APPENDIX F – STANDARDS DETERMINATION DOCUMENTS

DETERMINATION
for
Achieving Standards for Rangeland Health
and
Conforming with Guidelines for Livestock Grazing Management

Field Office: Stillwater, Carson City District Office: 5665 Morgan Mill Road, Carson City, NV 89701

Grazing Allotment: Clan Alpine (#3009)

List of Reviewers:

Linda Appel	Rangeland Management Specialist
John Wilson	Wildlife Biologist
Chris Kula	Wildlife Biologist
Matt Spaulding	Supervisory Natural Resources Specialist
Teresa J Knutson	Stillwater Field Manager

Dates of Assessment: Rangeland Health Assessments: July and Sept 2010
Photo Trend Plots: 1969-2015
Frequency Transects: 1973-2015
Riparian Functionality: July and Sept 2010; Aug 2011; Sept and Oct 2015

Rangeland Health and Riparian Assessment Participants (Name and Discipline or Interest):

Linda Appel	Rangeland Management Specialist
Ken Vicencio	Range Tech
Jim de Laureal	Soil Scientist/Noxious Weed Coordinator
Michelle Stropky	Soil Scientist/Hydrologist
John Wilson	Wildlife Biologist
John Axtell	Wild Horse & Burro Specialist
Gabe Venegas	Hydrologist
Rita Suminski	Wildlife Biologist
Chris Kula	Wildlife Biologist

Standard 1 (Soils) Check those that apply: [One or more must be checked]

___ Standard does not apply

___x_ Meeting Standard

___ Not Meeting Standard, but Making Significant Progress towards

___ Not Meeting Standard, but cause still being determined

___ Not Meeting Standard, Livestock Grazing Practices are Significant Factors

___ Not Meeting Standard, Livestock Grazing Practices are **not** significant factors

Rationale:
The Nevada Resource Advisory Council (RAC) Standards and Guidelines for Rangeland Health for the Sierra Front-Northwestern Great Basin Area states for Standard 1 "Soil processes will be appropriate to soil types, climate and land form". Standards refer to the goal to be achieved and indicators assist in determining whether standards are met or guidelines are followed. Indicators for Standard 1 include surface litter, soil crusting and compaction, hydrologic and nutrient cycles, diversity of the plant communities, and basal and canopy cover.

The soil resources of the sites assessed in the Clan Alpine grazing allotment meet the indicators outlined in the Sierra Front-Northwestern Standards and Guidelines document. The soil processes were generally appropriate to the soil types, climate and landforms. Throughout the grazing allotment there has been little evidence of soil movement such as rills, gullies, pedestalling or soil deposition. No evidence of soil compaction was observed but water infiltration may be slightly altered at some of the sites due to a shift in plant species composition.

Hydrologic cycles, nutrient cycles and energy flow are adequate for the vegetative communities. Native plant communities are present on the landscape and are persisting through time indicating that hydrologic, nutrient and energy cycles are functioning.

Standard 2 (Riparian / Wetlands) Check those that apply: [One or more must be checked]

____ Standard does not apply

__x_ Meeting Standard

____ Not Meeting Standard, but Making Significant Progress towards

____ Not Meeting Standard, but cause still being determined

__x_ Not Meeting Standard, Livestock Grazing Practices are Significant Factors

__x_ Not Meeting Standard, Livestock Grazing Practices are **not** significant factors

Rationale:
The RAC Standards and Guidelines for Rangeland Health for the Sierra Front-Northwestern Great Basin Area states for Standard 2; "Riparian/Wetland systems are in properly functioning condition". Standards refer to the goal to be achieved and indicators assist in determining whether Standards are met or Guidelines are followed. Indicators for Standard 2 relate to diversity, distribution, and abundance of appropriate plant species (for lentic and lotic systems) and adequacy of the sinuosity, width/depth ratio and gradient to dissipate streamflow (for lotic systems) without excessive erosion or deposition. Proper Functioning Condition (PFC) assessments are a qualitative evaluation of natural water sources conducted to help determine issues and to help guide what changes in management might be needed to effectively meet or maintain the established Standards and Guidelines. A rating of PFC does not

necessarily mean that a particular water source is in perfect condition or has no management concerns/needs.

Seven water sources were evaluated for PFC, five in 2010 and two in 2011 (See Table 1). Three sites were rated PFC and four were rated functional-at-risk (FAR).

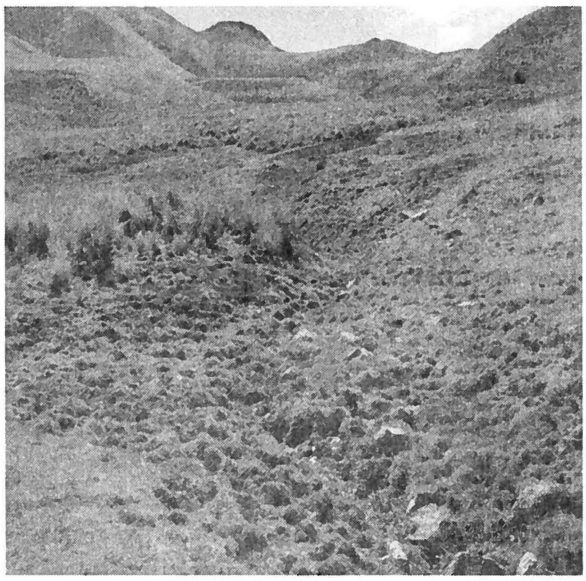
The S. fork of Cherry Creek was rated FAR with a downward trend. Exclosures in Cherry Valley were repaired in late fall 2010, and upon reexamination in August 2011 substantial progress towards meeting standards was noted.

Rock Creek spring was rated FAR due to down cutting of the meadow related to livestock hoof action which is draining the meadow. Pinyon trees, juniper trees and shrubs were observed to be encroaching on the site.

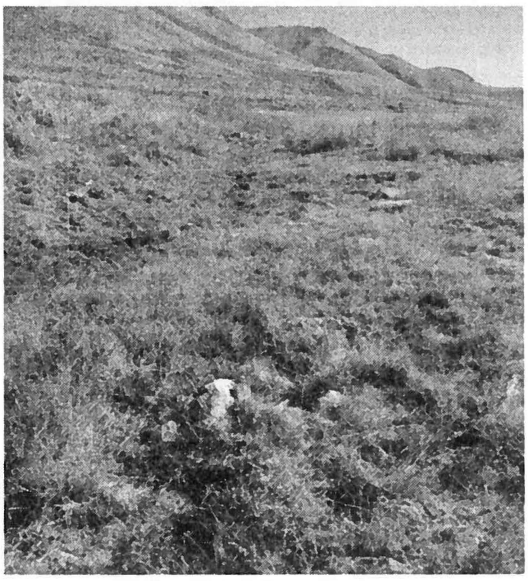
War Creek was rated FAR with an upward trend. The creek has a robust willow canopy and supports a healthy population of brook trout along with several species of aquatic invertebrates.

The convergence of three springs near the N. fork of War Creek was rated FAR with a downward trend. Lateral bank erosion is occurring accompanied by upland shrub encroachment into the channel. Stabilizer riparian species such as sedges and rushes appear to be in decline from excessive livestock hoof action and are not in sufficient quantity to dissipate high stream flow.

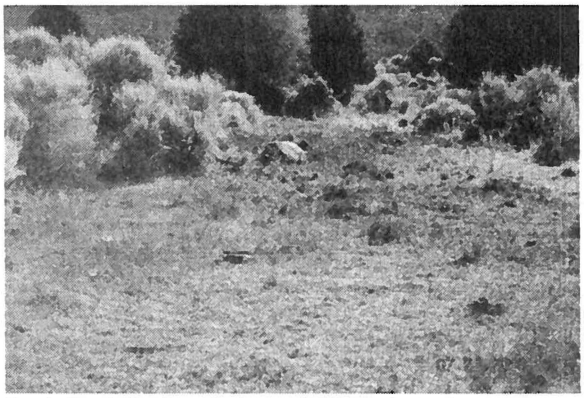
Rock Creek, Pony Creek, and the unnamed spring near the upper N. fork of War Creek were rated PFC.



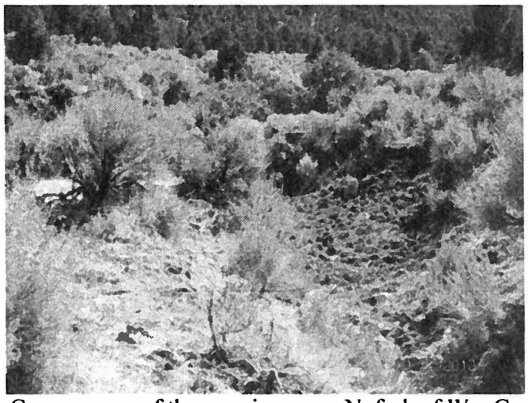
Cherry Valley September 2010



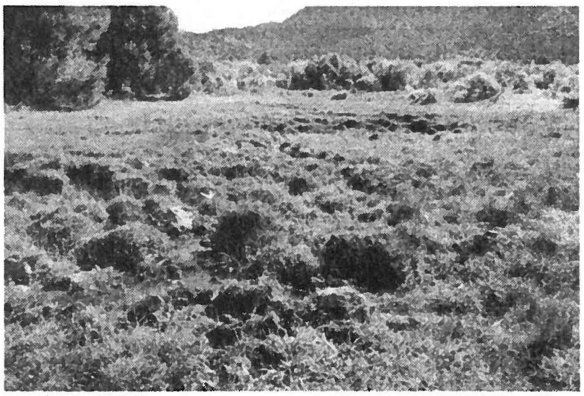
Cherry Valley August 2011 (not the same view)



Rock Creek Spring (drying and encroachment)



Convergence of three springs near N. fork of War Creek



Rock Creek Spring (down cutting and potential draining)

Table 1. PFC Assessment data for the Clan Alpine allotment.

Name	Date Assessed	Rating
Rock Creek	06/28/2011	PFC
Pony Creek	07/28/2011	PFC
Rock Creek Spring	07/28/2010	FAR-not apparent
Cherry Valley wet meadow near S. fork of Cherry Creek (prior to exclosure repair)	09/22/2010	FAR-downward trend
Convergence of 3 unnamed springs near upper N. fork of War Creek	09/22/2010	FAR-downward trend
Unnamed Spring near upper N. fork of War Creek	09/22/2010	PFC
War Creek	09/22/2010	FAR-upward trend

Rock Creek Spring, the convergence of three springs near the N. fork of War Creek, the unnamed spring near upper N. fork of War Creek, and War Creek were reassessed in 2015.

Rock Creek Spring maintained the FAR rating but trend was noted as downward. Livestock trampling along with pinyon/juniper and shrub encroachment continue to be an issue.

The convergence of 3 unnamed springs near upper N. fork of War Creek retained the FAR rating with a downward trend. Lateral bank erosion and upland shrub encroachment are still occurring. Stabilizer riparian species such as sedges and rushes have further declined. Excessive hoof action has continued along the banks.

War Creek was divided into three reaches for reassessment. Reach 1 and Reach 3 were rated FAR with trend not apparent while Reach 2 was rated PFC. The entire creek supports a high diversity of riparian species, all of which exhibited high vigor, and supports a healthy population of brook trout along with several species of aquatic invertebrates. Slight amounts of hoof action were observed in Reaches 1 and 3 which has contributed to minor stream bank degradation.

Pony Creek, Rock Creek, and the Cherry Valley wet meadow near S. fork of War Creek were visited in 2015 but not assessed due to lack of water.

Standard 3 (Water Quality) Check those that apply: [One or more must be checked]

____ Standard does not apply

_x__ Meeting Standard

____ Not Meeting Standard, but Making Significant Progress towards

____ Not Meeting Standards, but cause still being determined

____ Not Meeting Standard, Livestock Grazing Practices are Significant Factors

____ Not Meeting Standard, Livestock Grazing Practices are **not** significant factors

Rationale:
The RAC Standards and Guidelines for Rangeland Health for the Sierra Front-Northwestern Great Basin Area states for Standard 3; "Water quality criteria in Nevada or California State Law shall be achieved or maintained". Standards refer to the goal to be achieved and indicators assist in determining whether Standards are met or Guidelines are followed. Indicators for Standard 3 refer to assessing whether the chemical, physical, and biological constituents are exceeding water quality standards criteria.

No class waters or beneficial uses are designated within the Clan Alpine Allotment, therefore, only the descriptive water quality standards pertaining to all surface waters in Nevada (NAC 445A.121) apply to these springs and streams. High densities of brook trout were present in War Creek along with several species of mayfly indicating good water quality. Remaining springs and springbrook systems were also determined to be meeting water quality standards.

Standard 4 (Plant and Animal Habitat) Check those that apply: [One or more must be checked]

___ Standard does not apply

_x_ Meeting Standard

___ Not Meeting Standard, but Making Significant Progress towards

___ Not Meeting Standard, but cause is still being determined

_x_ Not Meeting Standard, Livestock Grazing Practices are Significant Factors

_x_ Not Meeting Standard, Livestock Grazing Practices are **not** significant factors

Rationale:

Overview

The RAC standards and guidelines for rangeland health for the Sierra Front-Northwestern Great Basin Area states for Standard 4; "Populations and communities of native plant species and habitats for native animal species are healthy, productive, and diverse". Indicators relate to diversity, distribution, and abundance of plant species that provide habitat for wildlife.

Rangeland health assessments were made at 14 sites; three in the cold desert scrub key habitat and eleven in the sagebrush key habitat. One Assessment, Inventory, and Monitoring (AIM) assessment (BLM 2014) was conducted in the sagebrush key habitat. In general, the native vegetation in cold desert scrub habitat is deficient in diversity, distribution, and abundance and is therefore not meeting the standard for plant and animal habitat. This is based on the comparison to potential vegetative composition as described in the ecological site descriptions stemming from the soil surveys used to make these assessments. The sagebrush key habitat, which experiences higher precipitation, is generally meeting the standard. Areas that are not meeting the standard stem from a combination of drought, historic and current livestock grazing, wild horse utilization and a higher frequency wildland fire regime (lower Edwards Creek Valley).

PFC assessments were made for four springs/springbrooks and three perennial creeks (see Standard 2 for PFC results).

Rationale

Based on the **Southwest Regional GAP Analysis Project,** the Nevada Department of Wildlife's Wildlife Action Plan (2012) characterized Nevada's vegetative land cover into eight broad ecological system groups and linked those with Key Habitat types, which are further refined into Ecological Systems characterized by plant communities or associations (USGS 2005). The primary Key Habitat types found in this allotment are displayed in Table 2.

Key Habitats

Intermountain Cold Desert Scrub—Approximately 28% of the allotment encompasses this key habitat. Three Rangeland Health Assessments were conducted within the Intermountain Cold Desert Scrub. Annual rainfall tends to be low (3-8 in) and wildlife supported by this habitat are

generally not found in great densities. Lizards are the most diverse and abundant assemblage of species found. Winterfat is a key forage species for some wildlife, in particular, pronghorn. Some areas of winterfat were in poor condition. Many sites have Russian thistle, an invasive species, which indicates diminished native plant species diversity. Desert pavement and/or microbiotic crusts are generally found in the shrub interspaces which help stabilize soil. Native grasses were lacking in quantity and species diversity. This key habitat is not meeting standards with drought, wild horse utilization, and livestock grazing as contributing factors.

Sagebrush—Approximately 48% of the allotment encompasses this key habitat. Vegetative composition in sagebrush habitats can be highly variable depending on precipitation, elevation, slope and aspect. Eleven Rangeland Health Assessments and one AIM assessment (see Standard 5 *Sage-Grouse* for results) were conducted in sagebrush habitat. Sufficient diversity, distribution, and abundance of native plant species were present on higher elevations although native grasses were deficient in lower elevations. Cheatgrass is scattered throughout the allotment.

Lower Montane Woodland—Approximately 14% of the allotment encompasses this key habitat, which consists of primarily a pinyon/juniper dominated plant community. Antelope bitterbrush was observed in less dense areas of tree cover. Understory layers are variable depending on tree density. No assessments were conducted in this key habitat.

Desert Playas and Ephemeral Pools —Approximately 3.5% of the allotment encompasses this key habitat. Playas experience intermittent flooding and evaporation that precipitates fine soils and mineral salts. Soils can be very saline as are the playas associated with this allotment. When playas contain water for extended periods of time lush vegetation can grow in addition to producing many aquatic invertebrates that provide forage for shorebirds, waterfowl, and small water birds. Playas associated with the Clan Alpine Allotment do not contain a large permanent water source; therefore numbers and abundance of species in any given year is highly variable. Soils adjacent to the playas support species such as fourwing saltbush, saltgrass, and pickleweed. No assessments were conducted in or adjacent to this key habitat.

Springs and Springbrooks—Nevada has the most known springs of any state in the U.S. with over 4,000 mapped. They are of various temperatures and flow and are extremely important in maintaining Nevada's wildlife diversity (Nevada Wildlife Action Plan 2012). Springbrooks refer to areas of flowing water linked to the spring source such as Rock Creek Spring (rated FAR). The three main categories of springs are warm, cold, and hot; with some springs being ephemeral in nature. Even small springs and/or flows can support important endemic gastropods and other aquatic invertebrates as well as a diverse plant community including various species of forbs, sedges, and rushes. While the actual amount of riparian/spring habitat is small in Nevada (<5%), about 80% of all vertebrate species require this habitat. Consequently, meeting the standard in this key habitat is especially critical for wildlife.

PFC assessments were conducted at four springs/springbrooks and three perennial creeks (see Standard 2 for PFC results).

Big Game

Mule Deer — Mule deer will consume forbs, grasses, and shrubs depending on the time of year. The Clan Alpine allotment encompasses approximately 92,390 acres (≈24%) of NDOW delineated mule deer habitat. Abundance and distribution is limited by water availability to approximately 21,000 acres (NDOW 2010); therefore, the spring and springbrook habitat is a crucial component to the success of mule deer populations.

Pronghorn — Pronghorn have an evolutionary history of 20 million years in North America. They were almost wiped out in the 1800s but have rebounded due to changes in wildlife and rangeland management techniques. The Clan Alpine allotment supports approximately 273,875 acres (≈74%) of delineated year-round habitat. The Bell Flat winter allotment portion encompasses approximately 15,305 acres of crucial summer habitat (NDOW 2010). There are two wildlife water developments specifically for pronghorn within the allotment.

Upland Game

The primary upland game species within this allotment are chukar partridge and mourning dove. Springs and springbrooks are important for the survival of these game birds. There are currently five chukar-specific wildlife water developments within the allotment.

Standard 5 (Special Species Habitat) Check those that apply: [One or more must be checked]

____ Standard does not apply

_x__ Meeting Standard

____ Not Meeting Standard, but Making Significant Progress towards

____ Not Meeting Standard, but cause is still being determined

_x_ Not Meeting Standard, Livestock Grazing Practices are Significant Factors

_x_ Not Meeting Standard, Livestock Grazing Practices are **not** significant factors

Rationale:

The key habitat rationale written for standard 4 is the same for standard 5.

Federally Listed Species

After consulting with the BLM wildlife biologist and the USFWS website for Nevada, no federally listed species occur on the allotment (http://www.fws.gov/nevada/protected_species/species_by_county.html).

There are no federally listed plant species known to occur within the Clan Alpine Allotment.

BLM Sensitive Species

Sensitive species use a variety of habitat types. Nevada BLM sensitive species expected and/or found in or near the allotment are displayed in Table 2 and Table 3.

Table 2: BLM Nevada Sensitive Wildlife Species that Occur or Potentially Occur within the Clan Alpine Allotment.

Key Habitats	Species
Intermountain Cold Desert Scrub/Sagebrush	Brewer's Sparrow (*Spizella breweri*)
Intermountain Cold Desert Scrub/Sagebrush	Burrowing Owl (*Athene cunicularia*)
Intermountain Cold Desert Scrub/Sagebrush/Lower Montane Woodlands/Cliffs and Canyons	Ferruginous Hawk (*Buteo regalis*)
Sagebrush/Intermountain Cold Desert Scrub	Golden Eagle (*Aquila chrysaetos*)
Lower Montane Woodlands	Lewis's Woodpecker (*Melanerpes lewis*)
Intermountain Cold Desert Scrub/Lower Montane Woodlands/Sagebrush	Loggerhead Shrike (*Lanius ludovicianus*)
Lower Montane Woodlands	Pinyon Jay (*Gymnorhinus cyanocephalus*)
Sagebrush	Greater Sage-grouse (*Centrocercus urophasianus*) See discussion below
Desert Playas and Ephemeral Pools	Snowy Plover (*Charadrius alexandrines*)
Sagebrush	Swainson's Hawk (*Buteo swainsoni*)
Intermountain Cold Desert Scrub/Sagebrush/Intermountain Rivers and Streams/Marsh/Lower Montane Woodlands/Springs and Springbrooks	California Myotis (*Myotis californicus*)
Cliffs and Canyons	Desert Bighorn Sheep (*Ovis canadensis nelsoni*) See discussion below
Intermountain Rivers and Streams/Marsh/Lower Montane Woodlands/Cliffs and Canyons/Spring and Springbrooks	Little Brown Myotis (*Myotis lucifugus*)
Lower Montane Woodlands/Cliffs and Canyons	Long-Eared Myotis (*Myotis evotis*)
Intermountain Cold Desert Scrub	Pale Kangaroo Mouse (*Microdipodops pallidus*)
Intermountain Cold Desert Scrub, Sagebrush, Lower Montane Woodlands	Pallid Bat (*Antrozous pallidus*)
Sagebrush	Pygmy Rabbit

	(*Brachylagus idahoensis*)
Lower Montane Woodlands/Cliffs and Canyons/Intermountain Rivers and Streams/Springs and Springbrooks	Spotted Bat (*Euderma maculatum*)
Lower Montane Woodlands, Cliffs and Canyons/Intermountain Rivers and Streams/Springs and Springbrooks	Townsend's Big-eared Bat (*Corynorhinus townsendii*)

Table 3: BLM Nevada Sensitive Plant Species that Occur or Potentially Occur within the Clan Alpine Allotment.

Plants	
Lahontan Beardtongue (*Penstemon palmeri var. macranthus*)	Found along washes, roadsides, and canyon floors, predominately on carbonate-containing substrates and where moisture is available throughout the summer (NNHP 2001).
Tonopah Milkvetch (*Astragalus pseudiodanthus*)	Found with greasewood and other salt desert shrub taxa in drainages, valley floors, old beaches, and stabilized and active dune margins (NNHP 2001).

Desert Bighorn Sheep — Desert bighorn sheep prefer rough, rocky, and steep terrain; require freestanding water; and consume a variety of grasses, shrubs, and forbs.

Sage-Grouse —The allotment encompasses approximately 147,774 acres of the Clan Alpine and 76,164 acres of the Desatoya sage-grouse Population Management Units (PMU). The allotment contains approximately 11,333 acres (3.2%) of Priority Habitat Management Areas, 15,036 acres (4.2%) of General Habitat Management Areas (GHMA) and approximately 64,917 acres (18.1%) of Other Habitat Management Areas (OHMA).

The AIM assessment was conducted in OHMA located in the lower elevation of the allotment. Specific sage-grouse use of the area is not currently known. The results are displayed in Table 4.

Table 4: Comparison of the 2013 AIM Assessment and the Sage-Grouse Habitat Objectives Identified in Nevada and Northeastern California Greater Sage-Grouse Approved Resource Management Plan Amendment (BLM 2015)

	AIM Result	Sage Grouse Habitat Objectives[1]
Sagebrush cover	23.1%	Nesting ≥20% Brood rearing 10-25%

Total shrub cover	23.7%	Nesting ≥30%
Annual/Invasive cover[2]	45.3%	Nesting <5%
Perennial grass & forb cover	0.1% perennial grass 0.0% perennial forbs	Brood rearing >15% combined Brood rearing ≥5% arid (forbs)
Residual & live perennial grass cover	0.1%	≥10% if shrub cover is <25%

[1] Table 2.2, pages 2-4 and 2-5, Nevada and Northeastern California Greater Sage-Grouse Approved Resource Management Plan Amendment

[2] The AIM assessment of invasive cover includes species on the Nevada state noxious weeds list, the CAL-IPC invasive list, and non-native species listed in Weeds of the West

Rangeland health assessments determined there was sufficient diversity, distribution, and abundance of native grasses and forbs present on the higher elevations. Native grasses and forbs were deficient in lower elevations. Cheatgrass is scattered throughout.

PFC assessments were conducted in sage-grouse habitat in 2010, 2011, and 2015. See results in Table 5.

Table 5: PFC Assessments Conducted in Sage-Grouse Habitat

Name	Year Assessed/Rating	
Rock Creek	2011/PFC	2015/not assessed – dry
Pony Creek	2011/PFC	2015/not assessed – dry
Rock Creek Spring	2010/FAR not apparent	2015/FAR-downward trend
Cherry Valley wet meadow near S. fork of Cherry Creek	2010/FAR downward trend	2015/not assessed – dry

CITATIONS

BLM. 2014. Land Health Assessment Program Bureau of Land Management Carson City District 2013 Final Report.

BLM. 2015. Nevada and Northeastern California Greater Sage-Grouse Approved Resource Management Plan Amendment.

NDOW. 2010. Misc. key game habitat maps – mule deer. CCDO files. Carson City, NV

NDOW. Misc. key game habitat maps - bighorn. CCDO files. Carson City, NV

NDOW. Misc. key game habitat maps - pronghorn. CCDO files. Carson City, NV

Nevada National Heritage Program (NNHP). 2001. Rare Plant Fact Sheet: Lahontan Beardtongue. http://www.heritage.nv.gov/sites/default/files/atlas/penstpalmemacra.pdf

Nevada Wildlife Action Plan. 2012. Nevada Department of Wildlife, Reno, NV.

USGS. 2005. National Gap Analysis Program. Southwest Regional GAP Analysis Project—Land Cover Descriptions. RS/GIS Laboratory, College of Natural Resources, Utah State University. Accessed at: http://earth.gis.usu.edu/swgap/data/atool/files/swgap_legend_desc.pdf.

DETERMINATION

I have determined that all of the applicable Standards for Rangeland Health for the Clan Alpine Allotment

____ are _x__ are not

being met .

Livestock grazing practices

__x__ conform ___ do not conform

to the Guidelines for Livestock Grazing Management.

Teresa J. Knutson
Authorized Officer

7/6/2016
Date

DETERMINATION
for
Achieving Standards for Rangeland Health
and
Conforming with Guidelines for Livestock Grazing Management

Field Office: Stillwater, Carson City District Office: 5665 Morgan Mill Road, Carson City, NV 89701

Grazing Allotment: Cow Canyon (#3015)

List of Reviewers:

Linda Appel	Rangeland Management Specialist
John Wilson	Wildlife Biologist
Chris Kula	Wildlife Biologist
Matt Spaulding	Supervisory Natural Resources Specialist
Teresa J Knutson	Stillwater Field Manager

Dates of Assessment: Rangeland Health Assessments: July 2009
Photo Trend Plots: 1969-2015
Frequency Transects: 1983-2015
Riparian Functionality: July 2009; August 2010 and 2011; July 2015

Rangeland Health and Riparian Assessment Participants (Name and Discipline or Interest):

Linda Appel	Rangeland Management Specialist
Ken Vicencio	Range Tech
Jim de Laureal	Soil Scientist/Noxious Weed Coordinator
Michelle Stropky	Soil Scientist/Hydrologist
John Axtell	Wild Horse Specialist
John Wilson	Wildlife Biologist
Gabe Venegas	Hydrologist
Rita Suminski	Assistant Field Manager/Wildlife Biologist
Chris Kula	Wildlife Biologist

Standard 1 (Soils) Check those that apply: [One or more must be checked]

___ Standard does not apply

___x_ Meeting Standard

___ Not Meeting Standard, but Making Significant Progress towards

___ Not Meeting Standard, Livestock Grazing Practices are Significant Factors

___ Not Meeting Standard, Livestock Grazing Practices are **not** significant factors

___ Not Meeting Standard, but cause still being determined

Rationale:
The Nevada Resource Advisory Council (RAC) Standards and Guidelines for Rangeland Health for the Sierra Front-Northwestern Great Basin Area states for Standard 1 "Soil processes will be appropriate to soil types, climate and land form". Standards refer to the goal to be achieved and indicators assist in determining whether standards are met or guidelines are followed. Indicators for Standard 1 include surface litter, soil crusting and compaction, hydrologic and nutrient cycles, diversity of the plant communities, and basal and canopy cover.

The soil resources of the sites assessed in the Cow Canyon grazing allotment meet the indicators outlined in the Sierra Front-Northwestern Standards and Guidelines document.
The soil resources evaluated for the Upland Standards and Guidelines assessments were: rills, waterflow patterns, pedestaling and/or terracette presence, bare ground, gullies, wind-scoured blowouts and/or deposition areas, litter movement, soil surface resistance to erosion, and soil surface loss or degradation. Four sites were evaluated and all were within the accepted parameters of the reference sheets for the ecological sites. There were no deviations from the reference sheets in sites CC3 and CC01. Site CC1 was found to have deviations as follows: a few large areas of bare ground were "connected" and there were a few wind-scour areas with evidence of soil loss due to a lack of vegetative cover, so these were slight to moderate deviations. Site CC4 had some evidence of sheet flow and some small terracettes so these were slight deviations. There is some evidence that an extended drought has affected seed production somewhat, and this may be affecting plant mortality, but there is vegetative recruitment on most sites. Overall there should be more perennial bunchgrasses present, but litter amounts were normal.

Standard 2 (Riparian / Wetlands) Check those that apply: [One or more must be checked]

_____ Standard does not apply

__x__ Meeting Standard

____ Not Meeting Standard, but Making Significant Progress towards

____ Not Meeting Standard, but cause still being determined

____ Not Meeting Standard, Livestock Grazing Practices are Significant Factors

__x_ Not Meeting Standard, Livestock Grazing Practices are **not** significant factors

Rationale:
The RAC Standards and Guidelines for Rangeland Health for the Sierra Front-Northwestern Great Basin Area states for Standard 2; "Riparian/Wetland systems are in properly functioning condition". Standards refer to the goal to be achieved and indicators assist in determining whether Standards are met or Guidelines are followed. Indicators for Standard 2 relate to

diversity, distribution, and abundance of appropriate plant species (for lentic and lotic systems) and adequacy of the sinuosity, width/depth ratio and gradient to dissipate streamflow (for lotic systems) without excessive erosion or deposition. Proper Functioning Condition (PFC) assessments are a qualitative evaluation of natural water sources conducted to help determine issues and to help guide what changes in management might be needed to effectively meet or maintain the established Standards and Guidelines. A rating of PFC does not necessarily mean that a particular water source is in perfect condition or has no management concerns/needs.

Seven water sources were evaluated for PFC, three in 2009, one in 2010, and three in 2011. Deep Canyon and Lower Bob Canyon were assessed in 1988 but in 2010 were found to be dry so no PFC assessment was completed. Deep Canyon supported no riparian vegetation so it was presumed it had been dry for quite some time. Lower Bob Canyon supported cottonwood, willows, and wild rose but the streambed showed no sign of recent water in 2010. However, in 2011 water was running so assessments at two different reaches were completed. Overall, the allotment is not meeting the standard because not all water sources are in proper functioning condition.

Table 1. PFC Assessment Data for the Cow Canyon Allotment.

Name	Date Assessed	Rating
Sand Dune Spring #1	08/18/2009	PFC
Sand Dune Spring #2	08/18/2009	FAR – downward trend
Dyer Canyon Creek	08/19/2009	FAR – trend not apparent
Cow Canyon Creek	07/07/2010	PFC
Buckbrush Spring	06/21/2011	PFC
Meadow Spring	08/05/2011	FAR – trend not apparent
Lower Bob Creek Reach #1	08/19/2011	PFC
Lower Bob Creek Reach #2	08/19/2011	FAR – downward trend

Sand Dune Spring #1 was rated PFC and vegetation consisted of sedges, rushes, bluegrass species, green foxtail, and alkali sacaton. Monkey flower, a non-native species, was present and occurs only when conditions are reasonably good. Several species of aquatic invertebrates, dragonflies and damselflies were also present, indicating favorable habitat conditions.

Sand Dune Spring #2 was rated functional at risk with downward trend. A small earthen berm had been constructed at some point in the past to pond the water indicating that this is not a natural spring-fed pond. Riparian vegetation consisted of rushes and sedges, all of which had seen heavy use. Surface soil "punching" was evident around the pond edges. Cattle manure and urine were found to be present around the water source. The presence of back water swimmers and water boatmen indicate that aquatic conditions are still somewhat favorable. A return visit in June 2011 indicated upward trend compared to the 2009 downward trend. Aquatic invertebrates and hundreds of tadpoles were present as well as dragonflies and damselflies.

In 2009 the mid and lower reaches of Dyer Canyon Creek were rated functional at risk (FAR) with trend not apparent. Slight entrenchment was observed by the road, but the system is vertically stable with very sparse riparian stabilizer species along the banks. In addition shrubs are encroaching into the riparian zone. However, this seems to be a function of reduced flow not livestock impacts. Minor livestock and wild horse trampling was observed in some areas. The

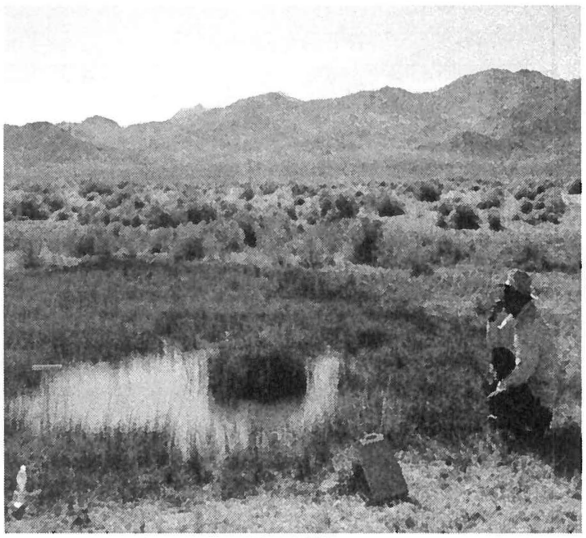
FAR rating is due to the presence of salt cedar and hoary cress, both Category C noxious weeds in Nevada, as well as the encroachment of shrubs.

The Cow Canyon and Deep Canyon watersheds represent the largest and most heavily utilized drainages in this allotment. In 1988, the Cow Canyon springbrook was found to be in good condition with little downcutting, erosion and sedimentation. In 2010 it was rated as PFC. This spring supports willows, wild rose, sedges and rushes, which are all stabilizer species. However, watercress, a colonizer, was the dominant herbaceous riparian species.

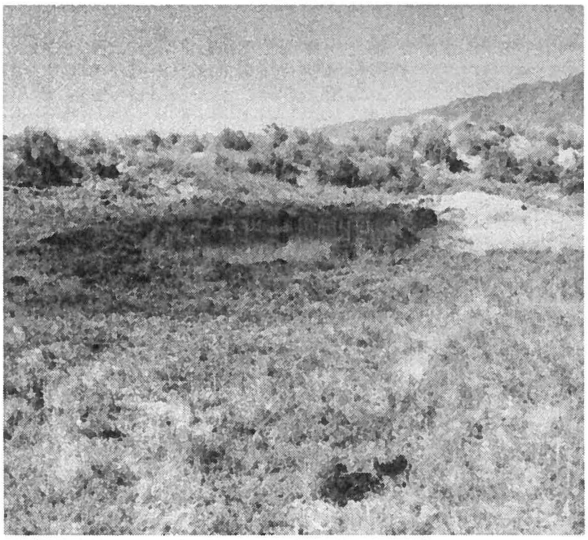
Buckbrush Spring was rated PFC. The vegetation exhibited good vigor with a high diversity of riparian plant species.

The meadow area of the Meadow Spring complex was rated FAR with trend not apparent because of the presence of salt cedar in the adjacent creek bed. The vegetation included willows, rose, bluegrasses, rushes, and sedges all of which exhibited high vigor.

Lower Bob Creek Reach #1 was rated as PFC and reach #2 was FAR with a downward trend because of this section being dominated by saltcedar, which has crowded out almost all other riparian vegetation. Reach #1 was dominated by several species of willow that, along with rocks, promote stream stability and the ability to dissipate high flow energy.



Sand Dune Spring #1



Sand Dune Spring #2

Cow Canyon Creek

Dyer Canyon

Lower Bob Reach #1

Lower Bob Reach #2

Sand Dune Springs #1 & #2 were reassessed in 2015. Sand Dune Spring #1 maintained the PFC rating from 2009. The spring contained high vegetative and aquatic diversity. Sand Dune Spring #2 retained the FAR rating and appears to be continuing the upward trend noted in 2011. Dyer Canyon, Cow Canyon, and lower Bob Canyon Creeks were visited in 2015 but not assessed due to lack of water.

Standard 3 (Water Quality) Check those that apply: [One or more must be checked]

____ Standard does not apply

__x_ Meeting Standard

____ Not Meeting Standard, but Making Significant Progress towards

____ Not Meeting Standards, but cause still being determined

____ Not Meeting Standard, Livestock Grazing Practices are Significant Factors

____ Not Meeting Standard, Livestock Grazing Practices are **not** significant factors

Rationale:
The RAC Standards and Guidelines for Rangeland Health for the Sierra Front-Northwestern Great Basin Area states for Standard 3; "Water quality criteria in Nevada or California State Law shall be achieved or maintained". Standards refer to the goal to be achieved and indicators assist in determining whether Standards are met or Guidelines are followed. Indicators for Standard 3 refer to assessing whether the chemical, physical, and biological constituents are exceeding water quality standards criteria.

No class waters or beneficial uses are designated within the Cow Canyon Allotment, therefore, only the descriptive water quality standards pertaining to all surface waters in Nevada (NAC 445A.121) apply to these springs and stream. During PFC assessments no significant impacts to water quality due to current land uses were observed that would interfere with any beneficial use of any of the waters.

The waters at the two Sand Dune Springs were cool during the assessments. Several species of aquatic invertebrates were present at Sand Dune Spring 1 and 2 that indicate reasonably good habitat conditions. Large predacious diving beetles were present as were water striders and other invertebrates. The presence of predacious diving beetles indicates potentially good numbers and kinds of invertebrates present that serve as prey. There were several species of mayfly which are very sensitive to aquatic conditions, especially dissolved oxygen (DO) levels in the water. If DO is fairly high habitat conditions are good. There were adult damsel flies and dragonflies present. The aquatic naiads of these species are predacious; their presence indicates a possibly extensive invertebrate food base in the pool with reasonably good aquatic habitat conditions. Several riparian species, including sedges and rushes, were present. Sand Dune Springs 1 and 2 were both functional and meeting standard.

Aquatic invertebrates were found in the waters of Cow Canyon and Dyer Canyon creeks. Both drainages were found to be meeting water quality standards.

Standard 4 (Plant and Animal Habitat) Check those that apply: [One or more must be checked]

___ Standard does not apply

_x_ Meeting Standard

___ Not Meeting Standard, but Making Significant Progress towards

___ Not Meeting Standard, but cause is still being determined

_x_ Not Meeting Standard, Livestock Grazing Practices are Significant Factors

_x_ Not Meeting Standard, Livestock Grazing Practices are **not** significant factors

Rationale:

Overview

The RAC standards and guidelines for rangeland health for the Sierra Front-Northwestern Great Basin Area states for Standard 4; "Populations and communities of native plant species and habitats for native animal species are healthy, productive, and diverse". Indicators relate to diversity, distribution, and abundance of plant species that provide habitat for wildlife.

Rangeland monitoring occurred at six sites; four in cold desert scrub key habitat and two in sagebrush key habitat. Native vegetation in cold desert scrub habitat is deficient in diversity, distribution, and abundance and is therefore not meeting the standard for plant and animal habitat. This was based on the comparison to potential vegetative composition as described in the ecological site descriptions stemming from the soil surveys used to make these assessments. The sagebrush key habitat, which experiences higher precipitation, is generally meeting the standard. Areas not meeting the standard might stem from a combination of drought, historic and current livestock grazing, as well as wild horse utilization.

Four PFC assessments were made for two springs, one springbrook, and one low flowing perennial creek. In general, the riparian areas do not meet standards for plant and animal habitat (see Standard 2 for PFC results).

Based on the **Southwest Regional GAP Analysis Project,** the Nevada Department of Wildlife's Wildlife Action Plan (2012) characterized Nevada's vegetative land cover into eight broad ecological system groups and linked those with Key Habitat types, which are further refined into Ecological Systems characterized by plant communities or associations (USGS 2005). The primary Key Habitat types found and the known or potential wildlife species that could be supported by these plant communities are displayed in Table 2.

Key Habitats

Intermountain Cold Desert Scrub—Approximately 40% of the allotment encompasses this key habitat. Four assessments were conducted in the Intermountain Cold Desert Scrub. Annual rainfall tends to be low (3-8 in) and wildlife supported by this habitat are generally not found in great densities. Lizards are the most diverse and abundant assemblage of species found. Winterfat is a key forage species for some wildlife, in particular, pronghorn. Some areas of

winterfat were in poor condition. Many sites have Russian thistle, an invasive species, which indicates diminished native plant species diversity. Desert pavement and/or microbiotic crusts, which help stabilize soil, are generally found in shrub interspaces. Native grasses were lacking in quantity and species diversity. This key habitat is not meeting standards with drought, wild horse utilization, and livestock grazing as contributing factors.

Sagebrush—Approximately 25% of the allotment encompasses sagebrush habitat. Vegetative composition in sagebrush habitats can be highly variable depending on precipitation, elevation, slope and aspect. Two assessments were conducted in sagebrush habitat. Sufficient diversity, distribution, and abundance of native plant species were present on higher elevations although native grasses were deficient in lower elevations; however, the majority of the sagebrush habitat occurs within the upper elevations. Cheatgrass is scattered throughout the habitat. Overall the standard is being met in this key habitat.

Lower Montane Woodland—Approximately 25% of the allotment encompasses this key habitat which consists of a piñon/juniper dominated plant community. Understory layers are variable depending on tree density. No assessments were conducted in this key habitat.

Desert Playas and Ephemeral Pools —Approximately 10% of the allotment encompasses this key habitat. Playas experience intermittent flooding and evaporation that precipitates fine soils and mineral salts. Soils can be very saline as are the playas associated with this allotment. When playas contain water for extended periods of time lush vegetation can grow in addition to producing many aquatic invertebrates that provide forage for shorebirds, waterfowl, and small water birds. Dixie Meadows Hot Spring and other cold springs provide the Dixie Meadows Salt Marsh with a permanent water source. Therefore, numbers and abundance of species in any given year is less variable than playas without a permanent water source. Soils adjacent to these playas support species such as fourwing saltbush, saltgrass, and pickleweed. No assessments were conducted in or adjacent to this key habitat.

Springs and Springbrooks—Nevada has the most known springs of any state in the U.S. with over 4,000 mapped. They are of various temperatures and flow and are extremely important in maintaining Nevada's wildlife diversity (Nevada Wildlife Action Plan 2012). Springbrooks refer to areas of flowing water linked to the spring source such as Cow Canyon Spring (rated PFC). The three main categories of springs are warm, cold and hot; with some springs being ephemeral in nature. Even small springs and/or flows can support important endemic gastropods and other aquatic invertebrates as well as diverse plant communities containing various species of forbs, sedges, and rushes. While the actual amount of riparian/spring habitat is small in Nevada (<5%), about 80% of all vertebrate species require this habitat. Consequently, meeting the standard in this key habitat is critical for wildlife.

In general, half of the assessed riparian areas do meet standards and half of the assessed riparian areas do not meet standards for plant and animal habitat (see Standard 2 for PFC results).

Big Game

Mule Deer — Mule deer will consume forbs, grasses, and shrubs depending on the time of year. The Cow Canyon allotment encompasses approximately 51,048 acres of NDOW delineated mule

deer habitat. Abundance and distribution is limited by water availability to approximately 16,000 of those acres (NDOW 2010); therefore, the spring and springbrook habitat is a crucial component to the success of mule deer populations.

Pronghorn — Pronghorn have an evolutionary history of 20 million years in North America. They were almost wiped out in the 1800s but have rebounded due to improvements in wildlife and rangeland management techniques. The Cow Canyon allotment supports approximately 71,798 acres (52%) of delineated year-round habitat (NDOW 2010).

Upland Game
The primary upland game species within this allotment are chukar partridge and mourning dove. Springs and springbrooks are important for the survival of these game birds.

Standard 5 (Special Species Habitat) Check those that apply: [One or more must be checked]

____ Standard does not apply

_x__ Meeting Standard

____ Not Meeting Standard, but Making Significant Progress towards

____ Not Meeting Standard, but cause is still being determined

_x_ Not Meeting Standard, Livestock Grazing Practices are Significant Factors

_x_ Not Meeting Standard, Livestock Grazing Practices are **not** significant factors

Rationale:
The rationale written for key habitats for standard 4 is the same for standard 5.

Federally Listed Species
After consulting with the BLM wildlife biologist and the USFWS website for Nevada, no federally listed species occur on the allotment (http://www.fws.gov/nevada/protected_species/species_by_county.html).

There are no federally listed sensitive plant species known to occur on the Cow Canyon Allotment.

BLM Sensitive Species
Sensitive species use a variety of habitat types. Nevada BLM sensitive wildlife species expected and/or found in or near the allotment are displayed in Table 2.

Table 2: BLM Nevada Sensitive Wildlife Species that Occur/Potentially Occur within the Cow Canyon Allotment.

Key Habitats	Species
Intermountain Cold Desert	Brewer's Sparrow

Scrub/Sagebrush	(*Spizella breweri*)
Intermountain Cold Desert Scrub/Sagebrush	Burrowing Owl (*Athene cunicularia*)
Intermountain Cold Desert Scrub/Sagebrush/Lower Montane Woodlands/Cliffs and Canyons	Ferruginous Hawk (*Buteo regalis*)
Sagebrush/Intermountain Cold Desert Scrub	Golden Eagle (*Aquila chrysaetos*)
Lower Montane Woodlands	Lewis's Woodpecker (*Melanerpes lewis*)
Intermountain Cold Desert Scrub/Lower Montane Woodlands/Sagebrush	Loggerhead Shrike (*Lanius ludovicianus*)
Lower Montane Woodlands	Pinyon Jay (*Gymnorhinus cyanocephalus*)
Sagebrush	Greater Sage-grouse (*Centrocercus urophasianus*)
Desert Playas and Ephemeral Pools	Snowy Plover (*Charadrius alexandrines*)
Sagebrush	Swainson's Hawk (*Buteo swainsoni*)
Intermountain Cold Desert Scrub/Sagebrush/Intermountain Rivers and Streams/Marsh/Lower Montane Woodlands/Springs and Springbrooks	California Myotis (*Myotis californicus*)
Cliffs and Canyons	Desert Bighorn Sheep (*Ovis canadensis nelsoni*)
Intermountain Rivers and Streams/Marsh/Lower Montane Woodlands/Cliffs and Canyons/Spring and Springbrooks	Little Brown Myotis (*Myotis lucifugus*)
Lower Montane Woodlands/Cliffs and Canyons	Long-Eared Myotis (*Myotis evotis*)
Intermountain Cold Desert Scrub	Pale Kangaroo Mouse (*Microdipodops pallidus*)
Intermountain Cold Desert Scrub, Sagebrush, Lower Montane Woodlands	Pallid Bat (*Antrozous pallidus*)
Lower Montane Woodlands/Cliffs and Canyons/Intermountain Rivers and Streams/Springs and Springbrooks	Spotted Bat (*Euderma maculatum*)
Lower Montane Woodlands, Cliffs and Canyons/Intermountain Rivers and Streams/Springs and	Townsend's Big-eared Bat (*Corynorhinus townsendii*)

Springbrooks	

There are no BLM Nevada sensitive plant species known to occur on the Cow Canyon Allotment.

Desert Bighorn Sheep — Desert bighorn sheep prefer rough, rocky, and steep terrain; require freestanding water; and consume a variety of grasses, shrubs, and forbs. The Cow Canyon Allotment encompasses approximately 62,000 acres (45%) of occupied habitat in the Clan Alpine Mountains (NDOW 2010).

Sage-Grouse — The allotment encompasses approximately 69,422 acres of the Clan Alpine sage-grouse Population Management Unit (PMU). The allotment contains approximately 993 acres (0.7%) of General Habitat Management Areas (GHMA) and approximately 18,146 acres (12.4%) of Other Habitat Management Areas (OHMA).

Rangeland health assessments determined there was sufficient diversity, distribution, and abundance of native grasses and forbs present on the higher elevations. Native grasses and forbs were deficient in lower elevations. Cheatgrass is scattered throughout.

PFC assessments were conducted in sage-grouse habitat in 2010, 2011, and 2015. See results in Table 3.

Table 3: PFC Assessments Conducted in Sage-Grouse Habitat

Name	Year Assessed/Rating	
Lower Bob Canyon Reach 1	2011/PFC	2015/not assessed – dry
Lower Bob Canyon Reach 2	2011/FAR downward trend	2015/not assessed – dry
Cow Canyon Creek	2010/PFC	2015/not assessed – dry

CITATIONS

NDOW. 2010. Misc. key game habitat maps – mule deer. CCDO files. Carson City, NV

NDOW. 2010. Misc. key game habitat maps - bighorn. CCDO files. Carson City, NV

NDOW. 2010. Misc. key game habitat maps - pronghorn. CCDO files. Carson City, NV

Nevada Wildlife Action Plan. 2012. Nevada Department of Wildlife, Reno, NV.

USGS. 2005. National Gap Analysis Program. Southwest Regional GAP Analysis Project—Land Cover Descriptions. RS/GIS Laboratory, College of Natural Resources, Utah State University. Accessed at: http://earth.gis.usu.edu/swgap/data/atool/files/swgap_legend_desc.pdf.

DETERMINATION

I have determined that all of the applicable Standards for Rangeland Health for the Cow Canyon Allotment

_____ are _x__ are not

being met .

Livestock grazing practices

__x__ conforms ___ do not conform

to the Guidelines for Livestock Grazing Management.

Teresa J. Knutson
Authorized Officer

7/6/2016
Date

DETERMINATION
for
Achieving Standards for Rangeland Health
and
Conforming with Guidelines for Livestock Grazing Management

Field Office: Stillwater, Carson City District Office: 5665 Morgan Mill Road, Carson City, NV 89701

Grazing Allotment: Dixie Valley (#3018)

List of Reviewers:

Linda Appel	Rangeland Management Specialist
John Wilson	Wildlife Biologist
Chris Kula	Wildlife Biologist
Matt Spaulding	Supervisory Natural Resources Specialist
Teresa J Knutson	Stillwater Field Manager

Dates of Assessment: Rangeland Health Assessments: September 2009
Photo Trend Plots: 1977-2015
Frequency Transects: 1983-2015
Riparian Functionality: Sept and Oct 2009; August 2011; Sept and Oct 2015

Rangeland Health and Riparian Assessment Participants (Name and Discipline or Interest):

Linda Appel	Rangeland Management Specialist
Ken Vicencio	Rangeland Management Specialist
Jim de Laureal	Soil Scientist/Noxious Weed Coordinator
John Axtell	Wild Horse Specialist
John Wilson	Wildlife Biologist
Chris Kula	Wildlife Biologist
Gabe Venegas	Hydrologist
Michelle Stropky	Soil Scientist/Hydrologist

Standard 1 (Soils) Check those that apply: [One or more must be checked]

___ Standard does not apply

_x_ Meeting Standard

___ Not Meeting Standard, but Making Significant Progress towards

___ Not Meeting Standard, Livestock Grazing Practices are Significant Factors

___ Not Meeting Standard, Livestock Grazing Practices are **not** significant factors

___ Not Meeting Standard, but cause still being determined

Rationale:
The Nevada Resource Advisory Council (RAC) Standards and Guidelines for Rangeland Health for the Sierra Front-Northwestern Great Basin Area states for Standard 1 "Soil processes will be appropriate to soil types, climate and land form". Standards refer to the goal to be achieved and indicators assist in determining whether standards are met or guidelines are followed. Indicators for Standard 1 include surface litter, soil crusting and compaction, hydrologic and nutrient cycles, diversity of the plant communities, and basal and canopy cover.

The soil resources of the sites assessed in the Dixie Valley grazing allotment meet the indicators outlined in the Sierra Front-Northwestern Standards and Guidelines document. No evidence of rill or gully formation, or other factors of soil instability was observed during the data collection. There are slight deviations from the potential native plant community lists in the ecological site description; however, the areas that were assessed are stable and the native species present are healthy and reproducing. There are areas of cheatgrass and Russian thistle but accelerated erosion was not observed. At site DV-1 the water flow pattern assessment was rated with a slight to moderate deviation, and the pedestal and terracette item was rated with a moderate deviation which is not unusual for the Dixie Valley area. Site DV-2 was found to have a slight to moderate deviation in bare ground. In all areas assessed the watershed was functioning properly and infiltration was normal with no evidence of soil compaction.

Standard 2 (Riparian / Wetlands) Check those that apply: [One or more must be checked]

_____ Standard does not apply

__x_ Meeting Standard

____ Not Meeting Standard, but Making Significant Progress towards

____ Not Meeting Standard, but cause still being determined

__x__ Not Meeting Standard, Livestock Grazing Practices are Significant Factors

__x_ Not Meeting Standard, Livestock Grazing Practices are **not** significant factors

Rationale:
The RAC Standards and Guidelines for Rangeland Health for the Sierra Front-Northwestern Great Basin Area states for Standard 2; "Riparian/Wetland systems are in properly functioning condition". Standards refer to the goal to be achieved and indicators assist in determining whether Standards are met or Guidelines are followed. Indicators for Standard 2 relate to diversity, distribution, and abundance of appropriate plant species (for lentic and lotic systems) and adequacy of the sinuosity, width/depth ratio and gradient to dissipate streamflow (for lotic systems) without excessive erosion or deposition. Proper Functioning Condition (PFC) assessments are a qualitative evaluation of natural water sources conducted to help determine issues and to help guide what changes in management might be needed to effectively meet or maintain the established Standards and Guidelines. A rating of PFC does not necessarily mean that a particular water source is in perfect condition or has no management concerns/needs.

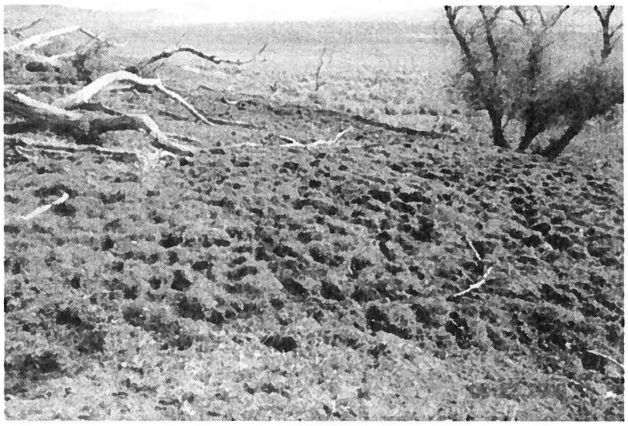
Six water sources were evaluated for PFC, four in 2009 and two in 2010 (See Table 1). Though the allotment was not meeting standards in some locations, reevaluations/revisits show improvement at most of these riparian sites.

Riparian areas in the Dixie Valley North Pasture (Mud Spring, Willow Spring, East Job Canyon Creek, and Silver Hill Canyon Creek) received a season of rest from livestock grazing between site visits. The Mud and Willow springs PFC reevaluation showed signs of recovery in 2011. East Job Canyon was revisited in 2011and although a formal PFC assessment was not conducted signs of recovery were apparent. Silver Hill Canyon was rated functional-at risk (FAR) stemming from both livestock grazing and an invasion of salt cedar (Nevada Category C noxious weed). A return visit in 2011 indicated some vegetation recovery but the salt cedar is still intact in high densities.

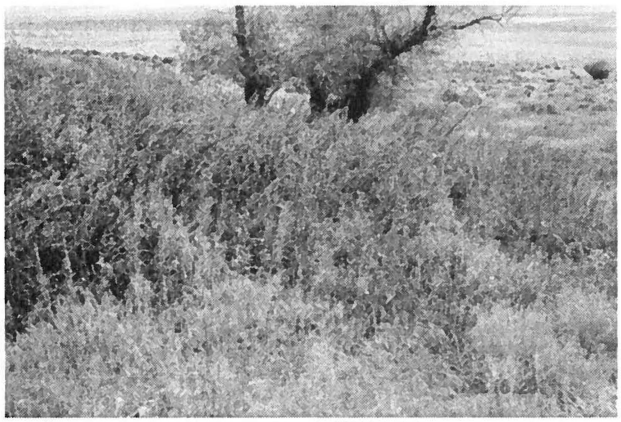
Remaining assessed riparian areas include Horse Creek and an unnamed spring in Cherry Valley. Horse Creek received a PFC rating. The unnamed spring in Cherry Valley was rated FAR with a downward trend due to livestock grazing and wild horse utilization.

Table 1. PFC Assessment Data for the Dixie Valley Allotment.

Name	Date Assessed	Rating
Willow Spring	08/18/2009 & 08/19/2011	FAR – upward trend in 2011
Mud Spring	08/18/2009 & 08/19/2011	FAR – upward trend in 2011
Silver Hill Canyon Creek	08/19/2009	FAR – downward trend
Horse Creek	09/21/2009	PFC
Unnamed Spring near Cherry Valley	09/22/2010	FAR – downward trend
East Job Canyon Creek	07/07/2010	FAR – trend not apparent

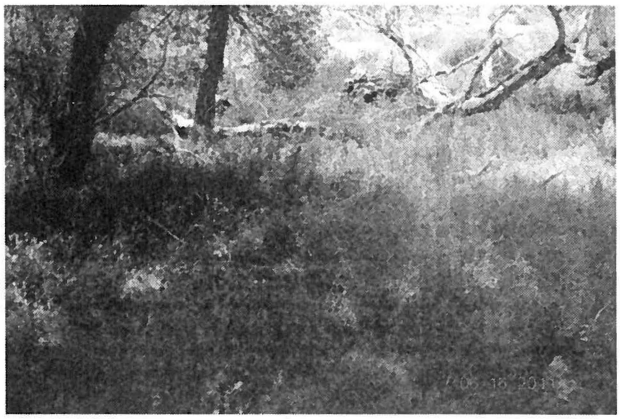


Willow Spring 2009



Willow Spring 2011

Mud Spring 2009



Mud Spring 2011

East Job Canyon Creek 2009

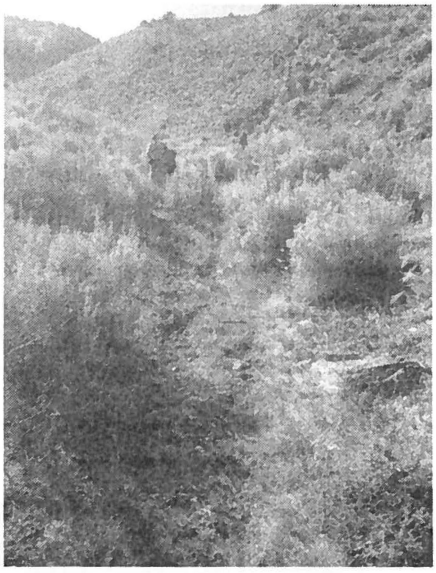
East Job Canyon Creek 2015

Horse Creek 2009

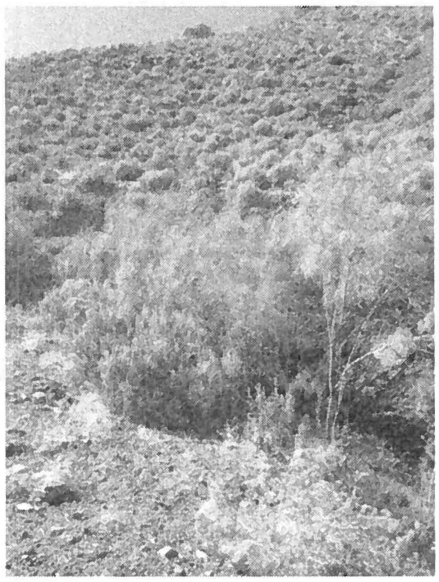
Horse Creek 2015

Silver Hill Canyon 2011 (algal matting)

Silver Hill Canyon 2011 (salt cedar infestation)



Silver Hill Canyon 2015 (algal matting)



Silver Hill Canyon 2011 (salt cedar infestation)

All PFCs stated in Table 1 were reassessed in 2015. Mud and Willow Springs retained the FAR rating though the trend was slightly downward. The riparian areas have shrunk due to drought which has resulted in more impact to the saturated areas.

Silver Hill Canyon Creek maintained the FAR rating with a downward trend largely due to the infestation of salt cedar. The area contained high vegetative diversity along with good species vigor. Utilization from livestock was appropriate for the area.

Horse Creek retained its PFC rating. The vegetation exhibited good vigor with a high diversity of riparian plant species.

The unnamed spring in Cherry Valley kept the FAR with a downward trend rating. Livestock grazing and wild horse utilization continues to be heavy with detrimental impacts to the spring.

In the reassessment East Job Canyon Creek was divided into four reaches. The upper most and lowest reaches were rated FAR with trend not apparent. The upper-middle reach was FAR with an upward trend and the lower-middle was rated PFC. Wild horse and livestock use were most notable on the upper most and the lowest reach. The entire creek area contained high vegetative diversity along with good species vigor.

Standard 3 (Water Quality) Check those that apply: [One or more must be checked]

____ Standard does not apply

_x__ Meeting Standard

____ Not Meeting Standard, but Making Significant Progress towards

____ Not Meeting Standards, but cause still being determined

____ Not Meeting Standard, Livestock Grazing Practices are Significant Factors

____ Not Meeting Standard, Livestock Grazing Practices are **not** significant factors

Rationale:
The RAC Standards and Guidelines for Rangeland Health for the Sierra Front-Northwestern Great Basin Area states for Standard 3; "Water quality criteria in Nevada or California State Law shall be achieved or maintained". Standards refer to the goal to be achieved and indicators assist in determining whether Standards are met or Guidelines are followed. Indicators for Standard 3 refer to assessing whether the chemical, physical, and biological constituents are exceeding water quality standards criteria.

No class waters or beneficial uses are designated within the Dixie Valley Allotment, therefore, only the descriptive water quality standards pertaining to all surface waters in Nevada (NAC 445A.121) apply to these water sources. All the springs/springbrook systems and creeks were determined to be meeting water quality standards.

Standard 4 (Plant and Animal Habitat)

___ Standard does not apply

_x_ Meeting Standard

___ Not Meeting Standard, but Making Significant Progress towards

____ Not Meeting Standard, but cause still being determined

__x_ Not Meeting Standard, Livestock Grazing Practices are Significant Factors

__x_ Not Meeting Standard, Livestock Grazing Practices are **not** significant factors

Rationale:

Overview

The RAC standards and guidelines for rangeland health for the Sierra Front-Northwestern Great Basin Area states for Standard 4; "Populations and communities of native plant species and habitats for native animal species are healthy, productive, and diverse". Indicators relate to diversity, distribution, and abundance of plant species that provide habitat for wildlife. Precipitation on the allotment is variable, with the higher elevations receiving the most. This makes natural water sources and the vegetation it supports very important for wildlife.

Rangeland health assessments were made at nine sites; seven in cold desert scrub key habitat and two in the sagebrush key habitat. Three Assessment, Inventory, and Monitoring (AIM) assessments (BLM 2014) were conducted in the sagebrush key habitat. In general, the native vegetation in cold desert scrub habitat is deficient in diversity, distribution, and abundance and is therefore not meeting the standard for plant and animal habitat. This was based on the comparison to potential vegetative composition as described in the ecological site descriptions stemming from the soil surveys used to make these assessments. The sagebrush key habitat, which experiences higher precipitation, is generally meeting the standard. Areas not meeting the standard stem from a combination of drought, historic and current livestock grazing, as well as wild horse utilization.

Six PFC assessments were made for three spring and three perennial creeks (see Standard 2 for PFC results).

Based on the **Southwest Regional GAP Analysis Project,** the Nevada Department of Wildlife's Wildlife Action Plan (2012) characterized Nevada's vegetative land cover into eight broad ecological system groups and linked those with Key Habitat types, which are further refined into Ecological Systems characterized by plant communities or associations (USGS 2005). The primary Key Habitat types found and the known or potential wildlife species that could be supported by these plant communities are displayed in Table 2.

Key Habitats

Intermountain Cold Desert Scrub—Approximately 45% of the allotment encompasses this key habitat. Five assessments were conducted in Intermountain Cold Desert Scrub habitat. Annual rainfall tends to be low (3-8 in) and wildlife supported by this habitat are generally not found in great densities. Lizards are the most diverse and abundant assemblage of species found. Winterfat is a key forage species for some wildlife, in particular, pronghorn. Some areas of winterfat were in poor condition. Many sites have Russian thistle, an invasive which indicates diminished native plant species diversity. Desert pavement and/or microbiotic crusts, which help stabilize soil, were generally found in the shrub interspaces. Native grasses were lacking in quantity and species diversity. This key habitat is not meeting standards with drought, wild horse utilization, and livestock grazing as contributing factors.

Sagebrush—Approximately 40% of the allotment encompasses this key habitat. Vegetative composition in sagebrush habitats can be highly variable depending on rainfall, elevation, slope, and aspect. Two Rangeland Health Assessments and three AIM assessments (see Standard 5 *Sage-Grouse* for results) were conducted in sagebrush habitat. Sufficient diversity, distribution, and abundance of native plant species were present on higher elevations although native grasses were deficient in lower elevations; however, the majority of the sagebrush habitat occurs within the upper elevations. Cheatgrass is scattered throughout.

Lower Montane Woodland— Approximately 11% of the allotment encompasses this key habitat which consists of a piñon/juniper dominated plant community. Understory layers are variable depending on tree density. No assessments were conducted in this key habitat.

Desert Playas and Ephemeral Pools —Approximately 2% of the allotment encompasses this key habitat. Playas experience intermittent flooding and evaporation that precipitates fine soils and mineral salts. Soils can be very saline as are the playas associated with this allotment. When playas contain water for extended periods of time lush vegetation can grow in addition to producing many aquatic invertebrates that provide forage for shorebirds, waterfowl, and small water birds. Dixie Meadows hot spring and other cold springs provide the Dixie Meadows Salt Marsh with a permanent water source. Therefore, numbers and abundance of species in any given year is less variable than playas without a permanent water source. Soils adjacent to these playas support species such as fourwing saltbush, saltgrass, and pickleweed. No assessments were conducted in or adjacent to this key habitat.

Springs and Springbrooks/Intermountain Rivers and Streams —Nevada has the most known springs of any state in the U.S. with over 4,000 mapped. They are of various temperatures and flow and are extremely important in maintaining Nevada's wildlife diversity (Nevada Wildlife Action Plan 2012). Springbrooks refer to areas of flowing water linked to the spring source such as Willow/Mud spring (FAR). The three main categories of springs are warm, cold, and hot; with some springs being ephemeral in nature. Even small springs and/or flows can support important endemic gastropods and other aquatic invertebrates as well as diverse plant communities containing forbs, sedges, and rushes. While the actual amount of riparian/spring habitat is small in Nevada (<5%), about 80% of all vertebrate species require this habitat. Consequently, meeting the standard in this key habitat is especially critical for wildlife.

Three springs and three perennial creeks were formally assessed (see Standard 2 for PFC results).

Marshes—This key habitat is considered one of the most diverse and critical for some species of migratory birds for both breeding and migratory needs. Only a few hundred acres of the key habitat exist within the allotment. However, most of these areas are on Navy lands and are protected by fencing. No assessments were conducted in these areas.

Big Game

Mule Deer — Mule deer will consume forbs, grasses, and shrubs depending on the time of year. The Dixie Valley allotment encompasses approximately 82,605 acres (≈26%) of NDOW delineated mule deer habitat in the Clan Alpine and Stillwater Mountains. Abundance and distribution is limited by water availability and wild horses (NDOW 2010); therefore, spring and springbrook habitats are a crucial component to the success of mule deer populations.

Pronghorn — Pronghorn have an evolutionary history of 20 million years in North America. They were almost wiped out in the 1800s but have rebounded due to changes in wildlife and rangeland management techniques. The Dixie Valley Allotment supports approximately 215,512 acres of delineated year-round habitat. There are two wildlife water developments specifically for pronghorn within the allotment.

Upland Game

The primary upland game species within this allotment are chukar partridge and mourning dove. Springs and springbrooks are important for the survival of these game birds.

Standard 5 (Special Status Species Habitat)

___ Standard does not apply

_x_ Meeting Standard

___ Not Meeting Standard, but Making Significant Progress towards

___ Not Meeting Standard, but cause still being determined

__X_ Not Meeting Standard, Livestock Grazing Practices are Significant Factors

__X_ Not Meeting Standard, Livestock Grazing Practices are **not** significant factors

Rationale:
The key habitat rationale written for standard 4 is the same for standard 5.

Federally Listed Species
After consulting with the BLM wildlife biologist and the USFWS website for Nevada, no federally listed species occur on the allotment (http://www.fws.gov/nevada/protected_species/species_by_county.html).

There are no federally listed sensitive plant species known to occur within the Dixie Valley Allotment.

BLM Sensitive Species
Sensitive species use a variety of habitat types. Nevada BLM sensitive species expected and/or found in or near the allotment are displayed in Table 2 and Table 3.

Table 2: BLM Nevada Sensitive Wildlife Species that Occur or Potentially Occur within the Dixie Valley Allotment.

Key Habitats	Species
Intermountain Cold Desert Scrub/Sagebrush	Brewer's Sparrow (*Spizella breweri*)
Intermountain Cold Desert Scrub/Sagebrush	Burrowing Owl (*Athene cunicularia*)
Intermountain Cold Desert Scrub/Sagebrush/Lower Montane Woodlands/Cliffs and Canyons	Ferruginous Hawk (*Buteo regalis*)
Sagebrush/Intermountain Cold Desert Scrub	Golden Eagle (*Aquila chrysaetos*)
Lower Montane Woodlands	Lewis's Woodpecker (*Melanerpes lewis*)
Intermountain Cold Desert Scrub/Lower Montane Woodlands/Sagebrush	Loggerhead Shrike (*Lanius ludovicianus*)
Lower Montane Woodlands	Pinyon Jay (*Gymnorhinus cyanocephalus*)

Sagebrush	Greater Sage-grouse (*Centrocercus urophasianus*)
Desert Playas and Ephemeral Pools	Snowy Plover (*Charadrius alexandrines*)
Sagebrush	Swainson's Hawk (*Buteo swainsoni*)
Intermountain Cold Desert Scrub/Sagebrush/Intermountain Rivers and Streams/Marsh/Lower Montane Woodlands/Springs and Springbrooks	California Myotis (*Myotis californicus*)
Cliffs and Canyons	Desert Bighorn Sheep (*Ovis canadensis nelsoni*)
Intermountain Rivers and Streams/Marsh/Lower Montane Woodlands/Cliffs and Canyons/Spring and Springbrooks	Little Brown Myotis (*Myotis lucifugus*)
Lower Montane Woodlands/Cliffs and Canyons	Long-Eared Myotis (*Myotis evotis*)
Intermountain Cold Desert Scrub	Pale Kangaroo Mouse (*Microdipodops pallidus*)
Intermountain Cold Desert Scrub, Sagebrush, Lower Montane Woodlands	Pallid Bat (*Antrozous pallidus*)
Lower Montane Woodlands/Cliffs and Canyons/Intermountain Rivers and Streams/Springs and Springbrooks	Spotted Bat (*Euderma maculatum*)
Lower Montane Woodlands, Cliffs and Canyons/Intermountain Rivers and Streams/Springs and Springbrooks	Townsend's Big-eared Bat (*Corynorhinus townsendii*)
Marshes/Springs and Springbrooks	Northern Leopard Frog (*Lithobates pipiens*)
Springs and Springbrooks/Marshes	Dixie Valley Toad (*Anaxyrus boreas* ssp.)

Table 3: BLM Nevada Sensitive Plant Species that Occur or Potentially Occur within the Dixie Valley Allotment.

Plants	
Lahontan Beardtongue (*Penstemon palmeri var. macranthus*)	Found along washes, roadsides, and canyon floors, predominately on carbonate-containing substrates and where moisture is available throughout the summer (NNHP 2001).

Desert Bighorn Sheep — Desert bighorn sheep prefer rough, rocky, and steep terrain; require freestanding water; and consume a variety of grasses, shrubs, and forbs. The Dixie Valley Allotment encompasses approximately 140,354 acres (≈51%) of occupied habitat (NDOW 2010).

Sage-Grouse — The allotment encompasses 135,759 acres of the Clan Alpine, 52,292 acres of the Stillwater, and 669 acres of the Desatoya sage-grouse Population Management Units (PMU). The allotment contains approximately 13,146 acres (5.3%) of Priority Habitat Management Areas, 8,028 acres (3.2%) of General Habitat Management Areas (GHMA) and approximately 22,652 acres (9.1%) of Other Habitat Management Areas (OHMA).

One AIM assessment was conducted in PHMA (R027XY018NV) and two in OHMA (R027XY019NV). Sage-grouse use of these areas is likely for nesting/early brood-rearing. The vegetation communities at the AIM assessment sites did not meet sage-grouse habitat objectives (Table 4). Causal factors include drought, heavy to severe year-round use by wild horses, and livestock grazing.

Table 4: Comparison of the 2013 AIM Assessment and the Sage-Grouse Habitat Objectives Identified in Nevada and Northeastern California Greater Sage-Grouse Approved Resource Management Plan Amendment (BLM 2015)

	AIM Result	Sage Grouse Habitat Objectives[1]
Sagebrush cover	0.3% PHMA 2.6% OHMA	Nesting ≥20% Brood rearing 10-25%
Total shrub cover	16.2% PHMA 20.9% OHMA	Nesting ≥30%
Annual/Invasive cover[2]	18.0% PHMA 22.7% OHMA	Nesting <5%
Perennial grass & forb cover	0.1% perennial grass PHMA 0.0% perennial forbs PHMA 1.3% perennial grass OHMA 0.0% perennial forbs OHMA	Brood rearing >15% combined Brood rearing ≥5% arid (forbs)
Residual & live perennial grass cover	0.1% PHMA 1.3% GHMA	≥10% if shrub cover is <25%

[1] Table 2.2, pages 2-4 and 2-5, Nevada and Northeastern California Greater Sage-Grouse Approved Resource Management Plan Amendment

[2] The AIM assessment of invasive cover includes species on the Nevada state noxious weeds list, the CAL-IPC invasive list, and non-native species listed in Weeds of the West

The sites chosen for rangeland health assessments exhibited sufficient diversity, distribution, and abundance of native grasses and forbs on the higher elevations. Native grasses and forbs were deficient in lower elevations. The sagebrush component appeared to be adequate to meet sage-grouse habitat objectives. Cheatgrass is scattered throughout.

One PFC assessment was conducted in sage-grouse habitat in 2010 and 2015. See the result in Table 5.

Table 5: PFC Assessments Conducted in Sage-Grouse Habitat

Name	Year Assessed/Rating	
Unnamed spring near Cherry Valley	2010/ FAR downward trend	2015/ FAR downward trend

CITATIONS

BLM. 2014. Land Health Assessment Program Bureau of Land Management Carson City District 2013 Final Report.

BLM. 2015. Nevada and Northeastern California Greater Sage-Grouse Approved Resource Management Plan Amendment.

NDOW. 2010. Misc. key game habitat maps – mule deer. CCDO files. Carson City, NV

NDOW. 2010. Misc. key game habitat maps - bighorn. CCDO files. Carson City, NV

NDOW. 2010. Misc. key game habitat maps - pronghorn. CCDO files. Carson City, NV

Nevada National Heritage Program (NNHP). 2001. Rare Plant Fact Sheet: Lahontan Beardtongue. http://www.heritage.nv.gov/sites/default/files/atlas/penstpalmemacra.pdf

Nevada Wildlife Action Plan. 2012. Nevada Department of Wildlife, Reno, NV.

USGS. 2005. National Gap Analysis Program. Southwest Regional GAP Analysis Project—Land Cover Descriptions. RS/GIS Laboratory, College of Natural Resources, Utah State University. Accessed at: http://earth.gis.usu.edu/swgap/data/atool/files/swgap_legend_desc.pdf.

DETERMINATION

I have determined that all of the applicable Standards for Rangeland Health for the Dixie Valley Allotment

____ are _x__ are not

being met .

Livestock grazing practices

__x__ conforms ___ do not conform

to the Guidelines for Livestock Grazing Management.

Tina J. Knutson
Authorized Officer

7/6/2016
Date