and others with springs and meadows, with some stringers of aspen running along drainages to the lower elevations on the eastern part of the mountain. Willows are common along the East Fork of Beaver Creek and at some spring locations on Stag Mountain.

Two wildland fires have occurred within the Stag Mountain Allotment in the past 15 years and are shown on Map 2 in Appendix A. In 2001, the Stag Fire burned a relatively narrow area along the eastern edge of the allotment. In 2006, the Charleston Fire burned most of the allotment. Certain parts of the burn areas were reseeded and temporarily closed to livestock use.

A summary of the public and private land acres in the allotment is shown in Table 1 below. The livestock grazing privileges are shown in Table 2 below.

Table 1. Public and private acres.			
Allotment Name	**Public Acres**	**Private**	**Total**
Stag Mountain	40,141		

Table 2. Summary of animal unit months (AUMs), season of use, and kind of livestock.					
Allotment Name	**Kind of Livestock**	**Grazing Preference (AUMs)**	**Season of Use**	**Percent Public Land**	
Stag Mountain	Cattle	7,760	4/1 – 10/31	100	
	Sheep	513 + 151[1]	5/1 – 9/30	100	

[1] The 151 AUMs for sheep use are AUMs that were associated with what had once been private lands in the allotment owned by the sheep operator. Through the Indian Creek Land Exchange, the private lands (Heguy parcels) owned by the sheep operator became public lands. The AUMs that had been connected to the private lands were not converted to active grazing privileges through the land exchange but were labeled "temporary non-renewable" (TNR) AUMs. Any conversion of the TNR AUMs to active grazing privileges would be determined through allotment evaluations, and any decreases or increases in active use would be based on historic use. Historic use was defined as a combination of AUMs currently recognized as active use on their public land grazing permit (513 sheep AUMs for the Stag Mountain Allotment) and the AUMs (151 sheep AUMs) that had been assigned to the offered lands (Heguy parcels).

1.2 GRAZING HISTORY

Cattle and sheep have traditionally grazed in this allotment during the spring, summer, and fall. The cattle and sheep operations also commonly graze in the adjoining Devils Gate Allotment on the south. In addition, the cattle operation grazes in the Morgan Hill Allotment south of the Devils Gate Allotment, and the sheep operation has some grazing use in the Pole Creek Allotment to the southeast, within the North Fork Group Allotment to the west, as well as use in the Jarbidge Mountains to the north, as explained below. At times, the cattle operation was part of a larger operation running in the adjoining Deeth and Pole Creek Allotments to the east which is part of the Marys River watershed.

In 1991, through the Marys River Land Exchange, the Chevelier Exclosure that had been a private land pasture became part of the public lands. In the mid-1990s, through the Indian Creek Land Exchange, private lands owned by the sheep operator also became part of the public lands.

Historically, the sheep operation would trail from the Ely, Nevada area, where they grazed in the winter, to the Stag Mountain country for their spring and summer use, and then trail back to the winter country. During their summer use, most of the bands of sheep would be trailed to grazing allotments on the Jarbidge Mountains administered by the Forest Service, with lesser numbers of sheep remaining in the Stag Mountain and Devils Gate Allotments. After the Indian Creek Land

Exchange, the sheep operation changed hands. At that time, the trailing of sheep to the Ely area ended, with the sheep being trucked to California.

2 DRAFT DETERMINATIONS

2.1 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 sites 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.

2.1.1 Draft Determination

Evaluation of upland sites in the Stag Mountain Allotment indicates that this standard is being met. For the vast majority of upland acres, livestock use appears to be in conformance with the guidelines.

The levels of livestock use on most of the area during the evaluation period were compatible with meeting the standard. Restoration actions following the 2001 and 2006 fires also improved certain areas associated with historic and ongoing livestock concentration areas (areas near water and primary trailing routes) that might otherwise not have met the standard.

2.1.2 Rationale

Since 1987, a variety of data on the uplands have been collected and other observations made within the allotment. These data and observations were evaluated to determine if the Upland Site Standard is being met or if significant progress is being made towards the standard, and if livestock use is in conformance with the guidelines.

The following information was used to conduct the evaluation:

1) The 1984 Elko County Soil Survey (Central Part-NV767), along with 2012, 2013, and 2014 descriptions of the upper soil layers at certain monitoring sites,

2) Ecological site descriptions of the various kinds of potential native vegetation communities applicable to the area, and associated reference sheets.

3) Data on vegetative production and ecological conditions collected between 1987 and 2014 as well as frequency trend data collected between 1987 and 1999,

4) Data on vegetative cover between 1990 and 2014,

5) The levels of utilization on key forage plants, and actual livestock use (cattle and sheep) for various years between 1987 and 2014,

6) Use pattern observations from 1991, 1992, 1993, 1995, and 1996.

7) Data on plant densities from 2004 related to fire rehabilitation activities from the 2001 Stag Fire,

8) Data on plant densities in 2009 and 2012 related to the 2006 Charleston Fire,

9) Observations in 2009, 2012, 2013, and 2014 related to soil stability and hydrologic function,

10) Photographs taken at the key area monitoring sites between 1987 and 2014, and other photographs related to fire rehabilitation activities and newer land health assessment monitoring sites,

11) Annual precipitation data between 1985 through 2014, and

12) The knowledge gained through the professional education and experiences of our resource specialists including reviews of literature on the subject and consultation with other specialists.

The detailed evaluation of information relating to the draft determinations for the Upland Site Standard can be found in Appendix C.

2.2 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.

2.2.1 Draft Determination

Standard 2 is not being met for the Stag Mountain Allotment because most non-exclosure lentic (stationary) riparian areas are either non-functional or functioning at risk and do not appear to be progressing. Causal factors include: historic and current livestock use, impacts from site water diversions, fences, roads, lack of substantial riparian vegetation, fire effects, wildlife, and drought**.** State water quality criteria are met for seeps and springs. Livestock grazing management under the current grazing permit does not ensure protection of at risk lentic riparian areas nor does it reduce the need to use these riparian areas as livestock water sources.

Progress is being made toward achieving this standard for lotic (flowing) riparian areas within the Stag Mountain Allotment. Although most lotic riparian areas are functioning at risk and state water quality criteria are not met for streams due to high stream temperatures that do not support all aquatic life, voluntary changes in hot season grazing are starting to result in an upward trend. While these improvements are encouraging, the current grazing permit does not ensure that voluntary management changes will continue nor does it reduce the need to use these riparian areas as livestock water sources; therefore, Guidelines are not met.

2.2.2 Rationale

Water resources on public land in the Stag Mountain Allotment include perennial streams, springs, seeps, small ponds, and numerous ephemeral streams. The perennial water resources have been determined to be capable of supporting riparian areas. The BLM collected water quality data in the East Fork of Beaver Creek and in Cabin Creek. The system is failing to meet State water quality standards due to high water temperatures. Water temperatures outside the "normal" range for a stream can cause stress and/or harm to aquatic organisms. The absence of substantial shade can result in higher water temperatures. Historic livestock grazing, fire, drought and the lack of other livestock and wildlife water sources has removed critical riparian vegetation and slowed the recovery of these areas.

These determinations are also supported by other data such as stream survey and water resources inventory to evaluate riparian condition. Stream surveys, Proper Functioning Condition (PFC) Assessments, and stream temperature monitoring data all suggest that there are elevated stream temperatures in the Stag Mountain Allotment, and that these temperatures are elevated (at least partially) due to impacts of livestock grazing. Riparian areas are usually grazed more heavily than the adjacent uplands (Platts and Nelson 1985). Improper grazing can reduce vigor and alter, reduce, or eliminate streamside vegetation (Knoph and Cannon 1982).

The riparian condition index is 53% of optimal indicating that streams are not shaded and do not have the morphology that is needed to reduce stream temperature (see Section 2.2.2.2, Stream Survey). This is supported by PFC assessments detailed below, which indicates that riparian functionality is at risk or not present. A functioning riparian area facilitates lower stream temperature (Dickard 2015).

2.2.2.1 Proper Functioning Condition Assessments

PFC is a qualitative assessment of riparian areas based on quantitative science. The methodology evaluates the functionality of riparian areas based on hydrologic, vegetative, and soils/erosional factors, within the context of the geologic setting and the potential of the area Prichard et al. 1998).

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

2.2.2.1.1 <u>Lentic Assessments</u>

PFC assessments were completed at most of the lentic riparian areas (springs, seeps, and ponded water bodies) within the Stag Mountain Allotment. Areas were identified using topographic maps, water resource inventory records and aerial photography. These riparian areas exist on a variety of landscapes and elevations including steep hill slopes, deep canyons, and broad valleys. As part of the assessment process an effort was made to record the acres of area assessed. While

these measurements are only approximations, they do provide some insight into the amount of area that each assessment represents and the relative functionality of riparian area by acres assessed. More detailed information regarding types and characteristics of water resources in the allotment is presented in Section 2.2.2.4 (Water Resources Inventory).

The BLM assessed 64 lentic riparian areas in the Stag Mountain Allotment between 2004 and 2013. The first assessments occurred in 2004 when 28 areas were visited by a BLM interdisciplinary team and functional ratings were assigned. In 2012 and 2013, 50 assessments were completed by the BLM, a BLM contractor, and through an assistance agreement with the Great Basin Institute. A BLM interdisciplinary team reviewed and approved all assessment results. After reassessment and regrouping of assessments, data was collected at 64 riparian areas in the allotment. Basic mapping indicates that assessment areas range from 700 square feet to three acres in size. The total assessed area is 26.8 acres and average area per assessment is 0.4 acres. The summary of results in Tables 3 and 4 below reflects the most recent assessment data. More detailed results including tables, photos, and examples can be found in Appendix L.

PFC assessments indicate that the condition of lentic riparian areas covers the full range of functionality from non-functional (NF) to proper functioning condition (PFC). Out of the 64 areas assessed, 19 (30%) were rated as PFC, three (5%) were rated as FARU, nine (14%) were rated as FARNA, 27 (42%) were rated as FARD, and six (9%) were rated as NF. When considered by acres of area assessed, the data show that of the 26.8 total riparian acres assessed, 26% are PFC, 1% are FARU, 27% are FARNA, 43% are FARD, and 3% are NF.

Table 3: Stag Mountain Lentic PFC Results by Number of Areas Assessed

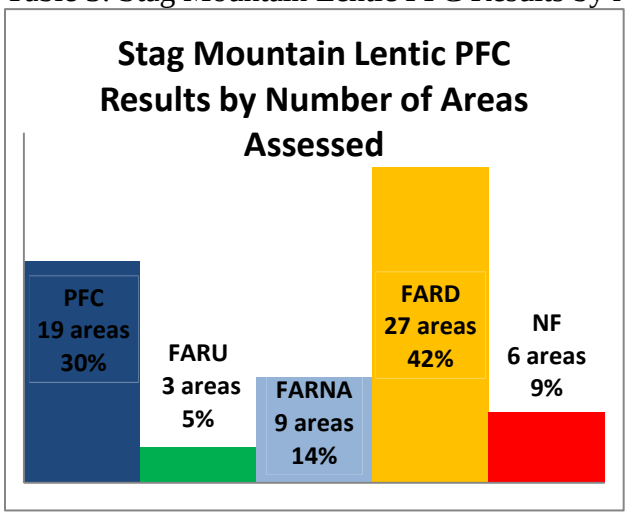
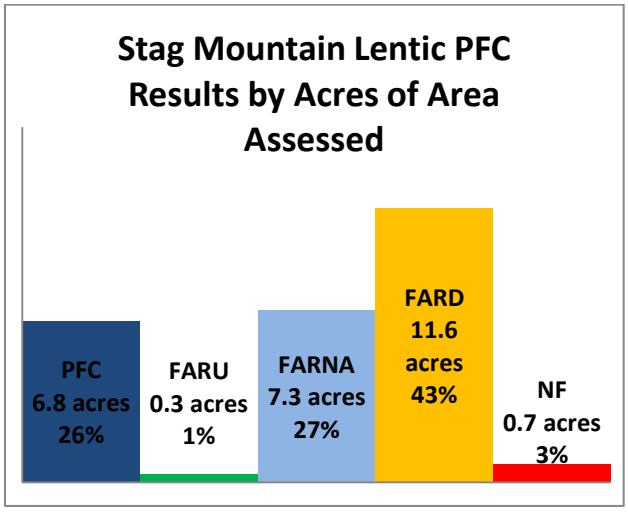


Table 4: Stag Mountain Lentic PFC Results by Acres of Area Assessed



As part of the assessment process the team identified factors that were causing reduced riparian functionality and/or risk of future loss of functionality on functional at risk (FAR) and nonfunctional (NF) riparian areas. There were several of these causal factors in the Stag Mountain Allotment including livestock grazing, drought, roads, limited site capability, historic livestock use, and site development such as fences and water diversions.

A common causal factor for sites rated as FAR or NF was livestock use. Observers noted that hoof action resulted in alteration of surface flow patterns by causing channelization, head-cuts, pedestals, and hummocks, which ultimately resulted in lowered water tables and shrinkage of riparian areas at many sites.

Several sites rated as FAR or NF also had causal factors beyond BLM's control, such as drought and limited capability. The assessment team was unsure whether these sites were capable of higher functionality, or if these sites were not achieving higher functionality due to lack of water or poor upland vegetation production, which would intensify impacts on existing riparian areas. The years of 2004, 2012, and 2013 were all years of considerable drought. The BLM did revise many of the 2012/2013 ratings to reflect drought conditions and limited capability, but it is likely that there are still some areas rated as FARD and FARNA that would have been rated higher if the assessment had been done during normal (non – drought) conditions.

Impacts from site water diversions, fences, roads, and historic livestock use are identified as at least one of the causal factors for ratings at six (13%) of the 45 sites rated as FAR or NF. Water diversions remove a portion of water that would otherwise be available for utilization by riparian vegetation which may affect site stability. Trails, hoof action, and other surface disturbance caused by improperly located or engineered fences and roads alters surface and sub-surface flow patterns and reduces riparian area size and stability. Historic livestock use is identified as a causal factor in areas which may have had higher intensity grazing in the past than they do currently. These areas typically have scars from historic grazing but show signs of recent improvement.

Some of the assessments done in the 2012/2013 timeframe were reassessments of areas assessed in 2004. Of the 12 reassessments, only three were given a different functionality rating and three had the trend changed. Rating and/or trend was better at some sites and poorer at other sites suggesting that no overall changes in impacts to riparian areas occurred within the allotment between 2004 and 2013.

2.2.2.1.2 Lotic Assessments

East Fork Beaver Creek and Cabin Creek flow through the Stag Mountain Allotment. Cabin Creek is a tributary to East Fork Beaver Creek (EFBC). EFBC is a tributary to North Fork Humboldt River. Cottonwood and Indian Creek start in the Stag Mountain Allotment then flow into the North Fork Humboldt River in Devil's Gate Allotment. Both southern drainages are intermittent in their lower reaches.

PFC assessment data for the lotic riparian areas (creeks, streams) within the Stag Mountain Allotment dates back to the 1980's. Table 5 contains information from the most recent monitoring efforts for each section of stream on public property. Streams were re-visited on a 5-10 year interval to track changes in riparian conditions.

Table 5: Streams, Miles and, Most Recent PFC Assessments

Stream Name	Length of stream within allotment (miles)	Length of stream within allotment on public land (miles)	Most Recent PFC assessment (year)	Most recent PFC ratings by stream reach
East Fork Beaver Creek	6.3	5.6	2015 2009 2008 2007	FARU S-15 FARU S-12, S-14, S-16 FAR S7, S13 FARU S5
Cabin Creek	5.2	5.2	2008 2008 No data	FARU S3 – S5, PFC S6 S7
Cottonwood Creek	0.9	0.9	No PFC data	No Stations
Horse Creek	1.1	1.11	No PFC data	No Stations

PFC assessments for streams in this allotment do not identify any major shifts in functioning condition for the allotment as a whole between 1978 and 2009, but there are some stations that show improvement. Out of the 10 station assessed, 1 (10%) is PFC, eight (80%) are FARU, and 1 (10%) is FAR. Factors for not achieving a functioning standard include: Historical and present livestock use, lack of other livestock water sources, wildlife use, fire, and drought. Due to many of these factors the EFBC has severely down cut and a gully and new floodplain has been formed. Channel entrenchment and inadequate riparian cover have contributed to portions of the EFBC not fully meeting objectives.

2.2.2.2 Stream Survey

Stream survey inventory data have been collected and recorded on streams with the Stag Mountain Allotment from 1978 to 2010. Stream habitat surveys have been completed on all of the perennial streams within the allotment and include width/depth ratio, bank cover, bank stability, and pool/riffle ratio measurements.

Stream survey techniques are described in BLM Manuals 6671 and 6720-1. These techniques measure specific site characteristics such as vegetative characteristics and stability through root systems. These are used to calculate Riparian Condition Class (RCC), reported as a percentage of optimum conditions. The indices provide a way to evaluate stream bank stability and stream bank 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 6: East Fork Beaver Creek Stream Survey Results

Station	**1978**	**1985**	**1988**	**1996**	**2007**	**2008**	**2009**
Stag Mountain Allotment-McIntyre Pasture							
S-5	48%	25%	41%	54%	56%	No data	No data
S-7	84%	58%	69%	89%	No data	59%	No data
Stag Mountain Allotment-Stone Flat Pasture							
S-12	55%	38%	55%	34%	No data	25%	36%
S-13	88%	63%	79%	91%	No data	80%	No data
S-14	44%	30%	55%	58%	No data	44%	63%
S-15	59%	35%	58%	70%	No data	46%	68%
S-16	42%	25%	33%	34%	No data	36%	48%
Average	**58% good**	**38% fair**	**58% fair**	**68% good**	**-**	**48% fair**	**53% good**

This portion of East Fork Beaver Creek (EFBC) has been the subject of a variety of monitoring and assessment methodologies. Stream habitat surveys completed on the stream seven times between 1978 and 2009, recorded stream bank stability and cover and measured channel width and depth.

There are five stream habitat survey stations within EFBC which are labeled S-12 to S-16 in the Stone Flat Pasture. The most marked example of improvement occurred at S-14 which showed an improvement of width/depth ratio from 12.1 to 6.4, an increase in RCC from 44% of optimum to 63% of optimum. The most marked example of degradation occurred at S-12 where the channel deeply incised. The stream survey indicates a drop in RCC from 55% to 36% of optimum.

Water quality data collected on the downstream margin of EFBC indicate that water quality is generally good, except that maximum daily water temperatures are in exceedance of water quality criteria for a cold water fishery. Temperatures are likely elevated due to the presence of a deeply entrenched channel, low vegetative cover, and high width/depth ratios that exist within the reach. The channel characteristics are recorded in the stream survey and PFC assessments.

Table 7: Cabin Creek Stream Survey Results

Station	1980	1986	1999	2008
S3	44%	33%	35%	65%
S4	55%	48%	51%	62%
S5	39%	36%	36%	No data
S6	50%	38%	43%	66%
S7	No data	No data	No data	No data
Average	**47% fair**	**39 % poor**	**41% fair**	**64% good**

There are five stream habitat survey stations within Cabin Creek which are labeled S-3 to S-7. Improvement occurred at S-3 which showed a decrease of width/depth ratio from 0.28 to 0.14, and increase RCC from 44% of optimum to 65% of optimum. There was not a marked example of degradation; this stream is moving in an upward trend. All of the proper functioning condition assessments conducted between 1996 and 2008 resulted in properly functioning condition or functioning at risk with upward ratings.

Cottonwood Creek and Horse Creek

No stream survey data or PFC assessment has been completed on Cottonwood Creek and Horse Creek. These streams are intermittent only have water flows occasionally and characteristically have a dry streambed.

2.2.2.3 Water Quality Data

Water quality data are used in conjunction with PFC assessments and stream survey to make the determination whether Standard 2 is met with respect to achievement of state water quality criteria. According to Nevada Department of Environmental Protection (NDEP)'s 2012 Integrated report all but one of the beneficial uses are currently being fully supported by existing water quality. Aquatic life is not supported due to high stream temperatures. The EFBC and Cabin Creek were included in Nevada's 2012 list of impaired waters (303(d)) list as a result of

these high water temperatures. All other springs and seeps that are not tributary to the North Fork Humboldt River within the Stag Mountain Allotment are meeting the Nevada State criteria for water quality.

Stream temperatures in the allotment are influenced by a variety of natural factors such as variations in stream flow, air temperature, solar radiation, fire, drought, and anthropogenic livestock use. The impact of weather and hydrologic variability is noticeable in the stream temperature record with high flow years typically showing lower temperatures and higher temperatures observed during hot periods and periods of cloud free days. During drought lower stream flows impact stream temperatures. The degrees to which these natural variations affect stream temperature is dependent on stream vegetation and channel characteristics which buffer and insulate stream water from external environmental influence (Poole and Berman, 2001). 2006 fires reduced riparian vegetation and many willows are still in the young stages of development. In the Stag Mountain Allotment the main anthropogenic influence to stream characteristics is historic and current livestock grazing during the hot season. Livestock directly alter riparian vegetation by trampling, rubbing, and grazing on herbaceous plants and browsing on willows during the hot season (July and August). Browsing on willows can alter the size, shape, spacing, especially the numbers of woody vegetation.

Exceedance of the water quality criterion for temperature is a sign that stream temperatures may be elevated as a result of external impacts, however; some streams have naturally higher temperatures and in some cases the temperature standard may not be appropriate. Temperature standards were established in the 1970s and no documentation has been found to justify these values (NDEP 2010 (hanks tmdl)). Even under good or excellent conditions the BLM and NDEP have found this standard difficult to attain. NDEP has written a total maximum daily load (TMDL) document on nearby Hanks Creek which uses vegetative cover as a surrogate for stream temperature to help determine whether the water quality standard is met. Similarly, the BLM uses riparian cover and bank stability data as described in section 2.2.2.2 along with measured stream temperature values in this document to determine whether Standard 2 is met and whether livestock grazing is in conformance with the guidelines.

Temperature monitoring indicates that streams are well above the stream temperature water quality standard. The standard is exceeded when the daily maximum stream temperature is over 20° C for more than 36 days in a year. The streams sampled had an average of more than 87 days in exceedance of this standard per year over the six year monitoring period. The standard would have even been exceeded if it was 24° C rather than 20° C. The guidelines are not met because impacts from livestock are cited as causal factors for poor riparian condition class, poor functionality, and mentioned frequently in water quality monitoring notes.

2.2.2.4 Water Resources Inventory

The BLM conducted inventory of water resources in the Stag Mountain Allotment between 1980 and 2014 to locate water resources such as springs/seeps (springs), ponds and streams, and quantify and describe their characteristics. These inventories included measurements of flow and simple water chemistry and observers also took photos and recorded observations.

Water resources in the allotment vary in size, shape, configuration and hydrology. This section focuses on springs and ponds, and a discussion of streams can be found in sections 2.2.1.2 and 2.2.2.3. Some springs and ponds are perennial and can support obligate riparian vegetation and others are intermittent and cannot. Some water resources are grouped together in two or more sources and are referred to as complexes. There are 28 perennial springs, four perennial spring complexes, 28 intermittent springs, two intermittent spring complexes, one perennial pond, one perennial pond complex and nine intermittent ponds within the allotment. Details regarding these resources can be found in Appendix L. Spring flows vary from zero to 12 gallons per minute (gpm) and average about one gallon per minute for perennial springs. Water chemistry and variability of flow at these sources suggest that they are local springs meaning that the source of their water is from infiltration of precipitation on nearby uplands (USGS 2001). 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. A few spring sources have been developed to increase availability of water for livestock use. Detailed assessments of these spring sources and associated riparian areas are presented in section 2.2.2.1.1.

2.3 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, and age class);
- Vegetation distribution (patchiness, corridors);
- Vegetation productivity; and
- Vegetation nutritional value.

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

2.3.1 Draft Determination

This standard is partially being met.

2.3.2 Rationale

2.3.2.1 Special Status Species

BLM Special Status Species are: (1) species listed or proposed for listing under the Endangered Species Act (ESA), and (2) species requiring special management consideration to promote their conservation and reduce the likelihood and need for future listing under the ESA, which are designated as Bureau Sensitive by the State Director. Additionally, all Federal candidate, proposed, and delisted species in the five years following delisting are designated as Bureau Sensitive Species (BLM 2008). Elko District BLM Special Status Species, including those known or with the potential to occur within the allotment are presented in Appendix Q.

2.3.2.1.1 Aquatic Special Status Species

The effect of historic livestock use on aquatic habitat are the alteration of streambanks, reduction of shade, decrease in cover, and subsequent changes in stream temperatures in this allotment and through most of the watershed. As section 2.2.2.3 details the high stream temperatures of East Fork Beaver Creek (EFBC) does not support aquatic life at this time and stop fish migrations. EFBC cross three other allotments with private in holdings in which some sections are in better or same condition as it is in Stag Mountain. The recent volunteered reduction of hot season use has shown a small beneficial improvement to streambanks by establishment of riparian vegetation that it stabilized point bars and holding sediment in place. The potential for a mature willow meadow complex is in earliest stages of development and will need flexibility to find the right grazing treatment to further encouragement riparian restoration. Riparian habitat will need more time to further develop to encourage establishment of aquatic special status species in this allotment and throughout the watershed.

Lahontan Cutthroat Trout

The East Fork Beaver Creek (EFBC) is identified as high priority streams in the 1987 Elko Resource Management Plan (RMP). EFBC is historic occupied habitat. EFBC has been identified as a potential reintroduction site for Lahontan cutthroat trout (Oncorhynchus clarki henshawi) (LCT), a federally listed threatened species, in the 1995 LCT Recovery Plan prepared by the U.S. Fish and Wildlife. LCT is now confined to headwater reaches more than 20 to 30 miles from the project area. Grazing systems have been applied to a significant portion of the EFBC drainage resulting in improvement in stream and riparian habitat conditions, although some reaches (especially in Stag Mountain Allotment) are in poor condition. Portions of the River just above the project area have been identified as potential LCT habitat (NDOW 2005). EFBC supports Lahontan speckled dace, reside shiners, and suckers. The EFBC supports populations of Lahontan speckled dace (Rhinichthys osculus robustus) and redside shiners (Richardsonius balteatus).

California Floater

The state of Nevada lists this California floater (Anodonta californiensis) species as critically imperiled and especially vulnerable to extinction and has no federal status at this time. The species is likely to be found in the allotment. The floater is a freshwater mussel that lives in shallow areas of lakes, ponds, and rivers. They burrow into substrates and feed on bacteria, plankton, and detritus, strained through the gills. The life cycle includes a parasitic stage requiring a host fish, usually native minnows. Although little is known about habitat requirements for floaters, in general, declines in freshwater mussels are thought to be associated with habitat degradation including loss of fish host, above average water temperatures, and declines in water quality. In water quality data (section 2.2.2.3), EFBC is failing due to high stream temperatures that do not support Aquatic life.

A live California floater was documented in the North Fork Humboldt River just above the confluence of Beaver Creek (a location immediately downstream from the allotment) in September of 2004 (BLM files). Floater shells, some with intact hinges (suggesting recent viability), were recorded in 1997 in portions of NFHR farther upstream (BLM files).

2.3.2.1.2 Terrestrial Special Status Species

Greater Sage-Grouse

As a sagebrush-obligate, landscape-scale species and current Candidate for listing under the Endangered Species Act, Greater Sage-Grouse (sage-grouse) is an appropriate "umbrella" species to represent the habitat needs of sagebrush-obligate and sagebrush-associated species, including, but not limited to Sage Thrasher, Brewer's Sparrow, pygmy rabbit (all BLM Sensitive Species), Sagebrush Sparrow and sagebrush vole. It is presumed 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, Hanser and Knick 2011).

The United States Geological Survey (USGS) recently developed a habitat classification model for greater sage-grouse based in part on telemetry location data collected throughout Nevada and northeastern California from 1998 to 2013 (Coates *et al*. 2014). This model generated spatially explicit maps describing relative habitat suitability indices (HSI) for sage-grouse across the area. The authors then combined probabilistic breeding density with a non-linear probability of occurrence relative to distance to nearest lek using count data to calculate a composite space use index (SUI). The SUI was then classified into two categories of use (high and low-to-no use) and intersected with the HSI categories to prioritize habitat across the range of greater sage-grouse within Nevada and northeastern California. Habitats were prioritized and categorized as follows (BLM Instruction Memorandum NV-2015-017):

1) Preliminary Priority Habitat (PPH): Defined as the intersection between all suitable habitat (high, moderate, and low) and the 85% Space Use Index (SUI). This habitat management class is intended to incorporate all suitable habitats that have relatively high certainty of current sage-grouse occupancy (i.e., the "best of the best").

2) Preliminary General Habitat (PGH): Defined as all high quality falling outside the 85% SUI and all non-habitat falling within the 85% SUI. This was a two-part process. High quality habitat falling outside the 85% SUI was erased by the 85% SUI, and non-habitat was clipped by the SUI. This habitat management class encompasses: (1) high-quality habitats based on environmental covariates with a lower potential for occupancy given the current distribution of sage-grouse; and (2) sage-grouse incursion into areas of low quality habitat that is potentially important for local populations (for example, corridors of non-habitat connecting higher quality habitat).

3) Mapped Habitat: Defined as moderate and low quality habitat falling outside the 85% SUI. This class represents areas with appropriate environmental conditions for sage-grouse, but that are less frequently used.

4) Non-habitat. Defined as non-suitable habitat that is present within the low to no-use SUI. This scenario represents habitat of marginal value to sage-grouse populations.

The Stag Mountain Allotment is comprised of 99.9% PPH and <0.1% PGH, emphasizing its importance for sage-grouse. The allotment contains two active leks and one lek of pending status (NDOW 2014 lek database), all of which burned in the 2006 Charleston Fire.

Monitoring data were collected within the allotment from 2012 to 2014, using protocol similar to that of Stiver *et al*. (2015) for assessing seasonal sage-grouse habitat quality. All monitoring sites were located within PPH. All sites except SM-04 burned in the 2006 Charleston Fire, indicating these sites are in an early successional stage and that metrics indicative of high quality sage-grouse habitat may be deficient.

Breeding habitat (pre-laying, nesting, early brood-rearing) indicators are as follows: (1) sagebrush canopy cover, (2) woody height (all shrubs), (3) sagebrush growth form for nesting, (4) herbaceous height, (5) perennial grass canopy cover, (6) cheatgrass cover, (7) forb canopy cover, and (8) preferred food forb diversity. Table 6 includes the average rating for each breeding habitat indicator throughout the allotment.

Table 8. Breeding habitat ratings for Greater Sage-Grouse breeding habitat, Stag Mountain Allotment, 2012-2014.

Breeding Habitat Indicators	Suitable	Marginal	Unsuitable	Not applicable/not available
Average Sagebrush Canopy Cover (%) (Suitable=15-25%, Marginal=5 to <15% or >25%, Unsuitable= <5%)	*4,6		1,2,3,5	
Woody Height (cm) – Arid Site (Suitable=30 to 80, Marginal=20 to <30 or >80, Unsuitable= <20)	4	5,6	1,2,3	
Sagebrush Growth Form (Suitable=Spreading, Marginal=mix of Spreading and Columnar, Unsuitable=Columnar)		6	3	1 and 2 (due to recent fire), 4 and 5 (couldn't locate photos)
Average Herbaceous Height (cm) (Suitable= ≥18, Marginal= 10-18, Unsuitable= <10)	1,2,3,5,6	4		
Average Perennial Grass Canopy Cover (%) – Arid Site (Suitable= ≥10, Marginal= 5 to <10, Unsuitable= <5)	1,2,3,4,5,6			
Average Perennial Forb Canopy Cover (%) – Arid Site (Suitable= ≥5, Marginal= 3 to <5, Unsuitable= <3)	1,3	5,6	2,4	
Average cheatgrass cover (%) (Suitable=≤5%, Unsuitable= >5%)	1,3,4,5,6		2	
Preferred Forb Availability (total species) (Suitable= preferred forbs are common with several species present, Marginal= preferred forbs are common but only a few species present, Unsuitable= Preferred forbs are rare)			1,2,3,4,5,6	

*1=SM-01, 2=SM-02, 3=SM-03, 4=SM-04, 5=SM-05, 6= SM-06

Non-native annual grass presence in nesting habitat exerts a negative impact on nesting success (Blomberg *et al*. 2012). It provides neither a cover nor a food component for sage-grouse. It is also a vector for increasing fire occurrence and the loss of quality nesting habitat. In south-central Wyoming, Kirol *et al*. (2012) found that selection of microhabitat for nests was negatively correlated with cheatgrass, and Lockyer *et al*. (*in press*), in a similar study in Nevada, reported that adult females selected for perennial grasses while avoiding annual grasses at nest sites. In east-central Nevada, Blomberg *et al*. (2012) documented declining sage-grouse populations in areas impacted by cheatgrass. Johnson *et al*. (2011) reported similar pronounced negative effects on sage-grouse populations in areas with relatively small amounts of sagebrush conversion to exotic species. The Nevada Greater Sage-Grouse Conservation Plan (State of Nevada Sagebrush Ecosystem Program 2014) provides an objective of less than 5% annual grass cover within nesting habitat. There was no cheatgrass cover recorded at five of six monitoring sites within breeding habitat in the allotment. One site, SM-02, was found to contain 10.7% canopy cover of cheatgrass, indicating that nesting hens may avoid this area for nesting.

The quality and extent of late brood-rearing habitats have also been suggested as factors limiting sage-grouse chick survival and subsequent recruitment and population growth rates (Aldridge and Brigham 2001, Connelly *et al*. 2004, Crawford *et al*. 2004, Gregg 2006, Atamian *et al*. 2010). Late brood-rearing habitat indicators (upland) are as follows: (1) sagebrush canopy cover, (2) woody height (all shrubs), (3) perennial grass and forb canopy cover, and (4) preferred food forb diversity. Table 9 includes the rating for each of these indicators at each monitoring site.

Table 9. Late brood-rearing habitat ratings for Greater Sage-Grouse, Stag Mountain Allotment.

Late Brood-Rearing Habitat Indicators (uplands)	Suitable	Marginal	Unsuitable
Average Sagebrush Canopy Cover (%) (Suitable= 10-25, Marginal= 5 to <10 or >25, Unsuitable= <5)	*4,6		1,2,3,5
Woody Height (cm) (Suitable= 40-80, Marginal= 20 to <40 or >80, Unsuitable= <20)	4	5,6	1,2,3
Average Perennial Grass and Forb Canopy Cover (%) (Suitable= ≥15, Marginal= 5 to <15, Unsuitable= <5)	1,2,3,4,5	6	
Preferred Forb Availability (total species) (Suitable= preferred forbs are common with several species present, Marginal= preferred forbs are common but only a few species present, Unsuitable= Preferred forbs are rare)			1,2,3,4,5,6

*1=SM-01, 2=SM-02, 3=SM-03, 4=SM-04, 5=SM-05, 6= SM-06

Sagebrush is essential for sage-grouse as both food and cover during winter. Sage-grouse forage exclusively on the leaves of sagebrush during winter; therefore these plants must be accessible above the snow to permit utilization (Connelly *et al*. 2000). Thus, winter habitat indicators are as follows: (1) sagebrush canopy cover, and (2) sagebrush height. According to data available from the Western Regional Climate Center (2015) snow depths at the nearest monitoring station, located at the Gibbs Ranch approximately 10 miles east-northeast and at a similar elevation to the Stag Mountain Allotment, peak in the month of January. Snow depth was recorded from 1952 to 2013 and yielded an average peak depth (seven day running average) of almost three inches (~8 cm). This data was used to determine winter habitat suitability based on sagebrush

height above snowpack. Table 10 includes the rating for each winter habitat indicator throughout the allotment.

Table 10. Habitat ratings for Greater Sage-Grouse winter habitat, Stag Mountain Allotment.

Winter Habitat Indicators	Suitable	Marginal	Unsuitable
Sagebrush Canopy Cover (%) (Suitable= ≥10, Marginal= 5 to <10, Unsuitable= <5)	*4,6		1,2,3,5
Sagebrush Height (cm) (Suitable= >25, Marginal= >10 to <25, Unsuitable ≤ 10)	4,6	5	1,2,3

*1=SM-01, 2=SM-02, 3=SM-03, 4=SM-04, 5=SM-05, 6= SM-06

Given the recent fire history throughout most of the allotment, the vegetation communities are in an early seral stage, dominated primarily by perennial grasses and lacking a mature sagebrush shrub component. Some patches of intact sagebrush remained following the fire, and these are useful to sage-grouse as the surrounding habitat recovers, providing both useable habitat and a seed source for natural sagebrush recruitment. The distribution of habitat indicator metrics into different suitability categories reflected the effects of this recent wildfire. For example, sagebrush canopy cover, a critical component of every seasonal sage-grouse habitat, was found to be unsuitable at nearly every site that had recently burned. In addition, every monitoring site was also lacking in preferred food forbs for sage-grouse, a condition likely indicative of a paucity of these forbs even prior to the recent wildfire.

Other selected Special Status Species

Preble's shrew

Likely habitat associations for Preble's shrew (*Sorex preblei*) collected in northeastern Nevada were described as "ephemeral and perennial streams dominated by shrubs, primarily below 2,500 m [8,202 feet] in elevation" (Ports and George 1990). At Sheep Creek, approximately 23 kilometers [14 miles] west of the allotment, Ports and George (1990) collected 12 specimens "in a seasonally wet, sagebrush-dominated community." Little else is known about the ecology and distribution of Preble's shrew in Nevada or its specific habitat needs, although its' diet is likely similar to that of other shrews (insects and other small invertebrates; NatureServe 2015). Given the brief description of habitat associations of Preble's shrews in northeastern Nevada, it is reasonable to expect that the species could occur within the allotment.

Loggerhead Shrike

Loggerhead Shrike inhabits desert scrub, sagebrush rangelands, grasslands and meadows (Wildlife Action Plan Team 2012). Shrikes often perch on poles, wires, or fence posts; appropriate hunting perches are an important part of suitable habitat. Arthropods, amphibians, small to medium-sized reptiles, small mammals and birds are primary prey (Reuven 1996). Potential nest sites within the allotment include shrubs, with nest height averaging 0.8-1.3 meters (2.6-4.3 feet) off the ground (Wiggins 2005). The allotment serves as year-round habitat for the species and likely hosts resident breeding pairs as well as wintering individuals that breed further north. Shrike populations are dependent upon a sufficiently abundant and diverse prey base.

Raptors

There are a few documented historic nest sites scattered throughout the allotment, although none were identified to species (NDOW GIS Raptor Database 2015). Raptors that may use habitat within the allotment during at least some portion of the year include Golden Eagle*, Bald Eagle*, Peregrine Falcon*, Prairie Falcon, American Kestrel, Swainson's Hawk*, Ferruginous Hawk*, Rough-legged Hawk, Red-tailed Hawk, Sharp-shinned Hawk, Cooper's Hawk, Northern Goshawk*, Short-eared Owl, Burrowing Owl*, Great Horned Owl, Barn Owl, Northern Harrier and Turkey Vulture (*BLM Sensitive Species). While not all of these species use the allotment for breeding, most of them may pass through the allotment or use portions of the allotment as foraging habitat during annual migration, or as winter habitat.

As apex predators, raptors are dependent upon a sufficiently abundant and diverse prey base to sustain their populations. Raptor prey includes small mammals (rabbits, rodents), birds, reptiles, amphibians and invertebrates. Many small mammals are vegetarians, feeding on seeds or herbaceous material, and therefore require a healthy component of grasses and forbs. The 2006 wildfire resulted in an increase in distribution and abundance of grasses, potentially resulting in a concomitant increase in the potential of the allotment to sustain raptor prey populations, and thus raptor populations.

Big Game

Data collected at monitoring sites were analyzed for mule deer (*Odocoileus hemionus*) and pronghorn (*Antilocapra americana*) habitat quality using the WILDIVE program (Big Game Studies Manual 6630), which calculates a vegetative diversity index based on percent composition and preference for species present at the site. This information was used along with other factors such as water distribution, vegetative production, percent foliar cover, vertical obstruction cover, disturbance or interference factors and browse condition to estimate habitat condition ratings (BLM Big Game Manual 6630).

<u>Pronghorn</u>

The allotment is designated by the NDOW primarily (97%) as summer range with a smaller proportion (3%) of non-habitat (Appendix A, Map 4). However, several pronghorn and abundant sign of regular use were observed in the non-habitat area in March, 2015 (C. Collins, Elko BLM, personal observation), indicating that the entirety of the allotment is actually used by pronghorn. As previously described, most of the allotment burned in 2006, thus the majority of the shrub component has been dramatically reduced, resulting in a grass-dominated, early seral stage vegetation community. Habitat evaluation ratings are presented in Table 11 for key areas SM-01 and SM-02. No production data was available for the remainder of the monitoring sites, thus a habitat evaluation was not completed for those sites.

Table 11. Pronghorn habitat evaluation ratings* (BLM Big Game Manual 6630).

Key Area	**1991**	**1999**	**2003**	**2014**
SM-01	78	--	67	76
SM-02	--	65	--	73

*Good (61-105), Fair (31-60), Poor (5-30).

Pronghorn habitat ratings were ‘good’, with both monitoring sites improving within the category since the previous ratings.

Mule deer

The allotment is classified as 100% summer range by the NDOW. Although all of the monitoring sites fall within designated summer range, many of these are lower elevation Wyoming sagebrush ecological sites that do not contain (even prior to the 2006 wildfire) high preference browse species important to mule deer during summer, such as bitterbrush. Correspondingly, these sites do not have the potential to rate favorably as mule deer summer habitat and were therefore not evaluated. Key area SM-02 was located at a higher elevation on the edge of the bitterbrush/snowberry zone, plants more favored as browse within a habitat type appropriate for evaluating summer habitat. Key area SM-03 was also located in an ecological site that has the potential to support bitterbrush although it was fairly low in elevation and not ideal for deer summer habitat. The site was established following the 2006 wildfire to monitor the progress of Emergency Stabilization and Rehabilitation efforts. Habitat ratings for these two sites are presented in Table 12.

Table 12. Mule deer habitat evaluation ratings* (BLM Big Game Manual 6630).

Site designation	1990	2003	2012	2014
SM-02	61	61	--	56
SM-03	--	--	46	--

*Excellent (81-100), Good (61-80), Fair (51-60), Poor (10-50). See Appendix P for detailed habitat ratings.

At SM-02, the deer habitat rating dropped from a low ‘good’ rating into the high ‘fair’ category due to an unsatisfactory age class rating of snowberry resulting from the 2006 wildfire. Key area SM-03 is likely marginal at best as potential summer deer habitat due to its lower elevation and relative paucity of preferred forage species. Given the extensive recent wildfire occurrence and the inherent limited capability of the allotment as deer summer habitat in general, the allotment is providing suitable habitat for mule deer.

Elk

The allotment is comprised of 37% crucial winter habitat with the remainder being summer habitat. The Bureau has no formal rating system for elk habitat, but key factors of high quality winter elk habitat include security and thermal cover (often in the form of pinyon and juniper trees in Elko County), and a robust grass component for both winter and summer use. The 2006 wildfire generally resulted in an increase in the abundance, extent and vigor of perennial grasses throughout the allotment, thus benefitting elk during both winter and summer through increased foraging opportunities relative to pre-burn conditions. Elk habitat throughout the allotment is therefore considered suitable.

Migratory Birds

Several species of migratory birds may use habitat within the allotment during all or some portion of their annual life cycle. The Nevada Comprehensive Bird Conservation Plan (GBBO

2010) details Priority and Indicator bird species for specific habitat types within Nevada. Habitat types found within Stag Mountain Allotment include Sagebrush, Cliffs, Springs, Montane Shrubland and Montane Riparian. Priority and Indicator bird species likely to be found in these habitats in the allotment are detailed in Appendix Q.

Because most of the allotment recently burned, some migratory bird species likely benefitted from temporary conversion of shrub-steppe to grasslands (e.g., Vesper Sparrow) while others have likely been negatively impacted (e.g., Brewer's Sparrow). These effects are expected to moderate as post-fire vegetation succession progresses. For the many species (over 60% of neotropical migrant bird species; Rich 2002) that utilize riparian habitats, the finding that the majority of both lentic and lotic areas were not properly functioning indicates that these critical habitats are not meeting the needs of many migratory bird species. Such sites are particularly crucial to migratory birds as breeding habitat and as stopover sites during spring and fall migration (Rich 2002).

Conclusion

In summary, the Habitat Standard was met for some groups or species of wildlife and not for others. In particular, lentic riparian habitats were found to provide substandard habitat for migratory birds, sage-grouse and other wildlife due in part to current livestock grazing practices. Much of the upland sagebrush-steppe habitat has recently burned, resulting in vegetation communities in an early seral stage throughout the majority of the allotment. This condition does not provide for a mosaic of vegetation age and structure classes, which is the desired condition that provides for the greatest diversity of wildlife habitats and populations. In addition, species that depend upon a mature shrub component during all or a portion of their life cycle do not have suitable habitat throughout much of the allotment due to recent widespread wildfire.

2.4 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 Register of Historic Places (NRHP) eligible or considered to be of cultural significance and new eligible sites as they become known.

4.2 Wild horse and burro herd management will be designed to avoid or mitigate damage to significant cultural resources.

2.4.1 Draft determinations

After reviewing all information, it is determined that these standards for rangeland health are being met and livestock grazing management is considered to be in conformance with the guidelines. As there are no wild horses or burros in the allotment, there are no management issues relating to NRHP eligible sites or significant cultural resources.

2.4.2 Rationale

In order to comply with the National Historic Preservation Act (NHPA) of 1966, as amended, the BLM in consultation with the Nevada State Historic Preservation Office (SHPO) must consider the effects on historic properties for all federal undertakings requiring permits, including grazing permit renewals. In implementing aspects of the NHPA, the BLM and SHPO have agreed to follow specific standards and guidelines as delineated in the State Protocol (Protocol).
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 Stag Mountain Allotment.

Existing data show that nine cultural resource inventories have been conducted within the Stag Mountain Allotment. The past inventories covered a total of 7,574 acres (about two percent of the allotment). The inventories produced a total of 61 cultural resource sites, predominately prehistoric lithic scatters, and historic-era refuse dumps. Of the 61 sites, seven sites have been determined eligible for inclusion in the NRHP, and thus are considered historic properties.

A couple of historic roads were identified in the General Land Office Survey Plats. One road labeled “Stage Road/Road to Deeth” is shown trending through the southern portion of T.42N, R.58E and the northern portion of T.41N, R.58E of the allotment from the 1897 survey plat. Another route identified as the “Road from Halleck to Mardis” is shown along the western portion of T.41N, R.57E of the allotment. Historic-era debris may be located along these routes through the allotment.

Many of the documented cultural resource sites were located near water during proposed range improvement surveys, and are being protected from livestock impacts by spring and aspen exclosure fences, and other fence lines. The one large block inventory in the allotment was conducted in an area with few major water sources (perennial streams and major springs). As such, potential impacts to historic properties from livestock grazing would likely be minimal to moderate as livestock would be more evenly distributed in areas without attractants. A review of some historic property site forms indicates they were not being impacted by livestock grazing at the time of their recording.

In an effort to gain additional information regarding how cultural resources are, or are not being impacted by livestock grazing, a targeted archaeological inventory of about 20 high-potential areas for cultural resources and livestock use will be conducted in the allotment in the near future.

Based on the above factors and conditions, and considering that (1) there are currently no known historic properties within the allotment being negatively impacted by general livestock grazing, and that (2) potential adverse effects to cultural resources encountered in the future will be avoided, minimized, or mitigated prior to ground-disturbing activities in accordance with the Protocol, the BLM has determined that the standard is currently being met.

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