

ALLOTMENT EVALUATION

Hubbard Vineyard Allotment Revised Evaluation



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Elko District Office, Nevada



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.

**Bureau of Land Management
Elko District Office
3900 East Idaho Street
Elko, NV 89801
(775) 753-0200
http://www.blm.gov/nv/st/en/fo/elko_field_office.html**

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HUBBARD VINEYARD REVISED ALLOTMENT EVALUATION ELKO DISTRICT

1. INTRODUCTION

1.1 Allotment Name and Number: Hubbard Vineyard - 03225

1.2 Permittee: Boies Ranches, Inc.

1.3 Evaluation Period: 1986 to 2009

1.4 Selective Management Category and Priority: The Wells Resource Management Plan (RMP) placed grazing allotments into three categories based on resource conditions and management considerations: “I” (improve), “M” (Maintain), and “C” (Custodial). Future planning efforts would be directed predominately towards the “I” category allotment. The Hubbard Vineyard Allotment ranked 5th of the 24 “I” category allotments.

2. ALLOTMENT PROFILE

2.1 Description

The Hubbard Vineyard Allotment is located in east-central Elko County, Nevada, approximately 40 miles north of the town of Wells, Nevada. The allotment is bordered by the H.D. Allotment to the south and east, by Highway 93 to the east, by the Snake Mountains on the west, and by Salmon Falls Creek to the north. The allotment lies in the O'Neil/Salmon Falls Resource Conflict Area (RCA). Refer to Map 1 for the general location map of the Hubbard Vineyard Allotment within Elko District.

2.2 Acreage

1. Public Domain: 112,214 acres*

Private/other: 12,595 acres

Total: 124,861 acres (see Map 2 for land status)

* This includes 3,992 acres of Fenced Federal Range within the Hubbard Vineyard Allotment.

2. Pastures: 17 pastures: 4 are primarily crested wheatgrass seedings and 13 are native pastures. Table 1 displays the approximate acreage (public and private combined) for each pasture. Refer to Map 2 for the location of each pasture. The figures reported in this table are derived from GIS technologies and may differ from acreages reported in previous documents.

Table 1 : Acreage by Pasture		
Pasture Name	Pasture Number	Approximate Acreage
Private and Fenced Federal Range (Incl. Shoer and Purebred Fields)	1,2,3	10,189
Flat	4	19,800
Reservoir Seeding	5	5,379

Table 1 : Acreage by Pasture		
Pasture Name	Pasture Number	Approximate Acreage
East Hubbard Seeding	6	6,801
West Hubbard Seeding	7	6,152
Devil's Table/Hubbard Basin/Cold Springs Mountain	8,9,10	41,843
Jakes Creek Mountain	11	8,190
Dry Creek Seeding	12	2,554
Coon Creek	13	1,790
Bull Camp	14	5,595
Middle	15	8,396
Triangle	16	3,804
Dry Creek Mountain	17	4,368
Total		124,861

2.3 Wetlands/Riparian Areas

Most of the wetlands and riparian areas in the Hubbard Vineyard allotment are located in the Snake Mountain Range in the western two thirds of the allotment. Five perennial creeks are located in the allotment. Salmon Falls Creek runs through part of the northeastern corner of the allotment; three forks of Jakes Creek form high in the Snake Range and flow eastward, all joining together at about the middle of the allotment; Dry Creek and Bull Camp Creek originate in the southwestern part of the allotment and flow northeast to a confluence; and Cold Springs Creek originates in the HD Allotment and flows northeasterly into the Hubbard Vineyard Allotment. Salmon Falls Creek is the only creek with a perennial flow through the entire allotment; the remaining creeks all have stretches of perennial flow in the mountains that are reduced to intermittent flows on the flats on the eastern edge of the allotment. The allotment also has numerous springs and seeps, mostly located in the Snake Range. See Appendix 4 for the distribution of riparian and other resources among the various pastures and use areas.

2.4 Wildlife

The Hubbard Vineyard Allotment provides habitat for a diversity of big game and non-game wildlife species, including mule deer, elk, antelope, bighorn sheep, and numerous species of upland game birds, passerine birds, waterfowl, raptors, amphibians, reptiles and invertebrates. Approximately 100 bird species and 70 mammal species can be found in the Great Basin ecosystem, which are representative of the habitat types found in the Hubbard Vineyard Allotment (Braun et al. 1976; Trimble 1989). See Appendix 4 for the distribution of this and other resources among the various pastures and use areas. Boies Ranches Inc. has also conducted annual bird surveys between 2005 and 2007. The results of those studies can be found in Appendix 5.

2.5 Soils

The Hubbard Vineyard Allotment contains a wide variety of soils. Fifty mapped soil associations lie within the boundaries of the allotment. The distribution of the soil types in the allotment is displayed in Map 9, and the soil types are summarized in Appendix 6.

2.6 Mining Activities

The Snake Range in the southwestern portion of the allotment contains vast deposits of barite. Several companies actively mined these deposits in the late 1970's and early 1980's. The largest operation in the Hubbard Vineyard Allotment involved an open pit operation in the headwaters of Dry Creek. The miners built many miles of haul roads to support these operations, both from the Dry Creek mine and from additional mines on the west side of the Snake Range. Trucks moved ore from the mines to a reload area established just above Dry Creek Ranch, where it was placed into larger trucks for the final movement to a mill site established on the eastern fringe on the allotment. These mines all closed in the early 1980's, with minimal reclamation performed on any of the facilities.

Recent high mineral prices have sparked an increased interest in resuming barite mining operations in the area. In early February 2007 the BLM and Nevada Department of Environmental Protection (NDEP) approved a Plan of Operations for Spirit Minerals LP to disturb approximately 48.4 acres in the course of doing exploration work in the Snake Range. Most of this activity occurred outside the Hubbard Vineyard Allotment; however, the work did include some exploration work (trenching, monitor well, water well) at a proposed mill site on the area previously used for the reload center near Dry Creek Ranch and transportation of stockpiled ore from a former mill site on the west side of the Snake Range to the proposed Dry Creek mill site. In August 2007 the BLM approved a second Plan of Operations allowing Spirit Minerals LP to disturb a total of 193.3 acres (including previously disturbed acres.) By the spring of 2008 Spirit Minerals commenced operations of the new Dry Creek mill. The mill is currently in full operation processing raw ore trucked from the principle mine located on the west side of the Snake Mountains. Processed ore is trucked from the mill out to Highway 93.

2.7 Recreation

The Hubbard Vineyard Allotment provides limited recreational activities. No formal or designated recreational areas exist in the allotment. All public lands in the allotment are open to dispersed recreational use, which primarily occurs during the hunting season in the fall. Other uses, such as back road driving or All Terrain Vehicle (ATV) use, can occur at almost any time of the year. The only concentrated recreational use involves fishing in Boies Reservoir, which is located primarily on private land on Jakes Creek.

2.8 Fire Occurrence

There have been relatively few fires in the Hubbard Vineyard Allotment in recent history. The only large fire to affect the allotment was the Cold Springs fire, which burned approximately 6,927 acres of the very north end of the allotment in 2000. The fire primarily affected the Upper Hubbard Basin and Cold Springs Mountain pastures. The Deer Fire in 2006 burned approximately 282 acres along part of the eastern boundary of the allotment. Other fires have been limited to scattered small spot fires.

2.9 Invasive, Non-Native Species

Four infestations of noxious weeds have been recorded in the allotment; approximately 0.01 acres of Scotch thistle in the Hubbard Basin in 2002; 0.05 acres of hoary cress along one of the old mine roads in the Bull Creek Mountain pasture in 1998; 0.01 acres of hoary cress in the Reservoir Seeding pasture; and a small infestation of Bull thistle at Section 9 Spring. Other small infestations may exist. Other invasive species found include halogeton and cheatgrass, especially in the drier flats on the eastern third of the allotment. Most of these populations are associated with roads or mining activities.

2.10 Wilderness Study Areas

A small strip of the Bad Lands Wilderness Study Area is located in the northwest corner of the Hubbard Vineyard Allotment where Devils Creek enters Salmon Falls Creek. Most of the Badlands Wilderness Study Area is located north of the Hubbard Vineyard Allotment boundary. Please see Map 2 for the location of this WSA.

3. MANAGEMENT OBJECTIVES.

3.1 General Land Use Plan Objectives (Wells Resource Management Plan)

a. Livestock Grazing

To provide for livestock grazing consistent with other resource uses resulting in an increase in 4912 AUMS from three to five year average licensed use of 288,934 AUMS to a level of 293,846 (for the Wells Resource Area). Range improvements will be provided primarily in "I" category allotments.

b. Terrestrial Wildlife Habitat

1. Conserve and/or enhance wildlife habitat to the maximum extent possible.
2. Eliminate all of the fencing hazards in crucial big game habitat and most of the fencing hazards in noncrucial big game habitat.

3. Eliminate all of the high and medium priority terrestrial riparian habitat conflicts in coordination with other resource uses.

c. Riparian/Stream Habitat

1. Improve high and medium priority riparian/stream habitat to at least good condition.
2. Prevent undue degradation of all riparian/stream habitat due to other uses.

3.2 Rangeland Program Summary (RPS)

3.2.1 Livestock Grazing

1. Improve livestock distribution in the Lower Hubbard Basin, Big Devils Table, Boies Reservoir, Cow Basin, and the West side of Cold Springs Mountain.
2. Improve ecological status in the eastern third of the allotment, particularly the lower elevation of Hubbard Basin.
3. Maintain the existing ecological status of the Mountain, Upper Hubbard Basin, Bull Camp, and Coon Creek Pastures.
4. Develop an Allotment Management Plan to be signed in FY86.
5. Periodically evaluate the monitoring data for the allotment to reinstate suspended non-use AUMS when they become permanently available.

3.2.2 Terrestrial Wildlife Habitat

1. Improve or maintain all seasonal big game habitat in the Hubbard Vineyard Allotment to good or excellent condition to provide forage and habitat capable of supporting the following reasonable numbers:

804 mule deer;	1,407 AUMS
252 antelope;	293 AUMS
10 bighorn sheep;	24 AUMS

2. Facilitate big game movements by modifying 35.1 miles of existing fences to Bureau standards.
3. Reintroduce bighorn sheep into the Badlands.

Note: The O'Neil Salmon Falls Habitat Management Plan objective is to achieve reasonable numbers (10, yearlong) within the Hubbard Vineyard Allotment.

3.2.3 Riparian/Stream Habitat

1. Improve 10 springs to good or better condition.

2. High and Medium Priority Streams

Improve riparian/stream habitat conditions to good or excellent on Dry Creek, Jakes Creek, and Salmon Falls Creek (10.0 miles). Satisfactory progress towards this long-term objective will be measured by a minimum improvement of 30% (from 1979 and 1980 baseline data) by 1990. A new baseline was set in 2001 with a change in livestock management practices.

Note: Due to an editorial error, the RPS used incorrect figures. The objectives should be for 1.3 miles of Dry Creek, 5.8 miles of Jakes Creek, and 2.0 miles of Salmon Falls Creek, for a total of 9.1 miles to be improved.

The Wells RPS gave medium priority for management to three streams in the Hubbard/Vineyard Allotment. Based on the riparian/stream habitat potential and the amount of public land involved, Dry Creek, Jakes Creek, and Salmon Falls Creek were designated as “priority”.

Riparian/stream habitat conditions relate to fisheries habitat potential as measured through assessments of riparian vegetative cover, bank stability, and instream fish habitat. Condition is expressed as a percentage of optimum, optimum being 100%. Optimal habitat is characterized by clear, cold water; a silt free rocky substrate in riffle-run areas; an approximately 1:1 pool-riffle ratio with areas of slow, deep water; well vegetated streambanks; abundant instream cover; and relatively stable water flow, temperature regimes and streambanks. Instream habitat condition improve more slowly than riparian condition.

Rating Classification

70% and above = Excellent

60-69.9% = Good

50-59.9% = Fair

49.9% and below = Poor

Riparian condition percent optimum is the average of bank cover and bank stability. Stream habitat condition optimum is the average of the pool/riffle ratio, pool quality, percent of streambottom with desirable material, bank cover, and bank stability.

Riparian condition percent optimum is generally achieved long before stream habitat percent optimum. Quality pools appear to be a consistently low feature in small Nevada streams, and many streams have few, if any, quality pools (defined as pools that are wide, deep, and well covered).

3. Low Priority Streams

There are 6.7 miles of Bull Camp Creek located on public lands within the Hubbard/Vineyard Allotment. Because of lower fisheries and riparian values, Bull Camp Creek was given a low priority for management.

3.3 O'Neil/Salmon Falls Habitat Management Plan Objectives

- a. Improve to or maintain in at least good condition all deer use areas in the O'Neil/Salmon Falls Resource Conflict Area.
- b. Modify or reconstruct up to 140 miles of fence emphasizing, in priority order (1) migration routes, (2) winter ranges, (3) spring ranges, and (4) other use areas.
Note: 35.1 miles of existing fence are to be modified within the Hubbard Vineyard Allotment.
- c. Achieve reasonable numbers (90, yearlong) of bighorn sheep in the vicinity.
Note: reasonable numbers of bighorn sheep is 10 within the Hubbard Vineyard Allotment.
- d. Improve 43 springs and wet meadows, presently in poor or fair condition, to good or excellent condition (seven of the 50 spring projects authorized for the RCA by the Wells RMP are allocated to the Badlands bighorn sheep).
Note: 10 springs within the Hubbard Vineyard Allotment are to be improved, enhanced, or developed to good or excellent condition.

3.4 Key Area Objectives

- a. HV-01 Flat Pasture
 1. Short-term: Do not exceed an average annual utilization of 50%, or 55% utilization in any one year on bluebunch wheatgrass (AGSP) and Thurber's needlegrass (STTH2).
 2. Long-term: Maintain or improve ecological status to a low late seral (51 points) stage by 2005.
- b. HV-02: Lower Hubbard Pasture
 1. Short-term: Do not exceed an average annual utilization of 50%, or 55% utilization in any one year on Indian ricegrass (ORHY) (during grazing years).
 2. Long-term: Improve ecological status to a low late seral (51 points) stage by 2005.
- c. HV-03: Upper Hubbard Pasture
 1. Short-term: Do not exceed an average annual utilization of 50%, or 55% utilization in any one year on bluebunch wheatgrass (AGSP) and Thurber's Needlegrass (STTH2) (during grazing years).
 2. Long-term: Improve ecological status to a low late seral (51 points) stage by 2005.
- d. HV-04: Reservoir Seeding Pasture
 1. Short-term: Do not exceed an average annual utilization of 55%, or 65% utilization in any one year on crested wheatgrass (during grazing years).
 2. Long-term: Achieve and maintain crested wheatgrass production of 500 lbs/acre (air-dry weight).

e. HV-05: Hubbard Seeding Pasture

1. Short-term: Do not exceed an average annual utilization of 55%, or 65% utilization in any one year on crested wheatgrass (during grazing years).
2. Long-term: Achieve and maintain crested wheatgrass production of 500 lbs/acre (air-dry weight).

3.5 Northeastern Great Basin Area Standards and Guidelines

The following Standards For Rangeland Health were developed for the Northeastern Great Basin area of Nevada and approved by the Secretary of the Interior on 12 February 1997.

- a. Standard 1. Upland Sites: Upland soils exhibit infiltration and permeability rates that are appropriate to soil type, climate, and landform.
- b. Standard 2. Riparian and Wetland Sites: Riparian and wetland areas exhibit a properly functioning condition and achieve state water quality criteria.
- c. 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.
- d. Standard 4. Cultural Resources: Land use plans will recognize cultural resources within the context of multiple use.

3.6 Key Species Identification

<u>Key Area</u>	<u>Key Species</u>
HV-01	AGSP (bluebunch wheatgrass), STTH2 (Thurber's needlegrass)
HV-02	ORHY* (Indian ricegrass)
HV-03	AGSP, STTH2
HV-04	AGCR (crested wheatgrass)
HV-05	AGCR

*Note: The key species for HV-02 from 1986 to 1993 were AGSP and STTH2

4. INITIAL STOCKING LEVEL

4.1. Livestock Use

4.1.1. Grazing Preference

- a. Active Preference: 13,031
 - b. Historic Suspended: 965
- (total number of animal unit months (AUMs) of specified livestock grazing)

4.1.2 Season of Use

April 1 to December 31, January 1 to February 28.

4.1.3 Kind and Class of Livestock

Cattle: pairs, yearlings (steers and heifers), bulls. Horses

4.1.4 Percent Federal Range: 93%

4.1.5 Grazing Systems

Grazing System prior to 1999

Prior to 1999, Boies Ranches Inc. ran four livestock herds, depending on available forage on the Hubbard Vineyard Allotment. The grazing system in place during most of the evaluation period ran as follows:

Herd One: 300 - 500 cows

50 to 150 head were turned out between April 1 and April 10, the remainder of this herd were turned out between April 20 and May 1 into the Flat pasture. Sometime in June, depending on the available water and forage in the Flat Pasture, the cattle were moved to the Dry Creek area in the Mountain Pasture (now split into Dry Creek Mountain, Jakes Creek Mountain, and Triangle pastures). The livestock remained in the Mountain Pasture until October.

Herd Two: 300 - 450 cows

50 to 150 of these cows were turned out between April 1 and April 10 into Lower Hubbard Basin. In dry years the permittee moved them to Devils Creek, which lies adjacent to Big Devils Table (Upper Hubbard Basin). This worked out well as this was the only time the permittee can keep cattle in the Canyon for any length of time. The remainder of the cows were turned out between April 20 and May 10 into Lower Hubbard Basin. The majority of these cows drifted into the lower Jakes Creek riparian area and congregated below the mountain drift fence, in the area which is now the Middle Pasture, until they were gathered and turned into the Jakes Creek Mountain area sometime in June. Some of the initial 50-150 head drifted into the Cold Springs area, which lies along the O'Neil Road to the summit. Very few cattle remained in the Upper Hubbard Basin Pasture the entire season. All of the cows came out of the Mountain Pasture between October and early November.

Herd Three: 100 - 200 cows

The livestock were turned out into either the Reservoir Seeding or Little Dry Creek Seeding sometime in late April or early May. By late June this herd moved into Coon Creek or the Mountain Pasture. This herd was usually gathered between September and early October.

Herd Four: 400 - 500 head yearling steers

The steers were turned into the East or West Hubbard Seeding Pasture around April 15. By mid June the herd moved into the Bull Camp Mountain Pasture, where they remained until gathered by September 10. A few head, 50 to 100, ran in the Schoer Place Pasture.

Horses generally grazed in the East and West Hubbard Seedings, Dry Creek Seeding, and/or the Bull Camp Mountain pastures.

Grazing System since 1999

In 2000 Boies Ranches initiated a cooperative effort with the BLM, Nevada Department of Wildlife (NDOW), Northeastern Nevada Stewardship Group, the Elko County Commissioners, and others to work on changing livestock management to improve resource conditions while also maintaining a viable livestock operation on the allotment. Grazing use and other resource management actions are planned through annual meetings with Boies Ranches and representatives from BLM, NDOW, and other interested organizations and publics. Planning is characteristic of the Holistic Management (HM) planning process (Plan, Implement, Monitor, Re-plan). Under the current grazing system, livestock remain in pastures through at least part of each year, with the timing of grazing use in each pasture differing from year to year. Each year several pastures are rested from grazing use, with the rested pastures rotating from year to year as well. Boies Ranches and the BLM have jointly built several new pasture division fences in the past several years, with the most significant fencings separating the Mountain pasture into three pastures, only one of which is scheduled for use each year.

4.2 Wild Horse and Burro Use

None. The allotment is outside of any wild horse herd management areas and there are no wild horses within the allotment.

4.3 Wildlife Use

The existing and reasonable numbers contained in this section are taken from the 1986 Wells Resource Area Rangeland Program Summary (RPS) and are not a correct assessment or estimate of current populations of these species on this allotment. However, the key/critical management areas displayed in the tables and displayed on the maps are based on more recent data.

4.3.1 Upland Species/Big Game

Mule deer

existing numbers: 202 deer (354 AUMs)

reasonable numbers: 804 deer (1,407 AUMs)

key/critical management areas: mule deer summer, crucial summer, crucial winter, intermediate and yearlong. Map 3 shows seasonal mule deer habitat boundaries. Table 2 outlines the acres of each seasonal use area within the Hubbard Vineyard Allotment.

TABLE 2. MULE DEER SEASONAL USE AREAS	
Seasonal Use Area	Acres
Mule Deer Summer	49,418
Mule Deer Crucial Winter	8,567
Mule Deer Intermediate	65,952
Mule Deer Yearlong	973

Pronghorn Antelope

existing numbers: 56 antelope (66 AUMs)

reasonable numbers: 252 antelope (293 AUMs)

key/critical management areas: Antelope summer range and crucial winter range. Map 4 identifies seasonal antelope habitat boundaries. Table 3 outlines the acres of each seasonal use area within the Hubbard Vineyard Allotment.

TABLE 3. PRONGHORN ANTELOPE SEASONAL USE AREAS	
Seasonal Use Area	Acres
Antelope Summer	107,300
Antelope Crucial Winter	15,521

Bighorn sheep

existing numbers: Fifty Rocky Mtn. bighorn sheep were released in the Badlands Wilderness Study Area (WSA); twenty-five were released in January of 1989, another twenty five sheep were released in January of 1992. The NDOW currently estimates the population to be approximately 70 bighorn sheep for the L&D Mountain/Badlands WSA vicinity. These animals have established seasonal use areas on the adjacent Salmon River Allotment and have not yet occupied potential yearlong habitat in the Hubbard Vineyard Allotment.

reasonable numbers: 10 bighorn sheep (24 AUMs)

key/critical management areas: Potential bighorn sheep yearlong range. Map 5 shows potential seasonal bighorn sheep habitat boundaries.

TABLE 4. BIGHORN SHEEP SEASONAL USE	
Seasonal Use Area	Acres
Occupied Range	34,760
Potential Range	17,181

Elk

existing numbers: The Wells RMP identified two Elk Management Areas in the Resource Area, an occupied one in Pilot Mountain and a potential one in the Jarbidge Mountains. Elk in the Pilot Mountain use have area spread out in all directions, with additional herds becoming established in surrounding mountain ranges. By 1990 elk sightings were becoming common in the Snake Range. On 14 February 1995 the BLM approved the Elk Amendment to the Wells RMP that established a Snake Range Management Area for this growing elk population. This management area includes that area bordered by U.S. Highway 93 on the east, the South Fork of Salmon Falls Creek on the north, the county road from Sun Creek Ranch to Deeth on the west, and Interstate 80 from Deeth to Wells on the south. The northern part of this management area lies within the Hubbard Vineyard Allotment. Existing numbers in this management area at the time of the RMP amendment were 0.

reasonable numbers: 100 elk in the above described management area.

key/critical management areas: Elk yearlong range. Please see Map 6 for currently occupied elk habitat.

TABLE 5. ELK MANAGEMENT AREA WITHIN HUBBARD VINEYARD ALLOTMENT	
Management	Acres
Moderate to High Potential	24,774

Sage grouse

existing numbers: no data available for numbers

reasonable numbers: no data available for numbers

key/critical management areas: Eleven sage grouse strutting grounds and six wintering grounds are known to exist within the Hubbard Vineyard Allotment (see Map 7). Four other strutting grounds are known to exist on adjacent lands within a two-mile radius of the Hubbard Vineyard Allotment boundary.

TABLE 6. SAGE GROUSE SEASONAL USE AREAS	
Seasonal Use Area	Acres
Winter	111,542
Nesting	70,192
Summer	124,860

Big Game and Upland Game Population Trends

Antelope – The Hubbard Vineyard Allotment is located within NDOW Hunt Unit 074 and 075 unit groups. This herd is increasing with good recruitment. Observations by NDOW indicate

that over the last few years antelope have been using Cold Springs Mountain (Hubbard Basin) as a wintering ground. Approximately 300 head were counted in December 2006 on the area burned by the 2000 Cold Springs fire. It is uncertain if these are animals coming from the east side of the Snake Mountains or if they might be animals coming from the Jarbidge area.

Mule Deer – The Hubbard Vineyard Allotment is located within NDOW Hunt Unit 074 and 075 unit groups. Overall the area 7 deer herd has been increasing the last few years with good recruitment as well. It is uncertain how the Deer Creek fire might affect the deer population as they usually use the Hubbard Vineyard area as a transitional/staging area. Although the deer herd has been increasing, it is unlikely that it will reach levels documented in the 1980’s due to cumulative loss of habitat from fires over the last six years.

Elk –The Elk in unit 075 (Snake Mountains) are doing well. Although the recruitment is good and would normally translate into an increase in the herd size, NDOW has been trying through harvest to maintain the level at the population objective of 100 elk. It has been extremely difficult to manage this herd based on the fact that the elk herd spends a good portion of their time on private land where they are unavailable to hunters unless they hire a guide. Several attempts have been made to shift the season timing and length to accomplish greater antlerless harvest. It has been somewhat successful. The latest attempt has been to allow hunters to hunt the elk on their winter range in unit 074 (Hubbard Basin). Like the pronghorn, the elk have started to use this recovering burn to winter. The elk have also been using the Jakes Creek area to winter.

Bighorn Sheep – There is a small population of Rocky Mountain Bighorn Sheep in the Black Mountain, Badlands, and L&D areas. The population is stable. Information from NDOW indicate that the population has recovered from a suspected die-off in 1999, and is showing moderate recruitment rates of approximately 45 – 50 lambs per 100 ewes.

Sage Grouse – The majority of the Hubbard Vineyard Allotment is located within the Snake Population Management Unit; with only a small portion of the O’Neil Basin PMU located within the allotment boundary. Sage grouse population estimates in the Northeast Nevada Sagebrush Ecosystem Management Plan range from 8,305 to 9,967 for the O’Neil Basin PMU and 2,636 to 3,163 for the Snake PMU. Population trend estimates for both PMUs are static with a long term downward trend. There is an established trend lek within the allotment in the Snake Mountain PMU which NDOW has monitored continuously since 1999; population monitoring data for this trend lek are displayed in Table 7.

Table 7. East Hubbard Well Trend Lek Summary

East Hubbard Well Trend Lek Monitoring Results										
	Year									
	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Number of birds in Attendance	70+	86	65	48	58	123	120	103	84	71

Sharp-Tailed Grouse- In 1999, a trap and transplanting program was initiated to reintroduce sharp-tails into their former range in Nevada. A field tour was conducted in 1998 that included a team of state and federal biologists from Nevada and Idaho, and a site was chosen within the Hubbard Vineyard Allotment based on its habitat similarity to source populations in Idaho and its juxtaposition to re-introduction efforts being implemented in Idaho. The Snake Mountains were chosen as a release site because of the abundance of mountain brush habitat. The dominant plant communities were shrub-steppe at lower elevations and mountain-shrub-steppe at higher elevations (Coates 2001). Between 1999 and 2005, there were 226 birds (146 males and 80 females) transplanted from southern Idaho to the east side of the Snake Mountains in Elko County. After the 1999 release most of the grouse were located several miles northeast of the release site. At least four nests were observed that first year. The release in 2000 showed an even greater dispersal. One adult female was found southeast of the Granite Range (20+ miles northeast of the release site). One male and two females relocated to Camp Creek on the eastside of the Jarbidge Mountains (20+ miles northwest of the release site). Five other grouse went 30+ miles northwest to the O'Neil basin, and one went 20+ miles east to the southeast side of Knoll Mountain. A lek was observed in 2002 just east of the second release site with five males strutting. Two of the cocks were from the 2002 release and at least one had a leg band from either the 1999 or 2000 release. No lek observations were made in 2003 or 2005; however, in 2004 twenty males and in 2006 nine males were observed strutting close to the lek site documented in 2002. Several successful broods have also been documented. Idaho has also initiated an aggressive transplanting program and has moved birds from south-central Idaho to the Nevada/Idaho border along the Three Creek and Shoshone Basin areas. The hope is that the birds will continue to expand and eventually connect with the Snake Mountain population. Numerous sightings have been documented between the Snake Mountain reintroduction site and the border areas.

4.3.2 Fisheries

a. Native interior redband trout

Native trout (presumptive native interior redband trout) have been found in fish population surveys by the Nevada Department of Wildlife in 1980 and 2001. Approximately 7.85 miles of Jakes Creek, two miles of Bull Camp Creek, and 2.0 miles of Dry Creek were occupied in 2001. Presumptive redband trout could also occur in the 2 miles of Salmon Falls Creek within the Hubbard Vineyard Allotment, but hatchery rainbow and brown trout have been planted both upstream and downstream of this segment.

b. Brown trout

Two miles of Salmon Falls Creek are within the Hubbard Vineyard Allotment and are considered occupied habitat for the non-native brown trout. Both hatchery rainbow and brown trout were stocked in Salmon Falls between 1986 and 1994.

4.3.3 Endangered, Threatened, Candidate and Sensitive Species

At this time, there are no federally listed endangered species thought or known to occur within the Hubbard Vineyard Allotment. The Columbia spotted frog (CSF) (*Rana luteiventris*), a candidate species, does occur within the allotment. As this species is associated with riparian and stream habitats, they will be discussed in those sections.

On July 9, 2007, the bald eagle was removed (“de-listed”) from the list of threatened and endangered species. BLM is coordinating with the Nevada Department of Wildlife (NDOW) to ensure compliance with state regulations regarding the bald eagle. As of August 30, 2007, BLM policy is to consider the bald eagle as a BLM Sensitive Species. After de-listing, bald eagles will continue to be protected under the Bald and Golden Eagle Protection Act (BGEPA) and the Migratory Bird Treaty Act. Both of these laws prohibit killing, selling or otherwise harming eagles, their nests, or their eggs. In June 2007, the Service clarified its regulations implementing the BGEPA and published the National Bald Eagle Management Guidelines. The Service is in the process of establishing a permit program under the BGEPA that would authorize limited take of bald and golden eagles consistent with the purpose and goal of the BGEPA. The Service has also prepared a draft post-delisting bald eagle monitoring plan. These documents and more information about the bald eagle are available on the Service’s website at <http://www.fws.gov/migratorybirds/baldeagle.htm>.

Though not expected to use this allotment heavily for foraging or other behaviors, transient-foraging could occur during the winter months in the allotment. Additionally, bald eagles may use areas surrounding the allotment which contain quality winter foraging areas. Suitable habitat on uplands, irrigated lands and riparian areas is widely dispersed over tens of thousands of acres throughout the Elko District.

Northern leatherside (*Lepidomedia copei*) have been identified in the Salmon Falls River system and are potentially present in Salmon Falls Creek on the Hubbard/Vineyard Allotment. A draft Conservation Agreement calls for the conservation and enhancement of northern leatherside and the ecosystem upon which they depend. The northern leatherside has been petitioned for listing under the Endangered Species Act by the Forest Guardians in 2007. Federal and state management agencies recognize the northern leatherside as a "species of concern" that warrants special management and conservation planning consideration.

Special status animal species likely or known to occur within the allotment are listed in Table 8. There are no known special status plant species within the Hubbard Vineyard Allotment.

Table 8. Special Status Species

COMMON NAME	SCIENTIFIC NAME
Federally Endangered Species	
(None)	(None)
Federally Proposed Threatened or Endangered Species	
(none)	(none)
Federal Candidate Species	
Columbia spotted frog	<i>Rana luteiventris</i>
Nevada BLM Sensitive Species	
Birds	
Bald Eagle	<i>Haliaeetus leucocephalus</i>
Golden Eagle	<i>Aquila chrysaetos</i>
Western Burrowing Owl	<i>Athene cucularia hypugea</i>
Ferruginous Hawk	<i>Buteo regalis</i>
Swainson's Hawk	<i>Buteo swainsoni</i>
Northern Goshawk	<i>Accipiter gentiles</i>
Greater Sage Grouse	<i>Centrocercus urophasianus</i>
American Peregrine falcon	<i>Falco peregrinus anatum</i>
Loggerhead shrike	<i>Lanius ludovicianus</i>
Vesper sparrow	<i>Pooecetes gramineus</i>
Short-eared owl	<i>Asio flammeus</i>
Long-eared owl	<i>Asio otus</i>
Prairie falcon	<i>Falco mexicanus</i>
Black-rosy finch	<i>Leucosticte atrata</i>
Yellow-breasted chat	<i>Icteria virens</i>
Lewis' woodpecker	<i>Melanerpes lewis</i>
Mammals	
Pygmy rabbit	<i>Brachylagus idahoensis</i>
Spotted bat	<i>Euderma maculatum</i>
Small-footed myotis	<i>Myotis ciliolabrum</i>
Long-eared myotis	<i>Myotis evotis</i>
Fringed myotis	<i>Myotis thysanodes</i>
Long-legged myotis	<i>Myotis volans</i>

COMMON NAME	SCIENTIFIC NAME
Yuma myotis	<i>Myotis yumanensis</i>
Pacific Townsend's big-eared bat	<i>Plecotis townsendii townsendii</i>
Prebles shrew	<i>Sorex pleblei</i>
Fish	
Redband trout	<i>Oncorhynchus mykiss gourdneri</i>
Invertebrates	
Idaho viceroy	<i>Limenitis archippus idaho</i>
Mollusks	
California floater	<i>Anodonta californiensis</i>
Nevada Natural Heritage Program Sensitive Species	
Invertebrates	
Dark sandhill skipper	<i>Polites sabuleti nigrescens</i>
Mollusks	
upper Thousand Spring springsnail	<i>Pyrgulopsis hovinghi</i>

4.3.4 Other Species

The Hubbard Vineyard Allotment provides habitat for a wide variety of other large and small game and non-game wildlife species. This use varies from seasonal to year round depending on the species.

5. MANAGEMENT EVALUATION

5.1 Purpose

The purpose of this evaluation is to:

1. Summarize current management in the allotment,
2. Determine whether or not adequate progress is being made toward achieving the multiple use objectives, and
3. Provide recommendations for future management of the allotment.

Some of the data below are presented in table form in Appendix 4.

5.2 Summary of Studies Data

Actual use records, utilization, use pattern maps (UPM), weight-estimate production, ecological status, frequency data, Nevada Department of Wildlife surveys, weather station data, wildlife habitat condition, and riparian/aquatic habitat condition have been used to determine the progress being made.

Actual use, utilization, and UPM are short-term indicators of what might be happening to long-term range condition objectives. Long-term condition and trend is measured through collection

of frequency and production data. Significant or insignificant changes in frequency data are based on the results of an analysis of variance and post-hoc tests. Utilization data on native shrubs, grasses, and forbs are combined use by livestock and wildlife.

5.2.1. Actual Use -- Livestock

Actual use data for the allotment have been submitted by the permittee in most years since 1986. Actual use for the allotment during the evaluation period has ranged from 4,462 AUMs to 10,320 AUMs, with an average of 7,523 AUMs. Actual use is summarized in Appendix 1.

5.2.2. Precipitation

Precipitation data and climatic adjustment factors (CAF) were derived from data collected at several weather stations in the Hubbard Vineyard area. Most of the precipitation data from 1986 to 1999 comes from the Contact, Nevada weather station. Data collected at the Jackpot weather station is used in months when the Contact Weather Station data were not available. However, the National Weather Service decommissioned the Contact station in 1999. Data after that date are primarily collected at the Jackpot weather station. Additional data collected at the Gibbs Ranch and Stag Mountain weather stations have been used when data from Jackpot are not available.

Mean annual precipitation for the allotment ranges from 16-20 inches on the Cold Springs and Black Mountain ranges to approximately 10-12 inches on the eastern portion of the allotment. During the evaluation period, recorded precipitation ranged from 4.22 inches in 1999 to 18.57 inches in 1995.

Crop year precipitation is precipitation from September of the previous calendar year through the following June. This is the precipitation which most affects plant growth. The climatic adjustment factor is derived from the crop year precipitation. CAF is used to normalize carrying capacity and vegetation production to what would be expected during a median precipitation year.

See Table 9 for precipitation totals, crop year precipitation, and climatic adjustment factors.

Calendar Year	Total Annual Precip.	Crop Year	Crop Year Precip.	CAF ¹
1986	7.99	1985 - 1986	9.10	0.98
1987	8.44	1986 - 1987	7.15	0.72
1988	6.49	1987 - 1988	7.40	0.74
1989	9.85	1988 - 1989	6.78	0.67

TABLE 9. Total Annual Precipitation, Crop Year Precipitation, and Climatic Adjustment Factors (CAF), Derived from Precipitation Data are As Follows:				
Calendar Year	Total Annual Precip.	Crop Year	Crop Year Precip.	CAF ¹
1990	7.79	1989 - 1990	7.27	0.73
1991	9.55	1990 - 1991	7.48	0.75
1992	10.23	1991 - 1992	8.08	0.84
1993	8.73	1992 - 1993	8.75	0.93
1994	9.46	1993 - 1994	7.07	0.70
1995	18.57	1994 - 1995	17.5	2.08
1996	15.7	1995-1996	15.33	1.79
1997	12.83	1996-1997	9.38	1.01
1998	11.36	1997-1998	12.61	1.43
1999	4.22	1998-1999	5.55	0.50
2000	7.79	1999-2000	6.49	0.63
2001	6.19	2000-2001	4.61	0.37
2002	7.17	2001-2002	8.26	0.86
2003	9.14	2002-2003	6.79	0.67
2004	8.61	2003-2004	7.72	0.79
2005	14.58	2004-2005	13.17	1.50
2006	9.09	2005-2006	8.35	0.86
2007	6.99	2006-2007	5.95	0.56
2008	6.16	2007-2008	7.06	0.70

¹ The climatic adjustment factor (CAF) is used to adjust current vegetative production to that which can be expected during an average or normal crop year. This adjustment allows us to compare changes in production and helps to determine what changes are not attributable to precipitation fluctuations.

5.2.3. Utilization

a. Key Area

During the original evaluation period (1986-1995), utilization data were recorded at five range key areas. The BLM established three additional range key areas in 2002. These eight key areas are located in the following pastures: Flat, East Hubbard Seeding, Reservoir Seeding, Hubbard Basin, Middle, and Triangle Pastures. A total of 47 utilization samples have been taken at the key areas during the entire evaluation period (1986-2008). About half the utilization readings were rated in the slight to light use level, and half rated in the moderate use level. Utilization data are summarized in Appendix 1.1. Refer to Map 8 for key area locations.

b. Use Pattern Mapping

Use pattern mapping was conducted annually from 1986 to 1990 for most pastures, with some additional pastures mapped in 1996 or 1997 and all grazed pastures also mapped in 2008. Use pattern mapping is summarized in Appendix 1, and the 2008 use pattern map is displayed on Map 12. Use pattern mapping has shown the following:

Hubbard Basin Area

(Lower Hubbard Basin/Devils Table, Cold Springs/Cow Basin, Upper Hubbard Basin, and Middle Pasture). The use pattern maps showed that the majority of the area receives slight to light use, with heavy use along North and South Fork of Jakes Creek.

The available use pattern maps confirm that the locations of key area HV-02 and HV-03 are representative of upland vegetation types in the Hubbard Basin area that provide the bulk of forage for livestock grazing.

Mountain Pasture

The majority of the use in this pasture is in the slight category with heavy to severe use around the riparian areas (streams and aspen stands). Livestock tend to congregate in these areas due to the steepness of the canyons and for shade and water during the summer months that this pasture is typically grazed. Additional fences completed in 2002 split this pasture into the Jakes Creek Mountain, Dry Creek Mountain, and Triangle pastures.

Flat Pasture

The majority of the use is light with moderate to heavy use around Bull Camp Creek and the springs. Use pattern maps confirm that the location of key area HV-01 is representative of upland vegetation types in the Flat pasture that provide the bulk of forage for livestock grazing.

Seeding Pastures (Hubbard, Reservoir, Dry Creek)

The seeded pastures generally receive light to moderate use, with some heavy use occurring primarily around the waters.

Hubbard Seeding Pasture was split into two pastures in 1992. The new fence was built very near key area HV-05; therefore new key areas may need to be established that are more representative of use patterns in these pastures.

Utilization within the Reservoir Seeding has been primarily moderate use. Use pattern maps confirm that the location of key area HV-04 is representative of upland vegetation types in the Reservoir pasture that provide the bulk of forage for livestock grazing.

See Appendix 2 for a summary of the use pattern maps. Use pattern maps are located at the Elko District Office.

c. Utilization based adjustments

Actual use and utilization data, by pasture for 1986 - 2004 were compared to the desired utilization level for each of the seven pastures represented by the key areas. The formula used is:

$$\frac{\text{Actual Use (AUMS)}}{\text{Actual utilization (\%)}} = \frac{\text{Desired Use (AUMS)}}{\text{Desired utilization (\%)}}$$

The estimated carrying capacity is then adjusted by the climatic adjustment factor (CAF) for the year to determine an adjusted carrying capacity. Refer to appendix 1 for the pasture and key area matrices which displays the adjusted carrying capacity data and calculations.

5.2.4. Frequency

Frequency plots were established at all five key areas in 1986. Frequency data were collected again at the three key areas in native pastures (HV-01, HV-02, and HV-03) in 1990 and 2004. The data were analyzed using Analysis of Variance and Tukey’s Comparison of Means at the 95% confidence interval to help determine trend.

Key area trend takes into account not only the changes in frequency of occurrence of the key species but also considers all the plants associated with the range site (forb and shrub species, as well as grasses). These data are used in conjunction with the results from utilization, use pattern mapping, production, and precipitation to determine and interpret trend. Determinations of trend are displayed in the Conclusions section of this document. Table 10 below shows the frequency for the key species at the key areas. Key species are identified in Section 3.6 above.

TABLE 10. FREQUENCY DATA					
Key Area	Key Species	1986	1990	2004	Significant Difference between 1986 and 2004?
HV-01	AGSP	17.5	6.0	15.0	No
	STTH2	18.5	16.0	17.0	No
HV-02	ORHY	19.0	16.5	27.0	No
HV-03	AGSP	22.5	26.0	32.0	No
	STTH2	45.0	33.5	50.0	No

Flat Pasture -- Key Area HV-01

Bluebunch wheatgrass (*Agropyron spicatum*) showed a significant decrease from 1986 to 1990 and a significant increase from 1990 to 2004; however, there were no significant changes between 1986 and 2004. Thurber's needlegrass (*Stipa thurberiana*), the other key species for the area, showed no significant change. Indian ricegrass (*Oryzopsis hymenoides*), a desirable species, showed a significant increase from 1986 to 1990 and a significant decrease from 1990 to 2004, but had no significant changes from 1986 to 2004. Sandberg's bluegrass (*Poa sandbergii*)

showed a significant increase between 1986 and 1990 and no significant change from 1990 to 2004. Bottlebrush squirreltail (*Sitanion hystrix*) and prickly pear (*Opuntia* spp.) showed no significant change. Lupine (*Lupinus* spp.) showed a significant increase between 1986 and 1990, with no significant changes between 1990 and 2004. Buckwheats (*Eriogonum* spp.) showed a significant decrease between 1990 and 2004 in one frame size, but no significant change between 1986 and 2004 in another frame size. All other species showed no significant changes. The 2004 readings did count a large number of forbs not observed in the 1986 or 1990 readings; this is likely due to the timing of data collection, as the 2004 reading occurred in the spring while the earlier readings occurred in the late fall.

Lower Hubbard Basin-- Key Area HV-02

Prior to 1990 the BLM considered bluebunch wheatgrass and Thurber's needlegrass as the key species at this key area. However, the 1986 and 1990 readings did not find any examples of either plant at this key area. These species rarely occur in the plant communities surrounding this key area. The new key species- Indian ricegrass (*Oryzopsis hymenoides*)- showed a moderately significant increase between 1990 and 2004, with no significant changes between 1986 and 2004. Other grasses such as thickspike wheatgrass (*Agropyron dasystachyum*), needle and thread grass (*Stipa comata*), and Sandberg's bluegrass (*Poa sandbergii*) showed no significant differences across any of the years. Bottlebrush squirreltail (*Sitanion hystrix*) showed significant increases in both the 1986-1990 and 1990-2004 time periods. Buckwheats (*Eriogonum* spp.) showed a significant increase from 1986 to 2004. Mountain big sagebrush (*Artemesia tridentata* var. *vaseyana*) showed a stable trend from 1986 to 1990, but significantly declined between 1990 and 2004. All other species showed no significant changes. The 2004 readings did count a large number of forbs not observed in the 1986 or 1990 readings; this is likely do to the timing of data collection, as the 2004 reading occurred in the spring while the earlier readings occurred in the late fall.

Upper Hubbard Basin -- Key Area HV-03

This key area burned in the 2000 Cold Springs fire. The fire temporarily removed mountain big sagebrush from this key area, but did not result in any significant changes to Douglas rabbitbrush (*Chrysothamnus viscidiflorus*). Thurber's needlegrass, thickspike wheatgrass (*Agropyron dasystachyum*), and bottlebrush squirreltail all showed significant increases between 1990 and 2004, but had an overall stable trend between 1986 and 2004. Idaho fescue (*Festuca idahoensis*) did not appear in the 1986 readings, but showed a significant decline between 1990 and 2004. Sedge (*Carex* spp.) increased significantly between 1986 and 1990, but showed no significant changes between 1986 and 2004. The 2004 readings did count a large number of forbs not observed in the 1986 or 1990 readings; this is likely due to the timing of data collection, as the 2004 reading occurred in the spring while the earlier readings occurred in the late fall.

5.2.5 Production

Native Pastures -- Key Areas HV-01, HV-02 and HV-03

The BLM completed production transects at all three key areas on the native range in 1986, 1990, and 2004. The BLM used the results of these studies to determine ecological status at each

key area. The results are displayed in Table 8a below. Key area HV-01 declined from 51 (Late Seral) to 48 (Mid Seral) between 1986 and 1990, with late seral (51) once again attained in 2004. HV-02 stayed in the mid seral stage, with the percentages decreasing from 40 in 1986 to 31 in 1990 and then increasing back to 40 in 2004; however, these readings may be meaningless, as this key area does not appear to sit on a uniform range site. Key area HV-03 increased from 44 (mid-seral) to 58 (late seral) between 1986 and 1990, with no change between 1990 and 2004. Key area HV-03 burned in the 2000 Cold Springs fire; the subsequent increase in grass production offset the complete loss of the sagebrush component, which allowed the ecological status to remain the same.

Total pounds per acre of vegetation production varied among years, with the amount of sagebrush found in each year playing a large role in the total weight recorded at each site.

Seeded Pastures -- Key Areas HV-04 and HV-05

The BLM collected production data at these key areas in 1986, 1990, and 2004, with that data adjusted by the climatic adjustment factor for each year. The results are displayed in Table 11b below. HV-04 saw crested wheatgrass production drop from 347 lbs/acre in 1986 to 262 lbs/acre in 1990 to 110 lbs/acre in 2004. Douglas rabbitbrush was the only other species noted in 1986; the 1990 readings also observed phlox (*Phlox* spp.), low sagebrush, halogeton, and winterfat; the 2004 readings included low sage, Indian ricegrass, and Sandberg's bluegrass. HV-05 saw crested wheatgrass production drop from 618 lbs/acre in 1986 to 334 lbs/acre in 1990, with an increase to 389 lbs/acre in 2004. Other species recorded included halogeton (*Halogeton glomeratus*), Wyoming big sagebrush (*Artemisia tridentata* var. *wyomingensis*), and Douglas rabbitbrush in 1986; Indian ricegrass, low sagebrush, Douglas rabbitbrush, halogeton, and Wyoming big sagebrush in 1990; low sagebrush, Douglas rabbitbrush, and winterfat (*Eurotia lanata*) in 2004.

TABLE 11a. PRODUCTION AND ECOLOGICAL STATUS							
Key Area	Soil Type/ Ecological Site	1986		1990		2004	
		Production lbs/acre (dry wt)	Eco Status	Production lbs/acre (dry wt)	Eco Status	Production lbs/acre (dry wt)	Eco Status
HV-01	Loamy 8-10"	457	51 = Late	491	48 = Mid	831	51 = Late
HV-02	Loamy 8-10"	251	40 = Mid	296	31 = Mid	2,303	40 = Mid
HV-03	Loamy 10-12"	618	44 = Mid	274	58 = Late	1,056	58 = Late
Eco Status seral stages 0 to 25 = early, 26 to 50 = Mid, 51 to 75 = Late							

TABLE 11b. PRODUCTION ON THE CRESTED WHEATGRASS SEEDINGS						
	1986		1990		2004	
	Total (lbs/acre) (Dry wt)	Crested Wheatgrass	Total (lbs/acre) (Dry wt)	Crested Wheatgrass	Total (lbs/acre) (Dry wt)	Crested Wheatgrass
HV-04	366 unadjusted	340 unadjusted	316 unadjusted	191 adjusted	467 unadjusted	87 unadjusted
	374 adjusted	347 adjusted	433 adjusted	262 adjusted	594 adjusted	110 adjusted
HV-05	877 unadjusted	606 unadjusted	528 unadjusted	244 unadjusted	711 unadjusted	307 unadjusted
	895 adjusted	618 adjusted	723 adjusted	334 adjusted	900 adjusted	389 adjusted

The adjusted weights were calculated by using the CAF.

5.2.6 Ecological Status Inventory

Ecological status inventory for the Hubbard Vineyard Allotment was conducted in 1985 and 1986. Mid seral range sites cover 34,474 acres (42%), late seral range sites cover 38,495 acres (46%). Twelve percent of the allotment (9,907 acres) is in early seral stage. No ecological status inventory is conducted on crested wheatgrass seedings.

Table 12 is a summary of the ecological site inventory for the Hubbard Vineyard Allotment.

Table 12. SUMMARY OF THE ECOLOGICAL SITE INVENTORY			
Total Public Acres Surveyed 82,876			
Description	Public Acres	% of the Total Acres Surveyed	
Early Seral	9,907*	12	
Mid Seral	34,474*	42	
Late Seral	38,495*	46	
PNC	0	0	
Total Public Acres Unclassified 30,077			
Description	Private Acres	Public Acres	Total Acres
Fenced Private Pastures	4430	1059	5489
Inclusions	1114	11,267*	12,381
Seeding	576	17,373*	17,949
Rock Outcrop	30	363*	393
Water	46	15*	61
Totals	6196	30,077	36,273
* Total Acres Credited To The Survey = 111,894			

5.2.7 Wildlife Habitat Condition

Since 1980, six wildlife key areas have been established within the Hubbard Vineyard Allotment in representative areas which can be used to monitor habitat conditions in seasonal ranges. Three of these key areas are co-located with range key areas HV-01, HV-02, and HV-03. These three key areas were intended to be located within specific ecological sites, although subsequent analysis of monitoring data collected at HV-02 suggests that this key area is located in a mottled site, with elements of several ecological sites present. The other three wildlife key areas (HV-SG-01, HV-SG-21, and AW-1-T-02) are not established in specific ecological sites and are intended primarily to monitor for specific wildlife habitat attributes. See map 8 for the location of all six of these key areas and table 13 for the habitat types represented by each key area. Studies established at these key areas include line intercept and vertical cover.

Key Area	Species Habitat Represented		
	Antelope	Deer	Sage Grouse
AW-1-T-02	Winter		
HV-SG-01			Nesting
HV-SG-01			Nesting
HV-01	Summer		
HV-02	Summer	Summer	
HV-03	Summer	Summer	

Data collected at the key areas were analyzed using the Bureau's WILDIVE program, which assigns a vegetative diversity index to the vegetative community and can be used along with other factors such as water distribution, percent canopy cover, vertical cover, and disturbance factors (fences, roads, etc.) to calculate a habitat condition rating for mule deer and antelope.

Key areas HV-SG-01 and HV-SG-02 were established in 2004 specifically to monitor vegetative attributes at known sage grouse nest sites. These sites are located based on locations provided by Pete Coates, who conducted sage grouse nesting and predation studies on the allotment from 2002 to 2005. This study monitored nest success of 16 nest sites within the allotment along with vegetative attributes at selected sites to determine if vegetative attributes play a key role in nest selection sites. Data collected at these sites were used in conjunction with vegetative attributes data collected at established big game key areas representative of sage grouse use areas, stream surveys, and proper functioning condition (PFC) studies to evaluate habitat conditions for sage grouse.

See Appendix 4 for a summary of wildlife habitat conditions by pasture. Wildlife studies data are summarized below:

Mule Deer and Antelope

Tables 14 outlines study results in seasonal big game habitats.

TABLE 14. HUBBARD VINEYARD ALLOTMENT BIG GAME HABITAT CONDITION SUMMARY						
	Transect Number	Seasonal Use Area	Habitat Rating*			
			1980	1988	1990	2004
Antelope	HV-01	Summer			FAIR	GOOD
	HV-02	Summer			GOOD	GOOD
	HV-03	Summer			FAIR	GOOD
	HV-SG-02	Summer				GOOD
	HV-SG-01	Summer				GOOD
	AW-1-T-02	Winter		FAIR		FAIR
Mule Deer						
	HV-03	Summer			FAIR	FAIR
	HV-01	Intermediate				FAIR
	HV-02	Intermediate				FAIR
	HV-SG-02	Intermediate				GOOD
	HV-SG-01	Intermediate				GOOD
	AW-1-T-02	Intermediate		FAIR		FAIR
Antelope: 5-30=poor; 31-60=fair; 61-105=good Mule Deer: 10-50=poor; 51-60=fair; 61-80=good; 81-100=excellent						

Sage Grouse

Based on the presence of a diversity of habitat types crucial for the success of sage grouse life cycles, including preferred upland habitat types, meadow areas and water availability, the Hubbard Vineyard Allotment has the potential to provide high quality sage grouse habitat. **See Table 15 and Map 7.** The allotment is located within the Snake Sage Grouse Population Management Unit (PMU), identified in the Draft Northeast Nevada Sagebrush Ecosystem Management plan.

Table 15. Vegetative types within the Hubbard Vineyard Allotment

Vegetation Type	Number of Acres	Percent of Allotment
Mountain big sagebrush	22,361.47	17.91
Low sagebrush	2,927.58	2.34
Wyoming and Basin big sagebrush	3,984.60	3.19
Black sage	52,449.30	42.00

Vegetation Type	Number of Acres	Percent of Allotment
Basin big sagebrush	17,350.44	13.90
Agricultural	3,715.36	2.98
Low sage/Mt. big sagebrush	1,729.68	1.39
Wyoming sagebrush	12,097.24	9.69
Riparian	192.97	0.15
Aspen	2166.12	1.73
Black Greasewood	4,263.16	3.41
Bunchgrass	983.94	0.79
Desert grassland	298.52	0.24
Mountain shrub	246.41	0.20
Utah juniper	60.54	0.05
Water	34.03	0.03
Total	124861.36	100.00

Specific objectives for sage grouse habitat in terms of vegetative composition were not established in the Wells Resource Management Plan; however, the Bureau of Land management in Nevada has established interim sage grouse management guidelines (Management Guidelines for Sage Grouse and Sagebrush Ecosystems in Nevada). These guidelines were based on Western Association of Fish and Wildlife Agencies (WAFWA) draft guidelines and Oregon Bureau of Land Management sage grouse management guidelines. The WAFWA guidelines outline optimum (good) habitat conditions based on WAFWA habitat descriptions by life cycle for sage grouse and other pertinent research, and provide a basis for evaluating habitat conditions, taking into account actual site potential. The BLM signed a Memorandum of Understanding with other Federal agencies and WAFWA to consider these guidelines in our land use planning process. Listed below are optimum habitat conditions as outlined in the Management Guidelines for Sage Grouse and Sagebrush Ecosystems in Nevada:

Nesting Habitat - When considered on a range-wide basis, optimum sage grouse nesting habitat generally consists of sagebrush plants 40 to 80 cm (16 to 32 in.) tall with a canopy cover ranging from 15 percent to 25 percent in the stand, and an herbaceous understory of at least 15 percent grass canopy cover and 10 percent forb canopy cover that is at least 18 cm (7 in.) tall. Ideally, these vegetative conditions should be on 80 percent of the breeding habitat for any given population of sage grouse, although optimum canopy cover may vary with the specific vegetation type.

Brood-rearing Habitat - When considered on a range-wide basis, optimum brood-rearing habitat consists of sagebrush stands that are 40 to 80 cm (16 to 32 in.) tall with a canopy cover of 10 to 25 percent and an herbaceous understory of 15 percent grass canopy and 10 percent forb canopy. Ideally, this type of habitat will be found on at least 40 percent of the area that is considered brood-rearing habitat.

Winter Habitat - Good winter habitat consists of sagebrush with 10 to 30 percent canopy cover on 80 percent of the wintering area.

Table 16 provides a summary of habitat conditions for sage grouse use areas within the Hubbard Vineyard Allotment and provides a basis for evaluating nesting/early brood rearing, summer and winter habitat.

Table 16. Summary of habitat conditions for sage grouse use areas represented by key areas in the Hubbard Vineyard Allotment.

Key Area	Seasonal Use Area	Shrub Height (cm)*	% Canopy Cover**			% Forb Composition
			Shrub (sagebrush)	Grasses	Forbs	
HV-01	Winter, Nesting, Summer	34	11%	14%	9%	26%
HV-02	Winter, Nesting, Summer	31	13%	10%	<1	3%
HV-03	Winter, Nesting, Summer	17***	No line intercept data were collected based on the absence of shrubs due to the Cold Springs Fire in 2000			3%
HV-SG-02 (Duplicate of site 27 below)	Winter, Nesting, Summer	33	11%	5%	<1	2%
HV-SG-01 (Duplicate of site 29/25 below)	Winter, Nesting, Summer	48		11%	2%	5%
AW-1-T-02	Winter	38	9%	2%	<1	4%
Pete Coates Nesting Study Data		Shrub Height (cm)****	(%) Sagebrush Overstory*****	Nest Success		
Site 5	Nest Site	32.39	31%	Depredation		
Site 10	Nest Site	37.93	19%	Depredation		
Site 11	Nest Site	39.79	25%	Depredation		
Site 16	Nest Site	48.36	22%	Hatch		
Site 22	Nest Site	no data	no data	Hatch		
Site 23	Nest Site	no data	no data	Hatch		
Site 25	Nest Site	no data	no data	Hatch		
Site 26	Nest Site	no data	no data	Hatch		
Site 27	Nest Site	no data	no data	Hatch		
Site 28	Nest Site	no data	no data	Hatch		
Site 29	Nest Site	no data	no data	Hatch		
Site 30	Nest Site	no data	no data	Depredation		
Site 33	Nest Site	no data	no data	Hatch		
Site 34	Nest Site	no data	no data	Hatch		
Site 35	Nest Site	no data	no data	Depredation		
Site 36	Nest Site	no data	no data	Hatch		
Average		38 cm.	19%	69% Hatch		

*Average height of sagebrush along established 100Ft. transect ; centered over nest bowl in the case of HV-SG-01 and HV-SG-02

** % canopy cover collected using line intercept method along established 100Ft. transect; centered over nest bowl in the case of HV-SG-01 and HV-SG-02.

***Average vegetation height; shrub cover was limited due to fire impacts

****Average height of all sagebrush that intersected 2, 50m line transects that were centered and intersected at the nest bowl.

***** Percent (%) of sagebrush cover using line intercept method on 2, 50m transects that were centered and intersected at the nest bowl

Sage Grouse Nesting

The average shrub height for the four key areas representative of sage grouse nesting habitat (HV-01, HV-02, HV-SG-02, HV-SG-01) and four additional transects measured by Pete Coates at known nest sites was 38 cm. These studies are summarized in Table 12 above. This height is just below the recommended (optimum) range suited for nesting/early brood rearing habitat of 40-80 cm. Average sagebrush canopy cover is 19% which is within the recommended range for productive nesting habitat (15 %– 25%). A total of 22 forb species were recorded in the transects, 43% of the forbs present were considered preferred forb species for sage grouse. Grass and forb canopy cover averaged 11%, which is below the optimum recommended combined canopy cover of 25%. Both nests at HV-SG-01 and HV-SG-02 were successful despite the variability in vegetative parameters noted between the two key areas. The nest success (hatch) ratio for 16 nest sites identified within the Hubbard Vineyard Allotment was 69% between 2002 and 2005. The nest success ratio for the Hubbard Vineyard Allotment appears to be well above the statewide average of 39% (2004 – 2006). It is important to note, however, that Pete Coates was conducting a raven removal program in this area between 2002 and 2005, which could have resulted in higher nesting success due to reduced impacts from predation (Coates, et.al, 2004). Additional literature searches indicate that the average nest success for sage grouse falls primarily between 40 – 50% (Schroeder et al. 2006 and Connelly et al. 2004). The primary nesting areas for sage grouse within the Hubbard Vineyard Allotment are the Flat, Middle, and Hubbard Basin/Cold Springs Use Areas. Approximately 10% or 3,300 acres of sage grouse nesting habitat was impacted by the Cold Springs Fire in the Hubbard Basin/Cold Springs Use Area.

Sage Grouse Brood Rearing/Summer

Optimum summer habitat consists of a mosaic of sagebrush, meadows, riparian areas and agricultural areas which includes at least 40 percent of the area in sagebrush stands that are 40-80 cm. in height with a canopy cover of 10 -25% and herbaceous understory of >15% grass and forb canopy cover combined. The entire Hubbard Vineyard Allotment is considered potential summer habitat for sage grouse. The average vertical sagebrush height was 38 cm, which is slightly below the optimum range. Average sagebrush canopy cover is 19% which is within the recommended range for productive nesting habitat (10 %– 25%). Grass and forb canopy cover averaged 11% which is below the optimum recommended combined canopy cover of 15%.

Riparian habitat is especially critical for sage grouse during the late brood rearing period. As forbs begin to desiccate in upland areas, sage grouse concentrate their foraging in riparian areas where forbs are still succulent. Stream survey data within the Hubbard Vineyard shows that generally significant progress is being made in the upper elevations on stream systems with less improvement on the lower elevation flats. Lotic PFC was conducted in conjunction with stream survey studies collected in 2006 on Jakes, Bull Camp and Dry creeks. Results showed improvement in functionality for Jakes and Bull Creek and decline on Dry Creek. The BLM conducted lentic PFC assessments on springs within the allotment in 2003 and 2007, with a definite upward trend in riparian conditions observed in most areas of the allotment.

Sage Grouse Winter

Good winter habitat consists of sagebrush with 10-30% canopy cover. The average canopy cover on the winter habitat within the allotment is 19%.

5.2.8 Riparian/Stream Habitat

a. Stream /Lotic Areas

A total of five perennial streams flow through the Hubbard Vineyard Allotment. Four of these streams flow on public and private lands; the BLM has surveyed stream conditions on these four streams using techniques described in BLM Manuals 6671 and 6720-1. However, RMP objectives are based only public lands segments of the streams. Therefore, for the purpose of this evaluation, data were analyzed for only the stream survey stations located on public lands.

A summary of the data for each survey station on public lands can be found in Appendix 3. See Map 10 for the location of all streams and stream survey stations. Since the fifth stream is located almost entirely on private land there are no riparian objectives for this stream in the RMP, and it has not been surveyed.

The streams that have been surveyed are:

-Dry Creek. Dry Creek originates in two forks, both located within the Dry Creek Mountain pasture. The two forks combine near the bottom of the pasture. The stream then flows through private fields at Dry Creek Ranch, along the edge of the Flat Pasture, and then through the southern end of East and West Hubbard Seedings before becoming intermittent. The BLM surveyed this stream in 1980, 1990, 2001, and 2006.

- Jakes Creek. Jakes Creek originates in three forks, all within the Jakes Creek Mountain pasture. The North and Middle forks combine in a private/Fenced Federal Range field. The two remaining forks then flow into the Middle Pasture, where they combine. The resulting stream flows through some private fields along the northern boundary of the Reservoir Seedings before entering Boies Reservoir. The BLM surveyed this stream in 1980, 1990, 2001, and 2006.

- Bull Camp Creek. This creek originates in the Bull Camp Mountain pasture and flows northeast through fenced private fields and the Flat Pasture before entering the East Hubbard Seeding, where the stream turns intermittent. The BLM surveyed this stream in 1980, 1990, 2001, and 2006

- Salmon Falls Creek. This creek flows along the northeastern boundary of the Hubbard Vineyard Allotment. The BLM surveyed this stream in 1979, 1988, and 2001.

b. Spring/Lentic Areas

The Hubbard Vineyard Allotment contains many springs and seeps. Most are located in the Snake Range in the western two thirds of the allotment. An interdisciplinary team of specialists conducted proper functioning condition (PFC) assessments of most of these springs in 2003 and again in 2007.

PFC is a qualitative assessment of riparian areas based on quantitative science. The methodology evaluates the functionality of riparian areas based on hydrological, vegetation, and soils/erosional factors, within the context of the geologic setting and the potential of the area. Prichard et al. (1998) presented the following definition for streams: “A riparian-wetland area is considered to be in proper functioning condition when adequate vegetation, landform, or large woody debris is present to: dissipate stream energy associated with high waterflow, thereby reducing erosion and improving water quality; filter sediment, capture bedload, and aid floodplain development; improve flood-water retention and ground-water recharge; develop root masses that stabilize streambanks against cutting action; develop diverse ponding and channel characteristics *to provide* the habitat and water depth, duration, and temperature necessary for fish production, waterfowl breeding, and other uses; and support greater biodiversity.” When applied to spring and lentic areas, this definition must be adjusted to better describe these areas. Prichard et al. (1994) suggests the following definition break down as follows:

“Lentic riparian-wetland areas are functioning properly when adequate vegetation, landform, or debris is present to:

- 1) dissipate energies associated with wind action, wave action, and overland flow from adjacent sites, thereby reducing erosion and improving water quality;
- 2) filter sediment and aid floodplain development;
- 3) improve flood-water retention and ground-water recharge;
- 4) develop root masses that stabilize islands and shoreline features against cutting action;
- 5) restrict water percolation;
- 6) develop diverse ponding characteristics to provide the habitat and water depth, duration, and temperature necessary for fish production, waterbird breeding, and other uses;
- 7) and support greater biodiversity”

Lentic PFC assessment of springs and seeps completed in 2003 indicated that a large percentage of the springs are either nonfunctional (NF) or Functional-at-risk (FAR). A total of 35 springs and seeps were assessed in 2003, and 10 (29%) were FAR with an upward trend (FAR↑), 22 (63%) were FAR with a downward trend (FAR↓), and 3 (8%) were nonfunctional (NF).

The 2007 assessments evaluated 51 springs, seeps, and reservoirs, with 24 rated as Proper Functioning Condition (PFC) (47%), 3 rated at Functional-at-risk (FAR) with an upward trend (FAR↑) (6%), 4 rated as Functional-at-risk with no apparent trend (FARN) (8%), 7 rated as

FAR↓ (downward trend) (14%), and 11 rated as non-functional (NF) (21%). Two of the sources did not receive any rating (4%). Three of the areas rated non-functional are livestock reservoirs. The BLM has completed a pasture-by-pasture analysis and comparison of the 2003 and 2007 lentic PFC assessments, which is presented in Table 17 below. Differences in spring names between 2003 and 2007 are due to how the two teams designated the springs. Map 10 depicts the locations of the springs assessed in 2007.

Table 17 presents the springs and their locations. Italics indicate springs on private land.

2003 Spring Name	Rating	2007 Spring Name	Rating
Cold Springs Mountain, Upper and Lower Hubbard Basin, Devil's Table Pastures			
HV-10	FARD	HV-10A Leo Spring	PFC
HV-06	NF	HV-06	NF
HV-07	NF	HV-07	NF
HV-08A	FARD	HV-08	FARD
HV-04A	FARD	Antelope Spring	NF
HV-09A	FARD	HV-09	NF
HV-05	FARD	HV-05	NF
HV-01	FARU	Twin Ledges	FARU
HV-02A	FARU	North Twin Ledges	PFC
HV-03	FARD	HV-04	NF
	Not Assessed	Corner Reservoir	NF
	Not Assessed	Willow Reservoir	NF
	Not Assessed	HV-36	PFC
	Not Assessed	HV-38	PFC
	Not Assessed	HV-39	FARD
	Not Assessed	Mud Spring	FARD
	Not Assessed	Mud Springs 1	No Rating
	Not Assessed	Table Reservoir	NF
	Not Assessed	HV-37	PFC
Middle Pasture			
HV-24	FARD	HV-24	FARU
HV-20	FARD	HV-49	PFC
HV-21	FARU	HV-21	PFC
HV-22A	FARU		Not Assessed
HV-22B	FARU	HV-22B	PFC
HV-23	FARD	HV-23	FARU
	Not Assessed	HV-20	PFC
	Not Assessed	Jakes Creek	PFC
Triangle Pasture			
HV-17A	FARD	HV-17	FARD

2003 Spring Name	Rating	2007 Spring Name	Rating
Coon Creek Pasture			
HV-15	FARD	HV-15	FARD
HV-16	FARD	HV-15B	FARD
HV-14	FARD		Not Assessed
	Not Assessed	HV-14	NF
	Not Assessed	HV-52	NF
Flat Pasture			
HV-34	FARU	Mud Springs South	PFC
Jakes Creek Mountain Pasture			
HV-25	FARD	HV-25	PFC
HV-26	FARD	HV-26B	PFC
HV-27	FARU	HV-27	PFC
HV-28	FARU	HV-28	PFC
HV-29	FARD	HV-29A	PFC
HV-18	FARD	HV-19	FARN
HV-19	FARD		Not Assessed
	<i>Not Assessed</i>	<i>HV-18</i>	<i>FARN</i>
	<i>Not Assessed</i>	<i>HV-29</i>	<i>PFC</i>
	Not Assessed	HV-51	PFC
	<i>Not Assessed</i>	<i>HV-50</i>	<i>PFC</i>
Dry Creek Mountain Pasture			
HV-30	FARU		Not Assessed
HV-31	FARU	HV-31A	FARD
HV-32A	FARD	HV-32A	FARN
HV-33	FARD	HV-33	PFC
	Not Assessed	HV-40	PFC
	<i>Not Assessed</i>	<i>HV-30</i>	<i>FARN</i>
	Not Assessed	HV-32	No Rating
Bull Camp Mountain Pasture			
HV-11	FARD		Not Assessed
<i>HV-12</i>	<i>FARD</i>		<i>Not Assessed</i>
HV-13A	FARD		Not Assessed
	<i>Not Assessed</i>	<i>HV-13</i>	<i>PFC</i>
	<i>Not Assessed</i>	<i>HV-13A</i>	<i>PFC</i>
	<i>Not Assessed</i>	<i>HV-13B</i>	<i>PFC</i>

Springs noted in *italics* are on private land.

Narrative comparisons

The narrative comparisons between the 2003 and 2007 assessments are displayed below.

Additional information on many of these springs can be found in the Allotment Evaluation document. The names of the spring are displayed as **2003 Spring ID/2007 Spring ID**.

Cold Springs Mountain, Upper and Lower Hubbard Basin, and Devils Table Pastures

HV-10/HV-10A Leo Spring: This spring had been developed in the past and was fenced in 1996. The 2003 PFC assessment rated this spring as Functioning at Risk with a Downward Trend based on livestock impacts (trailing and grazing). A second crew conducted another evaluation of this spring in early 2007, using photographs taken in October 2006 as compared to photographs from 2000 and 2003. This crew rated the spring as Functioning at Risk with an Upward Trend. The 2007 PFC field crew rated the spring at Properly Functioning Condition in their site visit.

HV-06/HV-06: Spring developed in the past, with the development largely consisting of a dirt stock tank. The 2003 PFC crew rated this spring as non-functional due to livestock grazing and watershed condition. The 2007 PFC crew also rated this spring as non-functional but did not specify reasons for the determination.

HV-07/HV-07: Spring developed in the past, with the development consisting of a dirt stock tank. 2003 PFC crew rated this spring as non-functional due to watershed condition. The 2007 PFC crew also rated this spring as non-functional but did not specify reasons for determination. The 2007 crew also recommended that this site not be assessed in the future unless major changes occur.

HV8A/HV-08: Spring had been developed in the past, with water piped to a trough and a dirt stock tank constructed below the development. Spring development appears to be largely non-functioning in both 2003 and 2007, with the stock tank full of water in the spring of 2007. Spring rated as Functional at Risk with a Downward Trend in both 2003 and 2007 due to livestock impacts (hoof action and shearing, headcut, hummocking, and heavy grazing).

HV-04A/Antelope Spring: Spring had been developed in the past, with a spring box capturing water out of the source and piping it to a trough. The spring source is within an enclosure. The spring source did have an aspen stand showing regrowth, but sagebrush and cheatgrass were also present. Spring rated as Functional at Risk with a Downward Trend in 2003 with no causal factor identified. The 2007 PFC crew rated the spring as non-functional. The spring in 2007 has a healthy aspen component. The enclosure is vegetated primarily with sagebrush and cheatgrass. The design of the development leaves no water at the source to support any riparian communities.

HV-09A/HV-09: Spring had been developed in the past, with water piped to a trough. The pipe ended several inches short of the trough at the time of the 2003 visit, which resulted in water spilling onto the ground. This had been corrected at the time of the 2007 assessment, but the trough hardly had any water in it and the standing water in the spring source indicates the development to be non-functional. Spring rated in 2003 as Functional at Risk with a Downward

Trend due to livestock impacts (hoof action, headcuts, hoof shearing, hummocking, and heavy grazing). Spring rated as non-functional in 2007 for the same reasons.

HV-05/HV-05: Spring rated in 2003 as Functional at Risk with a Downward Trend due to grazing (hoof action, heavy utilization) and road encroachment. Spring rated as non-functional in 2007 due to extreme hoof action/hummocking.

HV-01/Twin Ledges: Spring had been developed and fenced in the past, with water piped to a trough. Spring rated in 2003 as Functional at Risk with an Upward Trend, with livestock and dewatering listed as limiting factors. Spring also rated as Functional at Risk with an Upward Trend in 2007 due to enclosure area over-run with rose and the lack of a float valve on the trough robbing water from the spring source.

HV-02A/North Twin Ledges: Spring fenced in 1996. Spring rated as Functional at Risk with an Upward Trend in 2003. Assessment noted enlarging riparian area, recovering hoof action and headcuts, and upland species dying back from around edges. Spring rated as Proper Functioning Condition in 2007.

HV-03/HV-04 Dynamite Spring: Spring developed in the past with a springbox and a pipe. At time of 2003 assessment a plastic trough was present, but located several feet from the end of the pipe, which allowed all water to spill out into ground. This situation persisted in 2007. Spring rated in 2003 as Functional at Risk with a Downward Trend due to livestock (hoof action, utilization) and watershed condition. Spring rated as nonfunctional in 2007 due to hoof action and lack of riparian vegetation.

Not Assessed/Corner Reservoir: This source not assessed in 2003. This is a large dirt reservoir that is the primary water source in the area. No riparian vegetation present. Reservoir rated as nonfunctional in 2007.

Not Assessed/Willow Reservoir: This source not assessed in 2003. No sign of a reservoir. Primary riparian vegetation present consisted of Nebraska sedge and Baltic rush. Riparian area heavily impacted by trampling and hoof action. Source appears to be drying out and is rated as nonfunctional in 2007.

Not Assessed/HV-36: This spring not assessed in 2003. Spring area in 2007 showed a diverse riparian plant community with some evidence of livestock impacts. Spring rated as Proper Functioning Condition.

Not Assessed/HV-38: This spring not assessed in 2003. Spring area in 2007 featured a diverse riparian plant community. Spring rated as Proper Function Condition.

Not Assessed/HV-39: This spring not assessed in 2003. Spring developed in the past. No float valve in the trough, with the overflow watering a riparian area below the development. Site dominated by non-riparian species, with riparian vegetation limited to spring source. Area

around spring moderately to heavily trampled and grazed by livestock. Spring rated as Functional at Risk with a Downward Trend.

Not Assessed/Mud Springs: This spring not assessed in 2003. Spring area bisected by fence separating Hubbard Vineyard and O'Neil Allotments. Diverse composition of riparian plant species present, but wet areas are subject to moderate to extreme hoof action and heavy utilization especially near the fenceline. Spring rated as Functional at Risk with a Downward Trend.

Not Assessed/Table Reservoir: This source not assessed in 2003. Source is a reservoir fed by an ephemeral stream that was dry at time of 2007 assessment. No riparian vegetation present. Numerous wildlife trails and wildlife tracks around source. Source rated as nonfunctional.

Not Assessed/HV-37: This spring not assessed in 2003. Source consists of a small seep in a draw with an old dirt stock tank below. Riparian vegetation present in good quantity, but extent limited due to small production of the source. Spring rated as Proper Functioning Condition.

Middle Pasture

HV-24/HV-24: Spring had been developed in the past, with water piped to a trough. Water system fully functional in 2003 and 2007. Spring rated in 2003 as Functional at Risk with a Downward Trend due to livestock grazing (hoof action, trampling, utilization) and watershed condition. 2007 PFC crew noted spring area looked considerably better than earlier assessment, with hummocking noted in 2003 showing almost full recovery. Spring rated in 2007 as Functional at Risk with an Upward Trend.

HV-20/HV-49: Spring area rated as Functional at Risk with a Downward Trend in 2003 due to livestock grazing (Hoof action, frost heaving, and grazed areas). Spring area showed almost complete recovery from these impacts in 2007 and was rated at Proper Functioning Condition.

HV-21/HV-21: Spring rated as Functional at Risk with an Upward Trend in 2003, with livestock identified as a limiting factor. Some hoof action and frost heaving present, with livestock trails around perimeter. The 2007 re-assessment noted a lot of the past hummocking and hoof action was well on the way to recovering and rated the spring at Proper Functioning Condition.

HV-22A/Not Assessed: Spring rated as Functional at Risk with an Upward Trend in 2003. Spring not re-assessed in 2007.

HV-22B/HV-22B: Spring assessed with #22A above in 2003 and had the same rating. Re-assessment in 2007 noted full recovery of deficiencies identified in 2003, with the spring rated at Proper Functioning Condition.

HV-23/HV-23: Spring rated as Functional at Risk with a Downward Trend in 2003 due to livestock and watershed condition. The 2007 re-assessment found most of the spring area in full recovery or at least in much better shape than the 2003 assessment, which resulted in a rating of Functioning at Risk with an Upward Trend.

Not Assessed/HV-20: Spring not assessed in 2003. The 2007 assessment noted substantial recovery from past hoof action and a healthy riparian vegetative community. Spring rated as Proper Functioning Condition.

Not Assessed/Jakes Creek: Source not assessed in 2003. This is a small meadow area in the floodplain at the confluence of two forks of Jakes Creek. No apparent or visible spring source. The site supported a healthy and diverse riparian plant community and was rated as Proper Functioning Condition.

Triangle Pasture

HV-17A/HV-17: The original evaluation stated this spring had been fenced in 1996 and lay within the Middle Pasture. This is erroneous, as the fenced spring is actually just to the south and this spring is within the Triangle Pasture. The 2003 assessment noted the spring area mostly dry and grazed, with a road limiting the size of the spring area. In 2003, the spring was rated as Functional at Risk with a Downward Trend. The 2007 assessment found extreme hoof action, much bare dirt, and hummocking, with the spring rated as Nonfunctional.

Coon Creek Pasture

HV-15 & 16/HV-15 & 15B: Two springs in close proximity, both with dirt stock tanks in the drainages below the sources. The 2003 assessments noted erosion, hoof action, and hummocking, with both springs rated as Functional at Risk with a Downward Trend due to livestock, watershed conditions, and dredging activities. The 2007 re-assessments found similar conditions and gave the springs the same rating.

HV-14/Not Assessed: The 2003 assessment found generally dry conditions, with minimal hoof action and heavy utilization of the riparian vegetation. Spring rated as Functional at Risk with a Downward Trend due to livestock and watershed condition. Spring not assessed in 2007.

Not Assessed/HV-14: This spring not assessed in 2003. The 2007 assessment found extremely dry conditions, with high hummocking in the few wet areas and upland grasses almost completely encroaching the former meadow area. Spring rated as Nonfunctional.

Not Assessed/HV-52: This spring not assessed in 2003. The 2007 assessment found the spring at the confluence of two gullies. Minimal riparian vegetation present, with extreme hoof action, hummocking, and erosion noted. Spring rated as Nonfunctional.

Flat Pasture

HV-34/Mud Springs South: This is a complex of at least five spring sources, with the entire complex fenced in 1996. The 2003 assessment found evidence of past livestock impacts along with some bare soils but adequate riparian vegetation. The spring rated as Functional at Risk with an Upward Trend. The 2007 assessment found the old hummocking in full recovery and the riparian vegetation community occupying the site, with the spring rated at Proper Functioning Condition.

Jakes Creek Mountain Pasture

HV-25/HV-25: The 2003 assessment found the spring to be near its potential extent, but also noted trampling, heaving, hoof action, and a road impacting the area. Spring rated as Functional at Risk with a Downward Trend. The 2007 assessment found most of the hummocking detailed in the 2003 assessment to be fully recovered, with some very minor impacts from current livestock grazing. Spring rated as Proper Functioning Condition.

HV-26/HV-26: The 2003 assessment found the spring impacted by trampling, hoof action, livestock trails, and some road encroachment. The spring was rated as Functioning at Risk with a Downward Trend. The 2007 assessment found the impacts noted in 2003 to be almost completely recovered, with the spring rated at Proper Functioning Condition.

HV-27/HV-27: The 2003 assessment noted a large and diverse riparian area, with some hoof action noted. The spring was rated Functioning at Risk with an Upward Trend. The 2007 assessment found the old hummocks to be filled in and the ground to be very wet, with the spring rated at Proper Functioning Condition.

HV-28/HV-28: The 2003 assessment noted a large and diverse riparian plant community with some bare areas around the base of some willows along with a dirt reservoir, major areas of hoof action, and livestock trails. The 2007 assessment noted none of the impacts detailed in 2003, as well as riparian plants exhibiting high vigor and the spring was rated as Proper Functioning Condition.

HV-29/HV-29A: The 2003 assessment noted a diverse plant community with hoof action, headcutting, hummocks, and bare areas. Spring rated as Functional at Risk with a Downward Trend. The 2007 assessment noted recovery of past hoof action, compacted soils, and minor erosion, with the spring rated at Proper Functioning Condition.

HV-18/HV-19: The 2003 assessment noted a diverse plant community with large unshaded areas, bare soils, erosion, hoof action, and road encroachment. The spring was rated as Functioning at Risk with a Downward Trend due to livestock impacts and road encroachment. The 2007 re-assessment found the spring area heavily impacted due to hoof shearing, which the PFC crew attributed to elk. The spring rated as Functioning at Risk with No Apparent Trend due to the elk impacts.

HV-19/Not Assessed: The 2003 assessment found a diverse riparian plant community with some upland plant encroachment, with hoof action, trailing, road encroachment, and drying noted. Spring rated at Functional at Risk with a Downward Trend. Spring not assessed in 2007.

Not Assessed/HV-18: This Spring is on Private Land. No assessment made in 2003. The 2007 assessment noted a diverse plant community, but no surface water could be found. Spring rated as Functioning at Risk with No Apparent Trend.

Not Assessed/HV-29: This Spring is on Private Land. No assessment in 2003. The 2007 assessment is included with #29A above.

Not Assessed/HV-51: This spring not assessed in 2003. The 2007 assessment noted a large and diverse riparian plant community, with all evidence of past hoof action/hummocking almost completely recovering. Spring rated at Proper Functioning Condition.

Not Assessed/HV-50: This Spring is on Private Land. No assessment in 2003. The 2007 assessment noted a large and diverse riparian plant community, with evidence of past livestock use in recovery. Spring rated at Proper Functioning Condition.

Dry Creek Mountain Pasture

HV-30/Not Assessed: Schlitz Spring, enclosed by a fence in 1996. PFC crew in 2003 noted recovering impacts from past livestock use and an old road passing through the spring area. Spring rated as Functioning at Risk with an Upward Trend, with watershed condition listed as the limiting factor.

Not Assessed/HV-30: This spring on private land. The 2007 PFC crew did not assess the Schlitz Spring above, but instead rated a wet meadow lying just outside the Schlitz Spring enclosure. The assessment noted a riparian plant community, but also noted that the area was very dry. No livestock impacts were noted. Area rated as Functioning at Risk with No Apparent Trend.

HV-31/HV-31A: Dry Creek Spring. This spring fenced in 1996. The 2003 PFC crew focused their assessment on the actual spring area inside the enclosure, where they found an enlarging riparian area along with some minor hoof action, trails, and grazing, all due to horses that had been penned up in the enclosure. The spring area rated at Functioning at Risk with an Upward Trend. The 2007 PFC crew did not evaluate the spring area inside the enclosure, with their assessment focused entirely on a small seep coming underneath the enclosure fence from the seep area. The assessment found hoof action and hummocking and areas of bare soil, with the area rated at Functioning at Risk with a Downward Trend. **The difference between where the two assessments were conducted make any trend analysis at this location meaningless.**

HV-32/HV-32A: The 2003 assessment found several riparian plants, with the spring area impacted by hoof action, small headcuts, and hummocking. The spring rated as Functional at Risk with a Downward Trend due to livestock. The 2007 re-assessment found much of the same conditions, but no evidence to indicate that it was recent damage. The crew did note that the apparent drying out of the spring area likely hampered recovery from the past damage. The spring rated as Functional at Risk with No Apparent Trend.

HV-33/HV-33: The 2003 assessment noted a riparian plant community, with the spring area impacted by hoof action, trampling, bare areas, and erosion. The spring rated as Functioning at Risk with a Downward Trend. The 2007 assessment noted some impacts to the spring area attributed to both livestock and elk, but the low amount of impact by livestock and wildlife and healthy and mature riparian communities led to rating this spring at Proper Functioning Condition.

Not Assessed/HV-40: This spring not assessed in 2003. The 2007 assessment noted a healthy and diverse riparian plant community, with evidence of recovering past hummocking. The spring rated at Proper Functioning Condition.

Bull Camp Mountain Pasture

HV-11/Not Assessed: The 2003 assessment noted an apparently shrinking riparian area supporting a riparian plant community, with cut banks along stream channel, minor hoof action, a minor head cut, and patchy areas of heavy utilization noted. The spring rated as Functional at Risk with a Downward Trend due to livestock and watershed condition. This spring not re-assessed in 2007.

HV-12/Not Assessed. This spring on Private Land. The 2003 assessment noted conditions and a rating almost identical to HV-11 above. Spring not assessed in 2007.

HV-13A/Not Assessed. The 2003 assessment noted the spring area almost completely dried out, with much upland plant species encroachment and heavy utilization levels present. The spring rated as Functional at Risk with a Downward Trend. Spring not re-assessed in 2007.

Not Assessed/HV-13, 13A, and 13B: These spring are on Private Land. These springs not assessed in 2003. The 2007 assessments noted a complex of springs supporting willows and a diverse riparian plant community. Some evidence of past livestock use that is recovering, with the PFC crew attributing recent hoof action to deer and elk. Entire spring complex rated at Proper Functioning Condition.

5.2.9 Water Quality

Water quality standards outlined in Nevada administrative code (NAC) 445A apply to streams and springs within the Hubbard Vineyard Allotment. Nevada Department of Environmental

Protection (NDEP) has specified water quality standards for Salmon Falls Creek and its tributary streams.

Salmon Falls Creek- *Devil's Table Pasture*

Water Quality in Salmon Falls Creek is monitored by NDEP near Delaplain which is about 20 miles downstream of the Hubbard Vineyard allotment boundary. Data collected from this site have resulted in inclusion of the reach intersecting the Hubbard Vineyard Allotment in Nevada's 2006 303(d) list. Violations for this reach are iron, temperature, total phosphorus, total suspended solids, turbidity, and copper.

NDEP data alone do not determine that actions taken within the Hubbard Vineyard contribute to or cause violations of water quality standards in Salmon Falls Creek. This is due to the fact that the NDEP site is so far downstream from the Hubbard Vineyard allotment as well as the fact that the allotment intersects the stream for such a small percentage of the entire reach. Ideally, monitoring stations would be positioned along the stream where it enters and exits the allotment. This would take into account all inputs and outputs affecting water quality. Because this level of monitoring is not practical, other data such as Lotic PFC and stream survey are generally used to determine to what measure the reach in question is responsible for water quality degradation.

Existing data along with known land uses within the watershed suggest that actions occurring in the reach of Salmon Falls Creek located on public land within the Hubbard Vineyard allotment are not responsible for water quality degradation. In general, the same conditions which result in favorable habitat conditions and properly functioning condition result in good water quality (TR 1737-9). Although PFC assessments were not done along Salmon Falls Creek, stream survey parameters are in the "good" range suggesting that impacts to water quality are small if any. It is more likely that water quality degradation originates on private land along Salmon Falls Creek and its tributaries. Land use in these areas is much more intensive than on public land and includes irrigation, farming, and more concentrated use by cattle. These intensive land uses are most likely responsible for most of the parameters for which Salmon Falls Creek is in violation.

Jakes Creek- *Jakes Creek Mountain and Middle Pastures*

Monitoring has shown that water quality on Jakes Creek is generally good with some possible exceptions. The most notable of these exceptions is water temperature. A thermal data-logger which was employed from 2003 to 2005 on North Fork Jakes Creek recorded temperatures greater than 20° C for 86 days in 2003, 122 days in 2004, and 85 days in 2005. Temperature samples on South Fork Jakes Creek indicate similar conditions. Under beneficial use standards set for cold water fisheries by NDEP, a stream should not exceed 20° C for more than 36 days in a year. Other water quality monitoring conducted between 2002 and 2006 indicated possible problems with total phosphorus and fecal coliform. Because both of these parameters were slightly above criteria for only one sample, more samples would have been taken to reach definite conclusions. The North Fork of Jakes Creek was included in Nevada's 2006 303(d) list for violations of temperature, total suspended solids, and turbidity. The South Fork of Jakes Creek was listed for temperature and turbidity.

High water temperatures in Jakes Creek are most likely influenced heavily by natural conditions. Monitoring during the winter of 2004-2005 indicated that water temperature in South Fork Jakes Creek rarely dropped below 10° C (50° F). These kinds of values in the middle of winter suggest that water in this stream is thermally influenced. It is under these conditions that fish populations would have become established, and it is therefore not likely that high temperatures are a stressor of concern.

Dry Creek- Dry Creek Mountain, Flat, and West and East Hubbard Seeding Pastures

Water quality at Dry Creek is generally good with the possible exception of high phosphorus. Total phosphorus was slightly above criteria in both of the samples for which this parameter was analyzed. NDEP acknowledges that many streams in Nevada have naturally high phosphorus making this parameter less effective at signifying actual degradation. Because no symptoms of excessive phosphorus were observed (e.g. algal growth, low dissolved oxygen) it is most likely not an issue.

A pasture by pasture summary of some of the data presented above (PFC, Stream Survey, and Wildlife Habitat Condition) can be found in table form in Appendix 4.

6. CONCLUSIONS

This section examines whether or not the allotment objectives have been met based on the information presented in the above sections.

6.1 General Land Use Plan Objectives (RMP)

Attainment or non-attainment of these objectives are included under conclusions for allotment RPS, O'Neil/Salmon Falls HMP, Riparian and key area objectives.

6.2 Rangeland Program Summary (RPS)

6.2.1 Livestock Grazing

1. Improve livestock distribution in the Lower Hubbard Basin, Big Devils Table, Boies Reservoir, Cow Basin, and the West side of Cold Springs Mountain.

Undetermined. The original evaluation (1997) determined that, based on use pattern maps, livestock distribution still needed to be improved in the Lower Hubbard Basin, Big Devils Table, Boies Reservoir, Cow Basin, and the West side of Cold Springs Mountain. No additional water developments have been installed. However, the grazing system set in place at the implementation of the HM process has incorporated periodic rest and season of use variations in these pastures. The BLM lacks enough data to make any further determinations of this objective.

2. Improve ecological status in the eastern third of the allotment, particularly the lower elevations of Hubbard Basin.

Not Met. Ecological status of the eastern third of the allotment is measured by key area HV-01. Ecological status measured at key area HV-01 shows generally stable trends. The declines in ecological status observed between 1986 and 1990 had been completely reversed by 2004. The 1990 readings occurred in the middle of an extended drought cycle, while the 2004 readings occurred after a couple years of good precipitation. This tends to indicate that the variations observed across years are largely driven by precipitation patterns and cycles. The eastern one third of the allotment lies in the immediate rain shadow of the Snake Mountains, and as such is very dry and has poor soils. Both of these factors limit the potential of these sites to improve under any management regime. The dominant species around key area #HV-02 tend to indicate that it lies within an area of multiple ecological sites, which makes drawing any conclusions about ecological status impossible.

3. Maintain the existing ecological status of the Mountain, Upper Hubbard Basin, Bull Camp, and Coon Creek pastures.

Met. The ecological status inventory that was completed in 1986, along with utilization data, use pattern maps, and frequency and production studies at key area HV-03, all indicate that the ecological status has been maintained in the Upper Hubbard Basin, Bull Camp, and Coon Creek Pastures.

4. Develop an AMP to be signed in FY86.

Some Progress in Being Made. No AMPs have been written for this allotment, but this document is the first step towards creating the functional equivalent of an AMP.

5. Periodically evaluate the monitoring data for the allotment to reinstate suspended non-use AUMs when they become permanently available.

Met. Monitoring data used to determine carrying capacity has been evaluated in this allotment evaluation. However, the suspended non-use AUMs have not been reinstated.

6.2.2 Terrestrial Wildlife Habitat

1. Improve or maintain all seasonal big game habitat in the Hubbard Vineyard Allotment to good or excellent condition to provide forage and habitat capable of supporting the following reasonable numbers:

804 mule deer; 1,407 AUMs

252 antelope; 293 AUMs

10 bighorn sheep; 24 AUMs

Mule deer: Partially Met. Wildfire has impacted approximately 4,358 acres of mule deer range within the Hubbard Vineyard Allotment. The majority of the fire impacts occurred in mule deer

summer range. (Refer to Map 3). Habitat condition ratings for three of the five key areas established in mule deer intermediate range were “fair.” The one study area representing mule deer summer habitat (burned by the Cold Springs Fire in 2000) was “fair.” The predominant limiting factors were inadequate vertical structure and limited forage diversity.

Antelope: Partially Met. Habitat condition ratings for antelope summer range in the Hubbard Vineyard Allotment were all rated as “good.” The one study established in antelope winter range was rated as “fair.” The major limiting factor for the winter range was forb and grass diversity. Forb composition measured in the one winter range key area was 4% and grass composition was 13%. This key area also exhibited significant sagebrush die off with little recruitment.

Bighorn Sheep: Undetermined. No studies have been established to monitor potential bighorn sheep habitats. Approximately 19% of the occupied bighorn habitat burned in the Cold Spring Fire (2000). As a result of the fire, the vegetation was converted from primarily a sagebrush dominated community to a perennial grass and forb dominated community, which are preferred forages for bighorn sheep (Van Dyke, et al.1983).

2. Facilitate big game movements by modifying 35.1 miles of existing fences to Bureau standards.

Fence Modifications: Met. The Wells RMP allows for 150 miles of fence to be modified within the O'Neil/Salmon Falls RCA. The O'Neil/Salmon Falls HMP was approved 8 September 1986 and specifically identified 35.15 miles of fence to be modified within the Hubbard Vineyard Allotment. In 1989 and 1990, 36 miles of fence in the Hubbard Vineyard Allotment were evaluated and/or modified. Table 18 lists fence modifications completed or determined to not be needed in the Hubbard Vineyard Allotment.

Table 18. HUBBARD VINEYARD ALLOTMENT FENCE MODIFICATION SUMMARY		
Project #	# Miles	Remarks
0440	6.0	Identified in HMP, evaluated in 1988, determined no action needed.
0419	7.0	Identified in HMP, evaluated in 1988, determined no action needed.
0419	1.0	Identified in HMP, modification completed in 1990.
0937	8.5	Identified in HMP, modification completed in 1990.
0132	9.5	Identified in HMP, modification completed by permittee.
0132	4.5	Identified in HMP, modification completed in 1991.
0735	0.5	Identified in HMP, modification completed in 1990.
	36.0 Total	

3. Reintroduce bighorn sheep into the Badlands.

Met. Twenty-five Rocky Mountain bighorn sheep were released into the Badlands in January, 1989 and twenty-five more in January, 1992. Radio telemetry information provided by the Nevada Department of Wildlife currently estimates the population to be approximately 70 bighorn sheep for the entire L&D Mtn./Badlands Wilderness Study Area vicinity.

6.2.3 Riparian/Stream Habitat

1. Improve 10 springs in the Hubbard Vineyard Allotment to good or better condition.

Met

Spring areas rated at Proper Functioning Condition are considered to be in good or better condition, while springs rated at Functioning at Risk with an Upward Trend or lower lack the vegetative height, density, or cover to justify a good condition rating. The majority of the spring areas in the Hubbard Vineyard Allotment have been assessed twice, once in 2003 and again in 2007. The 2003 assessment evaluated 35 lentic spring and seeps, with 10 rated as Functional-at-risk (FAR) with an upward trend (FAR↑) (29%), 22 were FAR↓ (downward trend) (63%), and 3 were non-functional (NF) (8%). The 2007 assessments evaluated 51 springs, seeps, and reservoirs, with 24 rated as Proper Functioning Condition (PFC) (47%), 3 rated at Functional-at-risk (FAR) with an upward trend (FAR↑) (6%), 4 rated as Functional-at-risk with no apparent trend (FARN) (8%), 7 rated as FAR↓ (downward trend) (14%), and 11 rated as non-functional (NF) (21%). Two of the sources did not receive any rating (4%). Three of the areas rated non-functional are livestock reservoirs. The objective to improve 10 springs to good or better condition has been exceeded.

The O'Neil/Salmon Falls Habitat Management Plan (HMP) proposed to improve 50 springs in the O'Neil/Salmon Falls RCA. The HMP specifically identifies 25 springs, six of which lie in the Hubbard Vineyard Allotment. The HMP allows flexibility in identifying the remaining 25. The six springs specifically identified in the Hubbard Vineyard Allotment are:

- Leo Spring, Hubbard Basin Pasture, T44N, R62E, S 9, SWNE. This spring was fenced in 1996 and was rated as Proper Functioning Condition in 2007.
- North Twin Ledge Spring, Hubbard Basin Pasture, T43N, R62E, S 1, NESE. This spring was fenced in 1996 and was rated as Proper Functioning Condition in 2003.
- Unnamed Spring, Middle Pasture, T43N, R62E, S 16 SESW. This spring remains unfenced and was rated as Functioning At Risk with an Upward Trend in 2007.
- Corral Spring, Middle Pasture, T43N, R62E, S 22 NESW. This spring remains unfenced and was rated as Functioning At Risk with an Upward Trend in 2003.
- Dry Meadow Spring, Triangle Pasture, T42N, R62E, S 9 SWSE. This spring was fenced in 1996 and was rated as Functioning at Risk with a Downward Trend in 2007.
- Mud Spring, Flat Pasture, T42N, R63E, S 21 NESW. This spring was fenced in 1996 and was rated at Proper Functioning Condition in 2007.

The BLM has completed three additional exclosure projects in the Hubbard Vineyard Allotment:

- S. Fork Jakes Creek exclosure, Middle Pasture, T43N, R62E, S 27 SWNE. Spring rated as Proper Functioning Condition in 2007.
- Zchlitz Spring, Dry Creek Mountain. Pasture, T42N, R61E, S 12 NESW. Spring fenced in 1996 and rated as Functional at Risk with an Upward Trend in 2003. The 2007 assessments looked only at a meadow area adjacent to- and outside of- the spring area that was rated as Functioning at Risk with No Apparent Trend.
- Dry Creek Spring, Dry Creek Mountain Pasture, T42N, R61E, S 13 NENW. Spring fenced in 1996 and rated as Functional at Risk with an Upward Trend in 2003. The 2007 assessments did not evaluate the spring area, with the efforts instead focusing on a seep that came out from underneath of the exclosure fence that was rated Functional at Risk with a Downward Trend.

The 1980-81 Elko District wildlife habitat and water inventory data showed 30 springs within the Hubbard/Vineyard Allotment which were in less than good condition. The 2007 assessment indicates that 27 are now in good condition or in an upward trend.

2. Improve riparian/stream habitat conditions to good or excellent on Dry Creek, Jakes Creek, and Salmon Falls Creek (10.0 miles). Satisfactory progress toward this long-term objective will be measured by a minimum improvement of 30% (from 1979 and 1980 baseline) by 1990.

Note: Due to an editorial error, the RPS used incorrect figures. The objectives should be to improve 1.3 miles of Dry Creek, 5.8 miles of Jakes Creek, and 2.0 miles of Salmon Falls Creek for a total of 9.1 miles of public land stream to be improved.

Table 19: Stream survey/PFC assessment percent optimum summary for 1980 through 2006 (Public land stations only).

Stream Name	Pastures	Year	Bank Cover % Optimum	Bank Stability % Optimum	Pool/Riffle Ratio % Optimum (1)	Pool Quality % Optimum (2)	Streambottom (% desirable)	Riparian Condition (3)	Habitat Condition (4)	Functionality Rating
Jakes Creek	Jakes Creek Mountain, Middle	1980	76%	61%	76%	50%	69%	69%	66%	n/a
		1990	54%	50%	82%	27%	33%	52%	49%	n/a
		2001	59%	64%	58%	19%	43%	61%	48%	8.2 miles PFC 3.9 miles NF
		2006	59%	63%	66%	17%	81%	61%	57%	5 miles FAR↓ 3 miles PFC 12 miles FAR↑
Dry Creek	Dry Creek Mountain, Flat, East and West Hubbard Seedings	1980	64%	30%	0	85%	52%	44%	31%	n/a
		1990	40%	30%	0	0	69%	35%	28%	n/a
		2001	50%	65%	18%	04%	85%	58%	44%	1.2 miles NF
		2006	38%	36%	20%	0%	94%	37%	38%	1.2 miles FAR
Bull Camp Creek	Bull Camp Mountain, Flat, East Hubbard Seeding	1980	68%	65%	74%	0	85%	67%	58%	n/a
		1990	50%	37%	20%	0	56%	44%	32%	n/a
		2001	48%	50%	70%	0	67%	49%	47%	5.8 miles NF
		2006	48%	54%	32%	32%	85%	51%	54%	5 miles NF 4 miles PFC

Salmon Falls River	Devil's Table	1979	42%	45%	92%	15%	30%	44%	45%	n/a
		1988	51%	58%	94%	4%	60%	54%	53%	n/a
		2001	60%	64%	86%	47%	52%	62%	62%	n/a

1. Ratio of pools to riffles. A ratio of 1:1 is considered optimum.
2. Quality pools are large, deep, and well covered with vegetation.
3. Riparian condition percent optimum is the average of bank cover and bank stability. 100% optimum is totally stable streambanks, well vegetated with tall shrubs and/or trees (Duff and Cooper 1976). <49%= poor, 50-59% = fair, 60-69% = good, and >70%= excellent condition.
4. Habitat condition percent optimum is the average of bank cover, bank stability, pool/riffle ratio, pool quality, and percent desirable streambottom materials. 100% optimum is totally stable streambanks, well vegetated with tall shrubs and/or trees; a 1:1 pool/riffle ratio, quality pools, and streambottom substrate comprised of gravel and rubble (Duff and Cooper 1976).

a. Dry Creek

Some Progress is Being Made. A decline in both riparian condition and stream habitat condition was observed on Dry Creek between 1980 and 1990, but both parameters have improved by 30% between 1990 and 2001 (Appendix 3). Both parameters declined again between 2001 and 2006 for the two stations on Dry Creek. Improvements in streambottom desirable material and pool/riffle ratio were observed in 2006, probably reflecting high runoff in the spring of 2006 scouring the stream channel. Functionality improved from nonfunctional (NF) in 2001 to functional at risk (FAR) in 2006.

One of the two stations on Dry Creek was dry in both 1990 and 2001 (Station 1) which limited stream habitat condition analysis to only one station. Stream habitat conditions remained poor in 2006 at 38% with pool/riffle ratio and pool quality as key limiting factors.

Riparian condition is not restricted by dry stream segments and both stations improved to just below good in 2001 (58%), but declined to 37% in 2006. Both streambank cover and streambank stability had improved since 1990, but declined between 2001 and 2006.

Both functionality and width to depth ratio improved on Dry Creek between 2001 and 2006 (Appendix 3).

While woody riparian vegetative cover is improving on the Dry Creek stream survey sites, both sites are in a downcut stream channel with vertical streambanks. High spring runoff flows appear to be a significant contributing factor in the channel stability rating, although livestock grazing may have been a contributing factor in the past. S-1 is controlled by baserock rubble, while S-3 is a more unstable gravel-sand-silt site. S-3 in particular will take considerable time to recover.

b. Jakes Creek

Met for Jakes Creek Mountain Pasture; Not Met for Middle Pasture. Riparian condition declined between 1980 and 1990 on Jakes Creek, but rebounded by 2001 to good condition (61%) and remained the same in 2006. Bank cover improved on 10 of 12 stations by 2001, while bank stability improved on 7 of 12 stations. Seven of 12 bank cover stations were in good to

excellent condition and 9 of 12 streambank stability ratings were good to excellent (Appendix 3). Bank cover and bank stability remained the same between 2001 and 2006.

Stream habitat conditions on Jakes Creek declined between 1980 and 1990 and remained in poor condition (48%) in 2001, but improved to 57% by 2006, mostly because of improved streambottom desirable material and pool/riffle ratio. Riparian and stream habitat condition reflect a change in livestock management practices implemented in 1999. Functionality improved on Jakes Creek with no nonfunctional segments in 2006. The width to depth ratio also improved between 2001 and 2006.

Most of the lower elevation stream survey sites on Jakes Creek and the South Fork of Jakes Creek above Jakes Creek Reservoir are in the Middle Pasture (S-1 through S-5 and SA-1 through SA-3). The Middle Pasture has recently been rested from livestock use one year out of every four, with alternating early season use (prior to the hot season) the other years. Past stream channel downcutting has influenced stream stability at some sites, but upstream sites that are not downcut are improving. Livestock use remains a causal factor for not meeting objectives.

Stream survey sites above S-5 on Jakes Creek and SA-3 on the South Fork Jakes Creek are in the Jakes Creek Mountain pasture which is rested every other year and has a shorter livestock use season. These stream survey sites are generally in good condition and meeting objectives.

c. Salmon Falls Creek

Met. Stream habitat conditions on Salmon Falls Creek improved from 45% of optimum in 1979 to 53% of optimum in 1990, and by 2001 was 62% (good condition) of optimum. Pool/riffle ratio and pool quality were fairly good on Salmon Falls Creek compared to the smaller Dry Creek, Jakes Creek, and Bull Camp Creek. Salmon Falls Creek within the Hubbard/Vineyard Allotment appears to be a sand streambed type with limited potential to develop more desirable streambottom materials. Improved riparian and stream habitat condition reflect a change in livestock management practices implemented in 1999. No new data were collected in 2006.

3. Prevent undue degradation of all riparian/stream habitat due to other uses.

The original 1997 evaluation stated that attainment of this objective would be measured through improvement of riparian conditions on 6.7 miles of Bull Camp Creek. Bull Camp Creek did not have any specific management objectives due to its status as a “low priority” stream as set by the Wells RMP. Stream survey data for Bull Camp Creek are summarized in Appendix 3; however, no further conclusions are drawn.

Barite mining at the head of Dry Creek during the 1970s and 1980s used an access road paralleling and crossing Dry Creek. Trucks moved ore from the head of Dry Creek and sites on the west side of the Snake Range down the Dry Creek access road to a reload site just above the Dry Creek Ranch (see 2.6 Mining Activities for additional details).

This mining access road was not maintained and a stream crossing on Dry Creek above the Dry Creek Ranch washed out in 2006 during heavy spring runoff. It appears culverts on the road filled with debris and the road acted as a dam with water spreading out above the road, spilling over and cutting the road fill material. The culverts were washed out and the stream downcut the stream channel 10 to 15 feet or more in depth above and below the road crossing. Large amounts of silt, sand, and gravel were deposited less than ½ mile downstream at the head of a private pasture. The access road has since been repaired to allow miners access to the mining properties again.

A high tension power line also crosses the Hubbard Vineyard allotment with two track access roads crossing streams in the lowland pastures. Some erosion is present at stream crossings along these roads on both public and private lands, as well as runoff from irrigated private pastures

6.3 O'Neil/Salmon Falls Habitat Management Plan (HMP) Objectives

Progress toward attainment of these objectives are included under the conclusions for allotment RPS, riparian, and key area objectives.

- a. Improve to or maintain in at least good condition all deer use areas in the O'Neil/Salmon Falls RCA.
- b. Modify or reconstruct up to 140 miles of fence emphasizing, in priority order (1) migration routes, (2) winter ranges, (3) spring ranges, and (4) other use areas.

Note: 35.1 miles of existing fence are to be modified within the Hubbard Vineyard Allotment.

- c. Achieve reasonable numbers (90, yearlong) of bighorn sheep in the vicinity.
Note: reasonable numbers of bighorn sheep is 10 within the Hubbard Vineyard Allotment.

- d. Improve 43 springs and wet meadows, presently in poor or fair condition, to good or excellent condition (seven of the 50 spring projects authorized for the RCA by the Wells RMP are "allocated" to the Badlands bighorn sheep).

Note: 10 springs within the Hubbard Vineyard Allotment are to be improved, enhanced, or developed to good or excellent condition.

6.4. Key Area Objectives

a. HV-01 Flat Pasture

1. Short-term: Do not exceed an average annual utilization of 50%, or 55% utilization in any one year on bluebunch wheatgrass (AGSP) and Thurber's needlegrass (STTH2) (during years this pasture is grazed).

Partially Met. From 1986 to 2008, average annual utilization did not exceed 50%; however, utilization did exceed the maximum 55% in any one year, in 2008.

2. Long-term: Maintain or improve ecological status to a low late seral (51 points) stage by 2005.

Met. In 1986, the ecological condition was late seral stage (51%), but by 1990 the ecological condition declined to mid seral stage (48%). However, this increased back to late seral (51%) in 2004.

The BLM observed a slight decline in the ecological status at this key area between 1986 and 1990. The original evaluation concluded that this was the result of the repeated spring grazing use within this pasture and the 6-7 year drought cycle of the late- 1980's to early 1990's. The relatively poor soils of the site (high silt content, low organic matter, and low aggregate stability) and the location on the landscape (a flat area subject to evaporation of soil moisture for most of each day) also contributed to the decline and at the same time limited the potential for improvement.

b. HV-02: Lower Hubbard Pasture

1. Short-term: Do not exceed an average annual utilization of 50%, or 55% utilization in any one year on Indian ricegrass (ORHY) (during years this pasture is grazed).

Met. From 1986 to 1997, average annual utilization did not exceed 50%, and utilization did not exceed 55% in the nine years use was measured.

2. Long-term: Improve ecological status to a low late seral (51 points) stage by 2005.

Undetermined and Inapplicable. The BLM initially determined this key area to be in the 025XY014NV range site, which is dominated by big sagebrush, bluebunch wheatgrass, and Thurber's needlegrass. Based on this premise the BLM designated bluebunch wheatgrass and Thurber's needlegrass as the key species. However, neither of these species appeared in the frequency or production studies conducted in 1986 and 1990, and the species are not common in the study area. These factors prompted the BLM in 1993 to change the key species to Indian ricegrass, the most dominant desirable grass species in the area.

The ecological sites that support Indian ricegrass are co-dominated by black sagebrush, and those sites dominated by big sagebrush contain very little Indian ricegrass. This leads the BLM to conclude that this key area most likely sits on an area that contains elements from several different ecological sites, which would make any assessments of ecological status inapplicable.

c. HV-03: Upper Hubbard Pasture

1. Short-term: Do not exceed an average annual utilization 50%, or 55% utilization in any one year on bluebunch wheatgrass (AGSP) and Thurber's needlegrass (STTH2) (during years the pasture is grazed).

Met. From 1986 to 1997, average annual utilization did not exceed 50%. The 55% maximum utilization level was exceeded in one year (1986), but only by 1%.

2. Long-term: Improve ecological status to a low late seral (51 points) stage by 2005.

Met. In 1986 the ecological condition was mid seral (44%) and in 1990 the ecological condition was late seral (58%). This site remained at late seral (58%) in 2004.

This key area burned in the 2000 Cold Springs Fire. The fire eliminated most of the sagebrush from the key area location, although islands of unburned sagebrush remain nearby.

d. HV-04: Reservoir Seeding Pasture

1. Short-term: Do not exceed an average annual utilization of 55%, or 65% utilization in any one year on crested wheatgrass (during years the pasture is grazed).

Met. From 1986 to 1995, average annual utilization did not exceed 55%, and utilization did not exceed 65% in the five years use was measured.

2. Long-term: Achieve and maintain crested wheatgrass production of 500 lbs/acre (air-dry weight).

Progress is not being made. In 1986, the crested wheatgrass production was 347 lbs/acre; by 1990 it was 262 lbs/acre. The production further declined to 110 lbs/acre in 2004. This seeding was established in 1952 as part of a halogeton control program established in Elko District. This seeding was seeded in poor soils (high silt content, low organic matter, and low aggregate stability). These soils have a high concentration of exchangeable sodium, and during years with less than average growing season precipitation plants could tend to produce less forage and in some cases may actually die off.

An on-site inspection in August of 1993 showed an apparent increase in sagebrush seedlings. As sagebrush matures there may be an accompanying reduction in yields of crested wheatgrass. The study results tend to correlate with both of the above factors. The climatic adjustment factor (CAF) for 1986 was 0.98, with 1.0 representing a normal precipitation year. 1990 had a CAF of 0.73 and came after three consecutive years of lower than normal precipitation years; 2004 had a CAF of 0.79 and came after five consecutive years of below normal precipitation. Sagebrush production decreased across the years, from 242 lbs/acre of production in 1986 to 85 lbs/acre in 2004.

e. HV-05: Hubbard Seeding Pasture

1. Short-term: Do not exceed an average annual utilization of 55%, or 65% utilization in any one year on crested wheatgrass (during years the pasture is grazed).

Met. From 1986 to 1995, average annual utilization did not exceed 55%, and utilization did not exceed 65% in the eight years this key area was read.

2. Long-term: Achieve and maintain crested wheatgrass production of 500 lbs/acre (air-dry weight).

Progress is not being made. Crested wheatgrass production in 1986 was 618 lbs/acre, but by 1990 it had declined to 334 lbs/acre. In 2004 production improved, but only to 389 lbs/acre. This seeding was established in 1952 as part of a halogeton control program. This seeding was seeded in poor soils (high silt content, low organic matter, low aggregate stability, and shallow). These soils have a high concentration of exchangeable sodium, and during years with less than average growing season precipitation plants could tend to produce less forage and in some cases may actually die off.

f. HV-06: Middle Pasture

1. Short-term: Do not exceed an average annual utilization of 50%, or 55% utilization in any one year on Indian ricegrass (ORHY), bluebunch wheatgrass (AGSP), and Thurber's needlegrass (STTH2) during years the pasture is grazed.

Met. Utilization in 2002 was 24% on Indian ricegrass.

g. HV-07: Middle Pasture

1. Short-term: Do not exceed an average annual utilization of 50%, or 55% utilization in any one year on Indian ricegrass (ORHY), bluebunch wheatgrass (AGSP), and Thurber's needlegrass (STTH2) during years the pasture is grazed.

Met. Utilization in 2002 was 25% on Indian ricegrass and 33% on bluebunch wheatgrass.

h. HV-08: Triangle Pasture

1. Short-term: Do not exceed an average annual utilization of 50%, or 55% utilization in any one year on bluebunch wheatgrass years the pasture is grazed..

Not Met. Utilization on bluebunch wheatgrass in 2002 was 57%.

6.5 Northeastern Great Basin Standards and Guidelines for Rangeland Health

This section makes draft determinations regarding:

- A. Progress towards or attainment of the standards for rangeland health,
- B. Whether livestock management is in conformance with the guidelines, and
- C. Whether existing grazing management or levels of grazing use are significant factors in failing to achieve the standards or conform to the guidelines.

a. Upland Sites: Upland soils exhibit infiltration and permeability rates that are appropriate to soil type, climate and landform.

This standard for rangeland health is being Met in most areas, and livestock grazing management is considered to be in conformance with the guidelines.

The determination is based largely on evaluation of the RPS objectives 1, 2, and 3 and key area objectives for HV-01, HV-02, HV-03, HV-04 and HV-05 presented above. The results of the long term key area studies indicate that ecological status and condition is being at least maintained on much of the allotment, which translates into sufficient amounts of vegetation present to protect soil resources. Variations noted across years appear to be more connected with precipitation levels than any other factors. Livestock distribution continues to be an issue in some pastures, but the periodic resting of a portion of the allotment each year allows plants to complete their growth and reproductive cycles. The BLM has observed little to no soil movement on most parts of the allotment.

The few areas of abnormal soil erosion are almost always associated with the old mine roads. The roads received little to no maintenance after the first era of large scale mining activities ceased in the early 1980's. The revival of the mines has brought regular maintenance back to some of these roads. The portions of the allotment with deficiencies in vegetation cover noted appear to be chiefly caused by natural limiting factors in the soils.

b. Riparian and Wetland Sites: Riparian and wetland areas exhibit a properly functioning condition and achieve state water quality criteria.

Significant progress is being made in the attainment of this standard on the allotment as a whole. Livestock grazing is in conformance with the guidelines in some areas and not in conformance with the guidelines in other areas.

This determination is based on the evaluation of the RPS riparian/stream habitat objectives 2c(1), (2), and (3), and HMP objectives 3d presented in the evaluation and as modified above. The lotic areas in the mountain pastures have shown steady improvement in riparian conditions; however, the pastures on the east side of the allotment are not showing a similar level of improvement. This is due to a combination of livestock grazing and natural factors such as flood events and site potential. Bull Camp Creek is additionally impacted by irrigation of private fields it flows through, which causes most of the lower reaches to be dry in most years. Lentic riparian areas have shown dramatic improvements across the allotment, with the number of springs in Proper Functioning Condition increasing from zero in 2003 to 24 in 2007.

Water quality monitoring results on the Hubbard Vineyard Allotment tend to show that livestock grazing management is allowing for attainment of this standard. The South Fork of Salmon Falls Creek, which flows through a portion of the northern tip of the Hubbard Vineyard Allotment, is classified as an impaired water; however, the monitoring location where this determination is made is located approximately 20 miles downstream from the allotment. This stream drains a large area with many land uses, and as such it is impossible to determine what contributions livestock management in the Hubbard Vineyard Allotment makes to this impairment. Water

quality is generally good throughout the allotment, with livestock grazing playing a minor role in noted water quality impairment factors. Most of the water quality impairment factors appear to be due to natural causes.

c. 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.

Significant progress towards the attainment of this standard is being made. Livestock grazing is considered to be in conformance with the guidelines across most of the allotment.

This determination is based on evaluation of RPS Objectives a.1, 2 and 3; b. 1, 2 and 3 and c. 1, 2 and 3, and all Key Area Objectives presented within this evaluation for the Hubbard Vineyard Allotment. Based on key area objectives, a.1., b.1., c.1., d.1., and e.1., the objectives established for average annual utilization were met at all key areas. Ecological condition objectives a.2., b.2., and c.2., were met for two of the three native key areas and production had significantly increased for the native areas. Frequency studies were established at three livestock key areas in 1986; all were reread in 1990 and 2004. All the studies areas exhibited a fair amount of decadence in the sagebrush component. This was offset by the majority exhibiting a good recruitment of young sagebrush plants, except at key area AW-1-T-02 which exhibited significant sagebrush die off with little recruitment. These studies showed no significant downward trends in key species with key species occurrence either being static or up. Wildlife specific objectives, b.1., b.2., and b.3, included maintaining or improving all big game habitat in good or excellent condition, modifying 35.1 miles of existing fence to Bureau standards to facilitate big game movement, and re-introducing big horn sheep in the Bad Lands; b.1. was partially met and b.2. and b.3. were met. The summarization of data analyzed to address RPS objectives c.1., c.2., and c.3., shows that in regard to stream survey data collected within the allotment, significant progress is generally being made in the upper elevations on stream systems with less improvement on the lower elevation flats. Lotic PFC was conducted in conjunction with stream survey studies in 2006 on Jakes, Bull Camp and Dry Creek. Results showed improvement in functionality for Jakes and Bull Creek and decline on Dry Creek. Fifty-one lentic springs and seeps were evaluated in 2007. Approximately half of these (53%) were rated as Proper Functioning Condition or Functioning at Risk with an Upward Trend.

The Columbia spotted frog (candidate species) is known to occur within the allotment, and the Northern leatherside (*Lepidomedina copei*) have been identified in the Salmon Falls River system and is potentially present in Salmon Falls Creek within the allotment. Attainment of riparian standards and objectives is expected to provide for the biological needs of the spotted frog, Northern leatherside, and Interior redband trout. Improvement of quality pools, pool:riffle ratio, desirable stream bottom, streambank cover, and other parameters will continue to improve conditions for this species, and for Interior redband trout (BLM sensitive species). Most of the habitat for the Columbia spotted frog and Interior redband trout occurs in the mountain pastures, which have the improving stream segments identified in the 2006 stream survey and lotic PFC

analysis. Approximately 50 percent of the stream segments were rated PFC in 2006. Potential Northern leatherside habitat would occur on Salmon Falls Creek, which is in “good” riparian condition.

d. Cultural Resources: Land use plans will recognize cultural resources within the context of multiple use.

This standard for rangeland health is being Met, and livestock grazing management is considered to be in conformance with the guidelines.

Numerous cultural resource inventories have been completed within the 110,855 acre allotment, but the overall percentage that has been inventoried is very low. Cultural resource sensitivity varies considerably from low in some of the upland areas to very high in some of the lowlands. Condition of cultural resource sites is largely unknown at this time. In order to assess current conditions and potential impacts of cattle grazing on significant cultural resources, a sample of previously recorded sites will be visited by a BLM archaeologist. Any adverse effects to eligible cultural resources resulting from livestock grazing will be analyzed in the environmental assessment and mitigation measures considered.

Summary of Draft Determinations by pasture for each standard
Table 20 below summarizes the draft determinations for each fundamental of rangeland health by pasture for the Hubbard Vineyard Allotment.

Table 20: Summary of Draft Determinations by Pasture						
Pasture	Standard 1	Standard 2		Standard 3		Standard 4
		Lotic	Lentic	Uplands	Riparian	
Flat	M	NM (2,4)	M	M	SP (2,4)	M
Reservoir Seeding	M	N/A	N/A	M	N/A	M
East Hubbard Seeding	M	N/A	N/A	M	N/A	M
West Hubbard Seeding	M	N/A	N/A	M	N/A	M
Upper Hubbard Basin	M	N/A	NM (2,4)	NM (1)	NM (2,4)	M
Lower Hubbard Basin	M	N/A	NM (2,4)	M	NM (2,4)	M
Devils Table	M	M	N/A	NM (4)	M	M

Table 20: Summary of Draft Determinations by Pasture						
Jakes Creek Mountain	SP (3)	M	M	M	M	M
Dry Creek Seeding	M	N/A	N/A	M	N/A	M
Coon Creek	SP (3)	N/A	NM (2,4)	M	NM (2,4)	M
Bull Camp	SP (3)	M	M	M	M	M
Cold Spring Mountain	M	N/A	N/A	M	N/A	M
Schoer Field	M	N/A	N/A	M	N/A	M
Purebred	M	N/A	N/A	M	N/A	M
Middle	M	NM (2,4)	M	M	M	M
Triangle	M	N/A	NM (2,4)	M	NM (2,4)	M
Dry Creek Mountain	SP (3)	SP (2,4)	M	M	M	M
M=Met; SP=Some Progress; NM=Not Met; N/A=Not Applicable/No Data						
Causal Factors: 1=Fire; 2=Livestock Grazing; 3=Mining; 4=Natural Factors						

7. MANAGEMENT ALTERNATIVES

The BLM has developed the following as a list of management alternatives that could be analyzed in a document prepared to comply with the National Environmental Policy Act (NEPA). The public is invited to comment on these possible actions and to provide additional alternatives for potential consideration.

Shoesole Collaborative Management Group

Boies Ranches, Inc. first convened this team in 2000. This team would continue under all but the no grazing alternative. The team implements a cooperative approach that brings affected and interested groups and people together in an atmosphere of open communication that encourages them to share their values and ideas. The group could be used by the permittee to assist with planning annual livestock use within the terms and conditions of their grazing permit.

The team's approach to cooperative conservation involves a consensus-based decision making model, where "consensus" is a method of making decisions through which a group strives to reach substantial, though not necessarily unanimous, agreement on matters of overall direction that can be supported by the involved parties. This approach encourages the diverse participants to consider the environmental, economic, and social impacts of a management strategy before it is recommended by the team. Boies Ranches, Inc. could use the group's recommendations to develop an annual grazing application to be submitted to the BLM for approval.

All decision and policy making authority would continue to rest with the BLM as implemented through applicable regulations and land use plans.

Alternative 1: No Action Alternative

Under this alternative, the grazing permit on the Hubbard Vineyard Allotment would be renewed for a 10-year period under the terms and conditions of the existing grazing permit.

1. The new term grazing permit would appear as follows:

Table 21: No Action Alternative Grazing Permit Schedule						
Pasture	# Animals	Type Animals	On Date	Off Date	% P.L.	AUMs
All	250	Cattle	4/1	4/3	93	23
All	420	Cattle	4/4	4/15	93	154
All	1940	Cattle	4/16	4/30	93	890
All	2090	Cattle	5/1	5/31	93	1981
All	2090	Cattle	6/1	7/5	93	2237
All	2090	Cattle	7/6	8/31	93	3642
All	1595	Cattle	9/1	9/10	93	244
All	1415	Cattle	9/16	9/30	93	649
All	1315	Cattle	10/1	10/9	93	362
All	1215	Cattle	10/10	10/20	93	409
All	1015	Cattle	10/21	10/31	93	341
All	580	Cattle	11/1	11/10	93	177
All	300	Cattle	11/11	11/20	93	92
All	150	Cattle	11/21	11/25	93	23
All	100	Cattle	11/26	11/30	93	15
All	68	Cattle	12/1	12/15	93	31
All	50	Horse	4/1	12/31	93	420
All	30	Horse	1/1	2/28	93	54
Fenced Federal Range	93	Cattle	8/1	2/28	100	648

2. Permitted use would remain at 13,996 AUMs, of which 13,031 would be available annually for use and 965 would remain as historic suspended use.

Alternative 2

Under this alternative, authorized use would remain at 13,031 AUMs. The grazing permit would be renewed for a 10-year period under the following terms and conditions:

1. The grazing permit would appear as follows:

Table 22: Alternative 2 Grazing Permit Schedule						
Pasture	# Animals	Type Animals	On Date	Off Date	% P.L.	AUMs
--	1059	Cattle	3/1	2/28	93	11,818
--	50	Horse*	3/1	2/28	93	558
Fenced Federal Range	54	Cattle*	3/1	2/28	100	647

*Type of livestock may be either Cattle or Horses

2. Numbers of livestock shown on the permit are a function of authorized season of use and permitted use. Actual livestock numbers may vary through each grazing season provided that the total number of AUM's is not exceeded.

3. Establish the following carrying capacities for the pastures on the allotment:

Table 23: Recommended Carrying Capacity by Pasture				
Pasture	AE Carrying Capacity		Recommended CC from 1997 AE	Carrying Capacity Adopted
	Pre-CAF	Post-CAF		
Devils Table/ Hubbard Basin/ Cold Springs Mountain	3,067	4,318	2,770	2,770
Reservoir Sdng.	574	851	715	574
Hubbard Sdng.	2,930	3,237	2,549	2,549
Coon Creek	--	--	591	500
Flat	1,378	1,494	1,060	1,060
Middle	1,175	1,488	500	1,175
Dry Crk. Sdng.	745	937	918	745
Bull Camp Mtn.	--	--	1,548	1,548
Triangle	377	472	3,385	377
Dry Crk. Mntn.	13,095	18,519		1,111
Jakes Crk. Mntn.				1,897
FFR	--	--	--	647
Total Permitted				13,031

Devil's Table/Hubbard Basin/Cold Springs Mountain: The 1997 evaluation recommended a carrying capacity of 2,770 AUMs. This number would be adopted.

Reservoir Seeding: The 1997 evaluation recommended a carrying capacity of 715 AUMs in this pasture. However, the declining crested wheatgrass production in this pasture suggests a lower rating, and the unadjusted figure of 590 AUMs would be adopted.

Hubbard Seedings: The 1997 recommendation of 2,549 AUMs would be adopted.

Coon Creek: The 1997 recommendation of 591 AUMs was based on the highest recorded actual use. The BLM would adopt a more conservative capacity of 500 AUMs, as most of the use on this pasture tends to occur along the bottoms.

Flat: Static to downward ecological condition trends caused the BLM to recommend a carrying capacity of 1,060 AUMs for this pasture in the 1997 evaluation. The BLM would adopt this number.

Middle: Prior to construction of the Middle Pasture fence, this area had been part of the overall Devil's Table/Hubbard Basin/Cold Springs Mountain pasture. No data existed at the time of the 1997 evaluation to make any recommendations on the carrying capacity for this pasture, and the BLM at the time recommended a capacity of 500 AUMs based on a proportion of AUMs commensurate with the acreage split into the new pasture. Carrying capacity calculations from the two key areas established in this pasture since 1997 indicate that 1,044 AUMs are available, and as such this number would be adopted.

Dry Creek Seeding: The 1997 evaluation recommended 918 AUMs for this pasture. Data collected since the evaluation indicate that 716 AUMs is a more reasonable number, and this would be adopted.

Bull Camp Mountain: The 1997 recommendation of 1,548 AUMs would be adopted.

Dry Creek Mountain/Jakes Creek Mountain/Triangle: The 1997 evaluation treated all three of these pastures as the Mountain Pasture. The calculated carrying capacities based on use pattern mapping and actual use result in greatly inflated numbers, as most of the use in this pasture as a whole occurs along the riparian bottoms. The Mountain Pasture described in the 1997 evaluation has now been split into the Dry Creek Mountain, Jakes Creek Mountain, and Triangle Pastures. The recommendation of 3,385 AUMs for the total for these three pasture would be adopted.

Fenced Federal Range (FFR): The Fenced Federal Range parcels include the Schoer and Purebred fields along with public ground included inside fenced private fields at Dry Creek Ranch, Jakes Creek, Boies Reservoir, and the Hubbard and Vineyard ranch properties. The current rated capacity of 647 AUMs would be adopted.

4. Livestock shall be rotated through the allotment in compliance with the following pasture specific restrictions.

Pastures specific restrictions:

- Livestock turnout in all native pastures shall be deferred until after the end of the growing season at least two years out of four.
- Annual use in each pasture will be capped at the calculated carrying capacities outlined in point 3 above.

-The principle pastures which include sage grouse breeding habitat are Flat, Middle, Coon Creek, and Hubbard Basin. In order to minimize potential conflicts between livestock and sage grouse during this critical time of year, at least two of these pastures will be rested every year during the breeding season (typically extending through June).

Pasture specific season of use restriction:

Flat Pasture will be used two years out of four and rested two years out of four.

Devil’s Table, Hubbard Basin, and Cold Springs Mountain Pastures will be used two years out of four and rested two years out of four.

Jakes Creek Mountain, Dry Creek Mountain, and Bull Camp Mountain will be used in a three year cycle, with one year of use followed by two years of rest.

Coon Creek and Middle Pastures will each receive use during the hot season (typically July 1st to September 15th) no more than one year in four.

All other pastures not specifically addressed above will be rested one year out of six.

As an example, a six year grazing cycle under the above parameters **could** look like this:

Table 24: Example of Possible Grazing System						
Pastures	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Flat 1,060 AUMs	Rest	Spring/ Summer	Rest	Spring/ Summer	Rest	Spring/ Summer
W. Hubbard Sdng 1,275 AUMs	Spring or Fall	Summer	Rest	Spring or Fall	Spring or Fall	Summer
E. Hubbard Sdng 1,274 AUMs	Spring or Fall	Summer	Spring or Fall	Spring or Fall	Summer	Rest
Reservoir Sdng 590 AUMs	Summer	Spring or Fall	Rest	Summer	Summer	Spring or Fall
Dry Creek Sdng 716 AUMs	Rest	Spring	Summer	Spring	Spring	Summer
Middle 1,044 AUMs	Spring or Fall	Summer	Rest	Spring or Fall	Fall	Spring or Fall
Triangle 511 AUMs	Summer	Rest	Spring	Summer/ Fall	Spring	Spring
Coon Creek 500 AUMs	Fall	Spring	Spring	Summer	Rest	Spring
Devils Table/ Hubbard Basin/ Cold Spring Mtn. 2,770 AUMs	Spring/ Summer	Rest	Spring/ Summer	Rest	Spring/ Summer	Rest
Jakes Creek Mtn. 1,897 AUMs	Rest	Rest	Summer/ Fall	Rest	Rest	Summer/ Fall
Dry Creek Mtn. 977 AUMs	Rest	Summer/ Fall	Rest	Rest	Summer/ Fall	Rest

Pastures	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Bull Camp Mtn. 1,548 AUMs	Summer/ Fall	Rest	Rest	Summer/ Fall	Rest	Rest
FFR 647 AUMs	3/1-2/28	3/1-2/28	3/1-2/28	3/1-2/28	3/1-2/28	3/1-2/28
Maximum AUMs Used	10,159	8,083	8,315	9,165	9,804	8,240
Minimum AUMs Rested	2872	4,948	4,716	3,866	3,227	4,791

5. AUM's associated with pastures not used in any given year would be placed into non-use.
6. The permittee shall meet annually with the BLM to plan livestock use consistent with the above parameters. Planned use shall be formalized in a grazing application that is submitted to the BLM for final approval prior to turn out.
7. Construct the following range improvements:

Name	# of Units	Description
Spring in T. 44 N., R. 62 E., S. 22, SW1/4NE1/4	1	HV-06: Construct spring enclosure
Spring in T. 44 N., R. 62 E., S. 22, SW1/4SE1/4	1	HV-08: Construct spring enclosure; Redevelop spring
Spring in T. 44 N., R. 62 E., S. 27, NW1/4NE1/4	1	HV-09: Construct spring enclosure; Redevelop spring
Spring in T. 44 N., R. 62 E., S. 27, SE1/4SE1/4	1	HV-05: Construct spring enclosure; Provide water source outside enclosure
Spring in T. 44 N., R. 62 E., S. 34, SW1/4NE1/4	1	HV-04: Construct spring enclosure; Redevelop spring
Spring in T. 44 N., R. 62 E., S. 30, NW1/4SW1/4	1	HV-39: Construct spring enclosure; Redevelop spring
Spring in T. 43 N., R. 61 E., S. 12, SW1/4NW1/4	1	Mud Spring: Construct spring enclosure; Redevelop spring
Spring in T. 42 N., R. 62 E., S. 9, SW1/4SE1/4	1	HV-17: Construct spring enclosure; Provide water source outside enclosure
Miscellaneous other springs	Approx. 7	Construct spring enclosures and/or redevelop springs
Bull Camp/Schoer Fence Relocation		Relocate fence between Bull Camp Mountain and Schoer Place fields to better fit topography

Work on springs would consist of some combination of the following: Construct enclosure fences around spring source areas; redevelop existing developments so that water is left at the spring source instead of all water captured and delivered to a trough; move existing troughs out

of spring areas; construct pipelines and/or pit tanks to make water available away from spring areas. Where practical, proposed exclosures would be of post and pole or steel pipe construction to minimize wildlife and aesthetic conflicts. The seven other spring projects will be reserved for possible use in places where grazing systems alone do not result in positive changes in lentic riparian conditions.

Alternative 3- No Grazing Alternative

Under this alternative, livestock grazing would not be authorized on the Hubbard Vineyard Allotment.

Actions Common to Alternatives 1 and 2

1. The following mandatory terms and conditions would apply.

Terms and Conditions

- a. "Grazing use will be in accordance with the Final Multiple Use Decision for the Hubbard Vineyard Allotment dated _____."
- b. "Livestock numbers identified in the term grazing permit are a function of seasons of use and the total number of animal unit months (AUMs) of active permitted use for the allotment. Actual livestock numbers may vary depending on the season of use so long as the calculated carrying capacities for each pasture are not exceeded."
- c. "An annual grazing application outlining the annual operation which reflects the terms and conditions in the term grazing permit must be submitted prior to the start of the grazing season."
- d. "An accurate actual use report will be submitted within 15 days of livestock being removed at the end of the grazing season."
- e. "All range improvements for which the permittee has maintenance responsibility will be maintained prior to livestock turn-out."
- f. "Supplemental feeding is limited to salt, mineral and/or protein supplements in block, granular or liquid form. Such supplements must be placed at least ¼ mile from live waters (springs, streams, and troughs), wet or dry meadows, and aspen stands."
- g. "All riparian exclosures, including spring development exclosures, are closed to livestock use unless specifically authorized in writing by the Assistant Field Manager for Renewable Resources."
- h. "Pursuant to 43 CFR 10.4(G), the holder of this authorization must notify the authorized officer, by telephone, with written confirmation, immediately upon the discovery of human remains, funerary items, sacred objects, or objects of cultural

patrimony. Further, pursuant to 43 CFR 10.4(C) and (D), you must stop activities in the immediate vicinity of the discovery and protect it from your activities for 30 days or until notified to proceed by the authorized officer.”

i. “The terms and conditions of your permit may be modified if additional information indicates that revision is necessary to conform with 43 CFR 4180.”

2. Establish the following utilization objectives for the Hubbard Vineyard Allotment:

- a. Average of 50% of current year’s growth on native upland herbaceous vegetation as measured at key areas.
- b. 45% of current year’s leader growth combined use by livestock and big game on upland browse species.
- c. 50% of current year’s growth of riparian herbaceous species.
- d. 35% of current year’s leader growth on riparian woody species.

Should these objective levels be exceeded in any pasture of the allotment, future grazing applications will be adjusted as warranted based on the degree of use, period of use, and duration of use relative to past use and future plans for grazing use, and the affects of the utilization on rangeland health.

Agencies would continue to monitor utilization levels at the end of the grazing and/or growing season or within other timing constraints consistent with maintaining specific habitat guidelines for wildlife species such as the Nevada sage grouse management guidelines.

8. CONSULTATIONS

Names listed in *italics* are BLM employees who worked on the original evaluation and are no longer working in the Elko District Office.

Jeff Moore, Lead Preparer, Rangeland Management Specialist
Patrick Coffin, Fisheries Biologist
Mark Dean, Hydrologist
Derrick Holdstock, Wildlife Biologist
Karl Scheetz, Rangeland Management Specialist
Wendy Fuell, Wildlife Biologist/Supervisory Natural Resource Specialist
Eric Haakenson, Original Lead Preparer, Rangeland Management Specialist
Laura Gutzwiller, Fishery Biologist
Joe Viray, Fishery Biologist
W. Russ Findlay, Fishery Biologist
Kent Undlin, Wildlife Biologist
Norman Ritter, District Forester
Ray Lister, Rangeland Management Specialist/Wildlife Biologist
Roy Price, Wildlife Biologist
Nevada Department of Wildlife
Boies Ranches

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