

11/16/88

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# United States Department of the Interior



BUREAU OF LAND MANAGEMENT  
WINNEMUCCA DISTRICT OFFICE  
705 EAST 4TH STREET  
WINNEMUCCA, NEVADA 89445

IN REPLY REFER TO:  
4210  
(NV-027.1)

November 16, 1988

WHOA  
P. O. Box 555  
Reno, NV 89504

Dear Ms. Lappin:

Enclosed is a copy of the Buffalo Hills Allotment evaluation. If you have any questions please feel free to contact our office.

Sincerely yours,

Gerald P. Brandvold  
Area Manager, Sonoma-Gerlach

Enclosure

*Signed 11/2/88*

**Buffalo Hills Allotment Evaluation**

I. Allotment Information

- A. Buffalo Hills Allotment (0127) Category (I) Priority (2)
- Calico Allotment (0125) Category (I) Priority (3)

Permittees: Andrew Jackson  
Guiseppe Selmi  
Jeanie Casey

B. Allotment Description

The Buffalo Hills Allotment is immediately north of Gerlach, Nevada and is located in a portion of northern Washoe County, the northwestern portion of Pershing County and the south western portion of Humboldt County. The Calico Allotment is located in south western Humboldt County.

The Buffalo Hills and Calico Allotments are within the Basin and Range Physiographic province. The typical features of the area are the high elevation north-south trending mountain ranges, the numerous buttes and mesas with rim rock bluffs the steep rocky canyons and gentle rolling terrain, to the broad flat Hualapai Valley. Elevation varies from 4,000' on the desert floors to 9,000'+ on the higher peaks.

Vegetation ranges from the greasewood-shadscale saltgrass communities on the lower elevations to the bitterbrush, mountain mahogany, needlegrass communities of the higher mountain ranges.

Total acreage of the two allotments is 461,739 acres broken down as follows:

Land Ownership Status

	<u>Public</u>	<u>Other</u>
Buffalo Hills	394,516 (92%)	30,607 (8%)
Calico	36,490 (99%)	126 (1%)

C. Livestock Use Buffalo Hills and Calico Allotments

Existing management combines both the Calico and Buffalo Hills Allotments to be grazed within the Buffalo Hills grazing management system. Active preference in the Buffalo Hills management unit is 4,114 AUMs and is as follows:

<u>Operator</u>	<u>Preference</u>		
	<u>Total</u>	<u>Suspended</u>	<u>Active</u>
Jackson, A.F.	3,984	*661	3,984
Selmi, J.	130	* 61	130

Active preference for A.F. Jackson combines the 2,584 AUMs active preference from Calico Allotment with the 1,400 AUMs active preference in Buffalo Hills Allotment for a total of 3,984 AUMs active preference.

\* Active preference includes issuance of suspended AUMs to be used in the Buffalo Hills and Calico Allotments by Andy Jackson, Joe Selmi and Jeanie Casey is licensed for exchange of use for unfenced private lands only.

2. Season of Use: 04/01 - 10/15
3. Kind and Class of Livestock Use  
Cattle - cow/calf
4. Wild Horses and Burros

Appropriate Management Levels for the Buffalo Hills and Calico Allotments as set by MFP decision in 1982 are, Buffalo Hills 555 wild horses and Calico 42 wild horses.

5. Grazing System

The existing Buffalo Hills grazing management system is a modified Deferred-Rest-Rotation Grazing System under a four year cycle. At the completion of the four year period, the original order is repeated. The grazing system was implemented in 1983.

The Buffalo Hills grazing management system has been divided into four use areas or pastures which incorporates the Calico Allotment as Calico Pasture, described generally as follows:

<u>Pasture</u>	<u>Period-of-Use</u>
a) <u>Calico Use Area</u>	04/01 - 08/01
b) <u>Dolly Varden Use Area</u>	08/01 - 10/15
c) <u>Buffalo Hills Use Area</u>	04/01 - 08/01
d) <u>Granite Use Area</u>	08/01 - 10/15

Grazing Years 1 and 2  
of 4 Year Cycle

Pasture	4/1	5/1	6/1	7/1	8/1	9/1	10/1	11/1	12/1	1/1	2/1	3/1
Calico Use Area	Graze				Rest Period							
Dolly Varden Use Area	Critical Growth and Rest Period				Graze				Rest Period			

Pasture	4/1	5/1	6/1	7/1	8/1	9/1	10/1	11/1	12/1	1/1	2/1	3/1
Buffalo Hills Use Area	Complete Rest (except for sheep trailing)											
Granite Use Area	Complete Rest (except for sheep trailing)											

Grazing Years 3 and 4  
Of 4 Year Cycle

Pasture	4/1	5/1	6/1	7/1	8/1	9/1	10/1	11/1	12/1	1/1	2/1	3/1
Buffalo Hills Use Area	Graze				Rest (except for sheep trailing)							
Granite Use Area	Rest Period (except for cattle trailing)				Graze				Rest (except for sheep trailing)			

Pasture	4/1	5/1	6/1	7/1	8/1	9/1	10/1	11/1	12/1	1/1	2/1	3/1
Calico Use Area	Critical Growth and Rest Period				Complete Rest (except for cattle trailing)							
Dolly Varden Use Area	Critical Growth and Rest Period				Complete Rest (except for cattle trailing)							

AUM Use

1987	4,468 AUMs
1986	4,138 AUMs
1985	4,128 AUMs
1984	4,120 AUMs
1983	4,117 AUMs
1987	620 AUMs E/U
1984	479 AUMs E/U

	<u>1983</u>	<u>1984</u>	<u>1985</u>	<u>1986</u>	<u>1987</u>
Calico	--	--	2,575	2,575	8
Dolly Varden	230	130	1,553	1,614	
Buffalo Hills	2,450	2,453	--	--	2,749
Granite	1,537	1,537	*	--	<u>1,719</u>
	<u>4,117</u>	<u>4,120</u>	<u>4,128</u>	<u>4,189</u>	

\*Grazing use also made in Granite Pasture due to fires in Dolly Varden Pasture.

6. Other

- a. An adjustment in grazing preference was made in the Buffalo Hills Allotment during the 1987 grazing year beginning April 1, 1987. Grazing preference was adjusted by an increase of 326 AUMs to Andrew Jackson and 29 AUMs to Guiseppe Selmi. These additional AUMs were issued as Temporary Non-renewable (TNR) to be used only in the Buffalo Hills Allotment as in accordance with the Buffalo Hills and Calico AMP.

The 326 AUMs increase to Andrew Jackson amounts to a 23% increase in the 1,400 AUMs Total Active Preference for Jackson in the Buffalo Hills Allotment. The 29 AUMs increase to Joe Selmi is also a 23% increase in his 130 AUMs Total Active Preference currently in the Buffalo Hills Allotment.

- b. The Fox Mountain and Middle Fork fires occurred in 1985. As a result of these fires, cattle use was allowed in the Granite Pasture which was scheduled for rest and some cattle also remained in the Dolly Varden Pasture.

1/ Wes Cook and Espil Sheep Co. trail domestic sheep through the Buffalo Hills Allotment during the fall and spring annually.

D. Allotment Objectives

1. Short Term

- a. Utilization of key streambank riparian plant species shall not exceed 30% in the following streams except where adjusted by an approved activity plan. (WLA-1.3)

Red Mountain Creek  
Cottonwood Creek  
Wagontire Creek  
Granite Creek  
Rock Creek  
Donnelly Creek

- b. Total utilization of key plant species in 2,493 acres of wetland riparian habitat shall not exceed 50%. (WL-1.10)
- c. Utilization of key plant species in upland habitats shall not exceed 50% except where adjusted by an activity plan. (WL 1.7, WL 1.9, RM 1)

2/ Key forage species whose use serves as an indicator to the degree of use of associated species; or those species which must, because of their importance, be considered in a management program.

- d. Combine the Buffalo Hills Allotment with the Calico Allotment to be grazed as the Buffalo Hills grazing management system.

2. Long Term

- a. Improve and maintain the overall stream habitat from the percent of optimum indicated to 60% or better. (WLA-1.3)

Red Mountain Creek	36%	9 miles
Cottonwood Creek	49%	3 miles
Wagontire Creek	23%	3 miles
Granite Creek	45%	2 miles
Rock Creek	65%	3 miles
Donnelly Creek	53%	2 miles

- b. Improve or maintain the condition of 2,493 acres of wetland riparian habitat to good or higher. (WL-1.10)
- c. Improve or maintain riparian habitat at good condition from the condition indicated. (WLA-1.3 & WL-1.9)

Red Mountain Creek	109 acres poor
Cottonwood Creek	36 acres good
Wagontire Creek	36 acres poor
Granite Creek	24 acres good
Rock Creek	36 acres good
Donnelly Creek	24 acres fair

- d. Protect sage grouse strutting grounds and brooding habitat and improvenesting and wintering habitat by: (WL-1.11)
  - 1) Following NDOW's guidelines for Vegetal Control Programs in Sage Grouse Habitat in Nevada.
  - 2) Maintain sagebrush canopy at 30% in sage grouse nesting areas where sagebrush does not exceed three (3) feet in height.

- e. Maintain or improve 565 acres of aspen woodland and 349 acres of mountain mahogany thicket to good or equivalent. This includes acres burned in the Fox Mountain and Middle Fork Fires during 1985. (WL-1.9)
  
- f. Manage, maintain or improve public rangeland habitat condition to provide forage on a sustained yield basis with an initial forage demand for big game of 6,340 AUMs for mule deer, 1,060 AUMs for pronghorn and 1,228 AUMs for bighorn sheep by:
  - 1) Improving 7,680 acres of priority mule deer habitat to excellent.
  - 2) Improving overall mule deer habitat as follows:
    - a) From good to excellent 61,945 acres: Granite Range DS-1; Poodle Mtn. DS-2; Granite Range DS-6; Crutcher Canyon DW-4; Donnelly Peak DS-5.
    - b) From fair to good 4,713 acres: Buffalo Reservoir DW-2.
  - 3) Maintaining mule deer habitat as follows:
    - a) Good condition 93,402 acres: Buffalo Hills DS-2; Horse Canyon DS-2; Sawmill Canyon DS-2; Granite Basin DS-5; Granite Range DW-6.
    - b) Excellent condition 5,249 acres: Granite Range DW-7; Rock Creek DW-8; Granite Creek DW-9.
  - 4) Improving pronghorn habitat as follows:
    - a) From fair to good 140,068 acres: Buffalo Hills AS-3; Granite Range AS-8; Middle Fork AS-8; Granite Basin AS-9; Crutcher Canyon AW-1; South Buffalo Hills AW-2; Middle Fork AW-8; Rock Creek AW-9; Donnelly Peak AS-1; Division Peak AS-6.
    - b) From poor to fair 3,845 acres: Clear Creek AW-5; Granite Point AW-10.
  - 5) Maintain pronghorn habitat as follows:
    - a) Good condition 57,298 acres: Buffalo Hills AW-3.
  - 6) Improving 26,376 acres of priority bighorn sheep habitat (Granite Range BY-1) and Division Peak BY-5 from 70% to 90% of optimum and Division Peak BY-5.
  - 7) Manage, maintain or improve ecological status to provide forage on a sustained yield basis with an initial stocking level of 4,114 AUMs. The goal is to provide forage on a sustained yield basis with a stocking level of 11,920 AUMs.

8) Improve range/ecological 1/ condition from:

Poor to Fair on 267,748 acres.  
Fair to Good on 74,138 acres.  
Good to Excellent on 37,764 acres.

1/ The range/ecological conditions in this document are forage condition that will be replaced with ecological status condition as information becomes available. The objective will be redefined/quantified to obtain a particular ecological status when site potential and identified uses are combined to meet vegetative objectives.

9) Manage, maintain and improve public rangeland conditions to provide an initial level of 6,660 AUMs of forage on a sustained yield basis for 555 (AMLs) 1/ wild horses in the following Herd Use Areas:

	<u>AML</u>	<u>AUMs</u>
Buffalo Hills	272	3264
Granite Range	176	2112
Calico Mountains	107	1284

10) Manage, maintain and improve public rangeland conditions to provide an initial level of 504 AUMs of forage on a sustained yield basis for 42 (AMLs) 1/ wild horses in the Calico Mountains Herd Use Areas.

11) Maintain and improve the free-roaming behavior of wild horses and burros by protecting and enhancing their home ranges.

12) Maintain/Improve wild horse/burro habitat by assuring free access to water.

13) Improve or maintain the water quality of the following streams to State criteria set for livestock drinking water, cold water aquatic life, water contact recreation (wading), and wildlife propagation:

Red Mountain Creek  
Cottonwood Creek  
Wagontire Creek  
Granite Creek  
Rock Creek  
Negro Creek  
Donnelly Creek

14) Maintain the water quality of Negro Creek from its origin to the first irrigation diversion to the State Class A water quality standards.



E. Monitoring and Inventory Data

1. Climatological Data

Four weather stations are available for data; Leonard Creek, Duffurrena Ponds, Dry Canyon RAWS Station and Denio.

Leonard Creek Station is located approximately 15 miles northeast of Soldier Meadows Ranch. Duffurrena Ponds is located approximately 30 miles west of Denio on Sheldon Antelope range.

The Remote Automated Weather Systems (RAWS) meteorological station (Dry Canyon) is approximately nine miles north of Soldier Meadows Ranch on the west side of the Black Rock Range at an elevation of 4,900'.

The following table depicts moisture received at Leonard Creek Station for the period 1977-1987.

Leonard Creek Station

Year	Precipitation in Inches		Departure From Normal*	
	Growing Season	Annual Total	Growing Season	Annual
1977	4.33	8.23	+ .09	-1.99
1978	4.81	10.20	+ .57	- .02
1979	5.84	12.26	+1.60	+2.04
1980	3.45	8.55	- .79	-1.67
1981	4.29	11.43	+ .05	+1.21
1982	2.38	8.87	-1.86	-1.35
1983	6.94	17.74	+2.70	+7.52
1984	3.00	8.50	-1.24	-1.72
1985	2.48	6.82	-1.76	-3.40
1986	4.85	9.60	+ .61	- .62
1987				

\* - Normal = 10 year average = 10.22" Annual  
 = 4.24" Growing Season

The following chart depicts moisture received at Dry Creek (RAWS) station since July 1986 when it was established and compares readings with those of Denio, Nevada.

	Jan.	Feb.	Mar.	Apr.	May	Jun.	July	Aug.	Sep.	Oct.	Nov.	Dec.	Total
1986 (RAWS)								.0	.7	-	.1	.3	1.2
1986 (Denio)				2.05	1.68	.69	.00	.08	.24				
1987 (RAWS)	.9	.6	.7	1.3	2.7	1.1	.1	.0	.4	.3	.3	.3	8.7
1987 (Denio)			1.17	1.05		2.61	.61	T					

The following chart depicts moisture received at Dufurrena Ponds for the period 1977-1985.

Dufurrena Ponds

Year	Precipitation in Inches
1977	7.35
1978	10.33
1979	11.10
1980	8.18
1981	7.19
1982	4.13
1983	11.18
1984	10.77
1985	3.53
1986	8.56
1987	no data

The 10 year average = 8.23" Annual

2. Actual Use

Refer to Section I C. 5 for licensed use.

3. Utilization

a. Use Pattern Mapping

1984

Use pattern mapping was conducted only in the Buffalo Hills Pasture. Use levels were mostly moderate use with heavy use occurring near stock water and undeveloped water sources.

1985

Use pattern mapping was conducted in all pastures. Use levels in all pastures was light to moderate with heavy use occurring near stock waters and undeveloped water sources.

1986

Use pattern mapping was conducted in the Calico and Dolly Varden Pastures.

Use levels in the Calico's ranged from light to moderate use. On the average, use was light in the lower county and moderate in the Calico Mountains.

Use in the higher country of the Dolly Varden Pasture ranged from light to moderate with heavier use occurring around stock waters and undeveloped waters. Use in the lower country was none to light.

1987

Buffalo Hills Pasture

Utilization ranged from light to moderate use. Heavy use occurred near waters.

Granite Pasture

Utilization averaged light use. Heavy use occurred near waters.

Dolly Varden Pasture

Utilization ranged from slight to light use with some moderate use near waters.

Calico Pasture

Utilization was moderate in the higher country and light in the lower country. Moderate and heavy use occurred near waters.

b. Key Forage Plant Method

Utilization data indicates light use was recorded at all key areas in each pasture for the period 1984-1986. In 1985 moderate and heavy use was recorded in Calico Pasture.

In 1987 light use was recorded in the Dolly Varden and Buffalo Hills Pastures. The Granite Pasture received moderate use at all key areas, while use in Calico Pasture was light to moderate.

- c. Cattle do not utilize the lower country in the Buffalo Hills, Granite and Dolly Varden Pastures. The grazing system allows for use to occur in the higher country. Field observation during utilization studies indicates no use in the lower country.

4. Trend

Trend data as collected during the period 1984-1987 indicates not conclusive indication of a trend change and that trend is static in change. Trend at the Fox Mountain burn site is downward.

5. Ecological Site Inventory

Ecological site data has not been collected. Ecological status has been collected at key areas. Refer to Table 1.

6. Stream Survey

a. Inventory

All streams located in the Buffalo Hills/Calico Allotments have been inventoried at least once since 1977 except Negro Creek. Land status does not allow for a positive attempt at managing Negro Creek. Red Mountain, Cottonwood, Donnelly and Wagontire Creeks have multiple year surveys for monitoring trend.

b. Habitat Evaluation

Red Mountain, Cottonwood and Wagontire Creeks are in a downward trend. Donnelly Creek appears to be stable. Two years data, however, is marginal for establishing trend. All streams except Rock Creek are below the 60% of optimum objective.

7. Habitat Inventory and Evaluation

a. Inventory

1) A big game habitat inventory was completed during 1987. The data were used to establish the long term objectives for California bighorn sheep, mule deer and pronghorn. Long term trend data are gathered in conjunction with the standard rangeland frequency information. Two browse utilization studies have been established. Special studies have been established to monitor the recovery of the Fox Mtn. and Middle Fork Fires. These data are used to indicate changes in mule deer and pronghorn habitat condition. Bighorn sheep habitat follow-up studies were begun during 1986.

2) To date five sage grouse strutting grounds and three brooding areas have been identified. These are located in the following pastures:

Buffalo Hills:	2 strutting grounds
Dolly Varden:	1 strutting ground, 1 brooding area
Granite:	2 strutting grounds, 2 brooding areas

3) Crucial habitats

Streambank riparian	265 acres
Wetland riparian	2,493 acres
Aspen woodlands	565 acres
Mtn. Mahogany thickets	349 acres

4) Other

In addition to gathering data on changes in big game habitat the Fox Mtn./Middle Fork Fire study began gathering small mammal diversity and abundance information. These data are correlated between burned and unburned portions of identical ecological sites.

b. Evaluation

- 1) Browse utilization is increasing and exceeds the key plant species utilization objectives. Combined with this increase in utilization is a decline in seedlings observed and sampled as well as an increase in moderate to severe hedging. The loss of key mule deer habitat in the Fox Mtn. and Middle Fork Fire is partly responsible for the increased utilization. If the fires are allowed to properly recover the mule deer browse use should respond favorably. Two mild winters which allowed mule deer to remain in their summer range could also have contributed to the increased utilization.
- 2) No data are available to quantify the impacts of management actions on the strutting grounds and nesting habitat. Use pattern mapping, however, indicates nesting habitat has not declined.
- 3) Data are not available to quantify the streambank riparian in association with their terrestrial species use. Stream survey data, however, reflect that streambank riparian vegetation is declining in relation to its potential.

Wetland riparian has been discussed in 2) above.

Baseline data collected during the establishment of the monitoring indicates the aspen woodland and mountain mahogany thickets are stable at this time, but below the long term objective level.

- 4) One year's trapping data are insufficient to determine small mammal trend response to fire. Preliminary data collection does show a higher diversity of species in the unburned sites.

8. Water Quality

Red Mountain and Cottonwood Creeks have lab water quality data from 1980 and 1982, stream survey Hach Kit water quality data from 1977, and temperature, pH, and specific conductance data collected by the district hydrologist in 1987. Granite Creek has only Hach Kit stream survey water quality data. Rock Creek has 1980 lab and 1977 Hach Kit water quality data. There is no water quality data available on Wagontire Creek.

## Results

### Red Mountain Creek

The lower sections of the stream have temperatures that are too high for cold water aquatic life during the summer. One fecal coliform reading was extremely high,  $10^5/100$  ml., which is 100 times too high for even cattle to drink, and too high for water contact sports and wildlife propagation. Another fecal coliform reading was too high for only water contact sports. The pH readings for most samples were too high for wading and the sample for livestock water and cold water aquatic life was too high also. TDS levels are low which indicate good overall water quality. There was no data on dissolved oxygen.

### Cottonwood Creek

Temperatures are generally suitable during most of the year for cold water aquatic life; however, high temperatures are a problem in the lower sections of the stream during the summer. Not enough fecal coliform samples were taken to get a geometric mean, but the samples that were taken indicate a possible problem for wading during the summer. Most of the turbidity readings far exceeded the criteria for cold water aquatic life during spring and summer. The pH readings were suitable for all samples other than those taken during 1980. It would take more investigation to determine if this is the natural condition or not.

### Wagontire Creek

There is no water quality data.

### Granite Creek

The Hach Kit water quality analysis from 1977 indicates possible problems with high turbidity and low pH. Total dissolved solids are low which is an indicator that the overall water quality is good. Not all the constituents from Table 1 were analyzed.

### Rock Creek

The available data indicates turbidity was too high in the spring and even borderline in July 1980. Turbidity was 0 in 1977. 1977 pH data for Rock Creek was slightly low for wildlife propagation and water contact sports, but 1980 data indicated much higher pH. Several factors could account for this and more data would have to be collected to determine if there is a problem. Otherwise data indicates good water quality.

The only available water quality analysis was done in April, July, and September 1980 by Sierra Environmental Monitoring lab. All of the above constituents except dissolved oxygen were tested. The July fecal coliform reading was 1200/100 ml., above the standard although 5 samples were not taken. All other water quality parameters were at acceptable levels.

Calico Allotment

Water quality samples were analyzed by Sierra Environmental Monitoring lab for samples collected on 4/30/80 and 9/4/80. A limited water quality analysis using a Hach Kit was done as part of the stream survey during 1976.

At some locations summer stream temperatures exceed the maximum by 10 degrees for cold water aquatic life. Spring turbidity readings ranged from 45-73 TUs. Dissolved oxygen was not tested.

9. Past Inventories

The estimated ecological range condition class and estimated trend as cited from the Sonoma-Gerlach EIS for the Buffalo Hills and Calico Allotments is as follows:

Allotment	Total Acres	<u>Excellent</u>		<u>Good</u>		<u>Fair</u>		<u>Poor</u>	
		Acres	%	Acres	%	Acres	%	Acres	%
Buffalo Hills	394,516	47,342	12%	31,561	8%	59,177	15%	256,436	65%
Calico	36,490	4,014	11%	6,203	17%	14,961	41%	11,312	31%

Trend Direction

Allotment	Total Acres	<u>Upward</u>		<u>Stable</u>		<u>Downward</u>	
		Acres	%	Acres	%	Acres	%
Buffalo Hills	394,516	0	0	47,342	12%	347,174	88%
Calico	36,490	0	0	0	0	36,490	100%

10. Wild Horse and Burro

Baseline wild horse and burro data has not been collected.

F. Management Actions

1. Wild Horse and Burro

a. Buffalo Hills Allotment

Population Data

	Census 7/83	Est 7/84	Est 7/85	Est 7/86	Census 6/86	Est 1/87 After Removal	Est 7/87	Est 7/88
Buffalo Hills	722	801	889	987	1015	652	724	804
Granite Range North	109	121	134	149	246	--	273	303
South of Drift Fence	159	176	196	217	124	--	138	153
Calico Mountain	198	220	244	271	273	143	159	177
Totals	1188	1318	1463	1624	1658	--	1294	1437

Population estimates are based on a 11% increase.

Horse Removals

	Buffalo Hills	Granite Range	Calico Mountain
7-8/86	349	0	51
1979	533	0	0

Buffalo Hills HMA will be gathered during October 1988, to management levels. If funding allows, the Granite Range and Calico Mountain HMAs will be gathered during Nov/Dec 1988, to management levels.

b. Calico Allotment

Population Data

	Census 7/83	Est 7/84	Est 7/85	Est 7/86	Census 6/86	Est 1/87 After Removal	Est 7/87	Est 7/88
	104	115	128	142	217	107	119	132

Horse Removals

7-8/86	100
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If funding allows the Calico HMA will be gathered in Nov/Dec 1988, to management levels.



F. Management Actions and Other Factors

2. Change in Wildlife Population

The Nevada Department of Wildlife (NDOW) does not provide wildlife population data by allotment. However, overall population trends in the management units involved appear to be up except in the Buffalo Hills pasture. Poor recruitment and low post season buck ratios continue to be a problem (Dobel 1988). Based on density data provided by NDOW we have the following AUM demand in the Buffalo Hills/Calico Allotment.

California Bighorn Sheep:	132 AUMs
Mule Deer:	10,683 AUMs
Pronghorn:	2,891 AUMs

Note: The methodology used in calculating reasonable numbers versus existing numbers and the redefinition of use area boundaries does not allow for a determination of significance in change in forage demand at this time.

Historical Grazing Use

- a. The Buffalo Hills Allotment was used for the grazing of cattle, horses and sheep before the adjudication process. The period-of-use was yearlong grazing in common for all types of livestock as per customary use. The adjudication of the Buffalo Hills grazing unit was February 8, 1965, by Notice of Advisory Board recommendation and Decisions of the District Manager. At the time of adjudication a 47.2% reduction was imposed on the base property qualifications in order to reach the grazing capacity of the federal range.

The Holland livestock operation was originally adjudicated 35,144 AUMs of grazing. After reduction of 47.2% the active privileges were 18,520 AUMs. In addition to cattle use, there were 11,156 AUMs of active sheep use adjudicated to the Holland Livestock operation in the Buffalo Hills Planning Unit. Mr. Casey applied for cattle use on the base property used for sheep use in parallel with other cattle privileges in the Buffalo Hills Allotment. The District Manager's Final Decision dated February 12, 1975 states that since Mr. Casey applied to graze cattle on an exchange of use license on unfenced sheep use land, that this base land was no longer dependent on the Federal Range for sheep and thus the sheep privileges were cancelled. Mr. Casey did not appeal this decision and the 11,156 AUMs were cancelled. On February 15, 1979, a decision by the Interior Board of Land Appeals decided against the Holland Livestock Ranch and a reduction of 40% of the active grazing privileges was imposed, based on the numerous willful trespasses on the allotment. The 40% reduction left the Holland livestock operation with 11,112 AUMs of the active grazing preference.

On November 15, 1982 the grazing preference and grazing permit held by John Jay Casey in the Winnemucca District was permanently revoked. As ordered by the Decision of Administrative Law Judge Robert W. Mesch case Nevada 2-80-4 (SC) which so states in pertinent part: The grazing permit and grazing preference (including both active use and suspended nonuse) held by John J. Casey in the Winnemucca Grazing District, which are based upon and attached to base properties known as the Granite Ranch, Clear Creek Ranch, Squaw Valley Ranch, Finley Ranch, Great Boiling Springs, Fly Ranch, Hot Springs Field, Deephole Ranch, and Sam Parker property, are permanently cancelled.

The 11,112 AUMs active preference which were permanently cancelled has not been attached to any base properties since revocation.

## II. MANAGEMENT EVALUATION

### A. Short Term Objectives

1. Utilization of key streambank riparian plant species shall not exceed 30% in the following streams except where adjusted by an approved activity plan. (WLA-1.3)

Red Mountain Creek  
Cottonwood Creek  
Wagontire Creek  
Granite Creek  
Rock Creek  
Donnelly Creek

Use pattern mapping indicates this objective is not being met. The general tendency of cattle is to heavily utilize streambank riparian areas. Granite and Rock Creeks may recover due to topography if the grazing system works as designed.

2. Total utilization of key plant species in 2,493 acres of wetland riparian habitat shall not exceed 50%. (WL-1.10)

Use pattern mapping indicates this objective is not being met. The grazing system provides the meadows and upland sites with 2 years rest. This may be adequate to maintain or improve meadow condition except for other ungulate use. During periods of livestock rest wild horse use is still present.

3. Utilization of key plant species in upland habitats shall not exceed 50% unless adjusted by an approved activity plan.

In most upland areas this objective is being met. Browse utilization studies indicate this objective is not being met for bitterbrush, serviceberry, and snowberry in those sites adjoining the Fox Mtn. and Middle Fork Fires. Those areas adjoining the fires are experiencing 64% utilization on bitterbrush, up to 80% on serviceberry and 60+% on snowberry.

More importantly reproduction is down and the hedging of key species is increasing to severe. Loss of habitat has concentrated mule deer into a smaller area. As the burned area recovers the increase in succulent forbs and grasses has attracted wild horses and pronghorns as well as trespass cattle. The presence of a stable water source (Rocky Basin) has not helped the situation.

Use Pattern Mapping (UPM) and utilization data indicates use is light to moderate over all pastures from 1984-1987. In 1985 heavy use was recorded in the Calico Pasture.

## B. Long Term Objectives

1. Improve and maintain the overall stream habitat from the percent of optimum indicated to 60% or better. (WLA-1.3)

Red Mountain Creek	36%	9 miles
Cottonwood Creek	49%	3 miles
Wagontire Creek	23%	3 miles
Granite Creek	45%	2 miles
Rock Creek	65%	3 miles
Donnelly Creek	53%	2 miles

Baseline and trend data indicate Rock Creek is the only stream where this objective is being achieved. Due to topography and propensity of cattle, wild horses and wild ungulates to congregate in streambank riparian areas Red Mtn., Cottonwood, Wagontire and Donnelly Creeks may not meet this objective without protection. Granite Creek should meet the objective if the grazing system works as it is supposed to.

2. Improve or maintain the condition of 2,493 acres of wetland riparian habitat to late seral or higher. (WL-1.10)

Baseline and trend data are not yet sufficient to determine if this objective is being met. Non-attainment of short-term objective 2, however, indicates this objective is not being achieved. Causes for this are discussed in A2 above.

3. Improve or maintain riparian habitat at good condition from the condition indicated. (WLA-1.3 & WL-1.9)

Red Mountain Creek	109 acres poor
Cottonwood Creek	36 acres good
Wagontire Creek	36 acres poor
Granite Creek	24 acres good
Rock Creek	36 acres good
Donnelly Creek	24 acres fair

Baseline and trend data are not available to determine if this objective is being achieved. Non-attainment of short term objective 1, however, indicates this objective is not moving toward achievement.

4. Protect sage grouse strutting grounds and brooding habitat and improve nesting and wintering habitat by: (WL-1.11)
  - a. Following NDOW's guidelines for Vegetal Control Programs in Sage Grouse Habitat in Nevada.
  - b. Maintain sagebrush canopy at 30% in sage grouse nesting areas where sagebrush does not exceed three (3) feet in height.

Baseline and trend data do not exist to determine if the objective for strutting grounds is being met or not. Present trend and baseline data do indicate the nesting habitat objective is being met. Brooding areas are usually tied to wetland riparian. Use pattern mapping indicates the key plant species utilization objective is being exceeded in all areas monitored. Because of these results we can assume that brood areas may be in a stable to downward trend.

5. Maintain or improve 565 acres of aspen woodland and 349 acres of mountain mahogany thicket to good condition. This includes acres burned in the Fox Mountain and Middle Fork Fires during 1985. (WL-1.9)

Baseline and trend data indicate this objective is being met through the management system outside the Fox Mtn. and Middle Fork Fires. No data has been gathered to determine if those key types are recovering toward the objective in the burn area.

6. Manage, maintain or improve public rangeland habitat condition to provide forage on a sustained yield basis with an initial forage demand for big game of 6,340 AUMs for mule deer, 1,060 AUMs for pronghorn and 1,228 AUMs for bighorn sheep by:
  - a. Improving 7,680 acres of priority mule deer habitat to excellent.
  - b. Improving overall mule deer habitat as follows:
    - 1) From good to excellent 61,945 acres: Granite Range DS-1; Poodle Mtn. DS-2; Granite Range DS-6; Crutcher Canyon DW-4.
    - 2) From fair to good 4,713 acres: Buffalo Reservoir DW-2.
  - c. Maintaining mule deer habitat as follows:
    - 1) Good condition 93,402 acres: Buffalo Hills DS-2; Horse Canyon DS-2; Sawmill Canyon DS-2; Granite Basin DS-5; Granite Range DW-6.
    - 2) Excellent condition 5,249 acres: Granite Range DW-7; Rock Creek DW-8; Granite Creek DW-9.
  - d. Improving pronghorn habitat as follows:

- 1) From fair to good 140,008 acres: Buffalo Hills AS-3; Granite Range AS-8; Middle Fork AS-3; Granite Basin AS-9; Crutcher Canyon AW-1; South Buffalo Hills AW-2; Middle Fork AW-8; Rock Creek AW-9; Donnelly Peak AS-1; Division Peak AS-6.
- 2) From poor to fair 3,845 acres: Clear Creek AW-5; Granite Point AW-10.

e. Maintain pronghorn habitat as follows:

- 1) Good condition 57,298 acres: Buffalo Hills AW-3.

f. Improving 26,376 acres of priority bighorn sheep habitat (Granite Range BY-1) and Division Peak BY-5 from 70% to 90% of optimum.

Baseline data indicates this objective has not been achieved. Long term trend data are not sufficient to date to determine if the objective is being moved toward achievement. However, it appears this objective can be met through a combination of the grazing system, proper wild horse management, specific rangeland projects and a positive adequate recovery of the Fox Mtn. and Middle Fork Fires.

7. Manage, maintain or improve public rangeland conditions and ecological status to provide forage on a sustained yield basis with an initial stocking level of 4,114 AUMs.

Available trend data for four year (1984-1987) at the 15 key areas indicates no conclusive indication of a trend change. Trend at the Fox Mountain Burn study site is still downward with some species improving.

Utilization in the uplands tends to show this objective is being met.

Ecological status as collected during the initial year of establishment (1984) is as follows:

Seral Stage	Total Number of Key Areas by Seral Stage
Early Seral 0-25%	
Mid Seral 16-50%	5
Late Seral 51-75%	9
Potential Natural Community (PNC) (76-1001)	<u>1</u>

8. a. Manage, maintain and improve public rangeland conditions to provide an initial level of 6660 AUMs of forage on a sustained yield basis for 555 (AMLs) wild horses in the following Herd Use Areas:

	<u>AML</u>	<u>AUMs</u>
Buffalo Hills	272	3264
Granite Range	176	2112
Calico Mountains	107	1284

- b. Manage, maintain and improve public rangeland conditions to provide an initial level of 504 AUMs of forage on a sustained yield basis for 42 (AMLs) wild horses in the Calico Mountains Herd Use Areas:

Calico Mountains                      107                      1284

The Appropriate Management Levels (AMLs) for the HMAs within the Buffalo Hills and Calico Allotments were established in July 1982. Herd numbers have been significantly above AMLs since 1982. The objective has not been met.

<u>HMA</u>	<u>% above AML</u>
Buffalo Hills	165% to 173%
Granite Range	52% to 159%
Calico Mts. <u>1/</u>	68% to 229%

1/ Buffalo Hills and Calico Allotments are combined.

9. Maintain and improve the free-roaming behavior of wild horses and burros by protecting and enhancing their home ranges.

This objective is being met.

Maintain/improve wild horse/burro habitat by assuring free access to water.

Wild horses and burros within the allotment have free access to all waters. The objective has been met.

10. Improve range/ecological condition 1/ from poor to fair on 267,748 acres and from fair to good on 74,138 acres and good to excellent on 37,764 acres.

1/ The condition objective will be redefined/quantified to obtain a particular ecological status when site potential and identified uses are combined to meet vegetative objectives.

Preliminary data indicates that ecological condition as a whole is being increased.

11. Improve or maintain the water quality of the following streams to State criteria set for livestock drinking water, cold water aquatic life, water contact recreation (wading), and wildlife propagation:

Red Mountain Creek  
Cottonwood Creek  
Wagontire Creek  
Granite Creek  
Rock Creek  
Negro Creek  
Donnelly Creek

Red Mt. Creek - The objective is not being met because summer stream temperatures, fecal coliform, and pH are high. Water quality problems are probably being caused by too many animals along the stream.

Cottonwood Creek - The objective is not being met for Cottonwood Creek because some of the samples for stream temperature, fecal coliform, turbidity, pH, and alkalinity exceed the State water quality criteria. The cause of the problem probably is too many livestock along the stream.

Wagontire Creek - There is no data to evaluate whether the objective is being met.

Granite Creek - Not enough data was collected to determine whether the objective has been met.

Rock Creek - The data was inconclusive to determine whether the objective is being met.

Donnelly Creek - The objective is not being met for cold water aquatic life. Summer stream temperatures and spring turbidity exceed the State criteria. This is probably caused by inadequate streambank cover.

The objective is being met for the other beneficial uses.

12. Maintain the water quality of Negro Creek from its origin to the first irrigation diversion to the State Class A water quality standards.

The existing data suggests that the objective is not being met because of a high fecal coliform reading. High fecal coliform levels are probably caused by too many animals along the creek. It is not known whether dissolved oxygen is at an acceptable level. Only one summer stream temperature was taken which is not enough to determine if the objective is being met. If the objective is not being met it may be due to the large area of private land surrounding the stream.

### III. Conclusion

The upland short term utilization objectives are being met except in the priority mule deer habitat adjoining the Fox Mountain Fire. The short term utilization objectives for streambank and wetland riparian are not being met. Inability to meet the short term objectives is the result of the following factors:

- A. An imbalance in livestock distribution due to the following conditions:
  1. Steep rocky topography, limits livestock use to the meadow complexes in the Granite Pasture as well as basins and flat areas of the other three pastures.

2. The tendency of livestock, wild horses and burros and wild ungulates to concentrate in upland riparian zones.
  3. Inadequate water distribution in the upland sites.
  4. Movement of Susanville District livestock across the western boundaries.
  5. Allotment wide the AML has varied from 95% above AMLs to 220% above AMLs.
- B. Monitoring studies indicates the lower country of the Buffalo Hills, Granite and Dolly Varden Pastures is not grazed by livestock.
- C. The Fox Mountain Burn removed approximately half of the priority mule deer area, therefore concentrating mule deer use into the unburned habitat.

Pronghorn, wild horse and cattle use has increased in the burned portion of the Fox Mountain Burn slowing fire recovery.

- D. Current stocking levels and the grazing management system are providing for a sustained yield on forage in the upland sites to the benefit of all ungulates.

Monitoring data indicates light to moderate use over the allotment, this would indicate that an increase could be made above present numbers. But monitoring also indicates that streambank riparian and upland riparian areas are being utilized above utilization levels stated in the objectives. Monitoring also indicates that the Fox and Middle Creek burned area is not responding as quickly as expected. Monitoring data indicates that livestock, wild horses and wildlife are partially responsible. The grazing system that has been developed for this area indicates that the objective can be met if streambank riparian areas are protected, and the grazing system is allowed to run for more than just one cycle. Because of these indications wild horse numbers will not have to be reduced to the AML of 555 on the Buffalo Hills and 42 on the Calicos. The numbers can be increased by the proportionate 21.3% that was authorized at temporary non-renewable to livestock. Therefore horse AML would be 724 total horses verses 597. If present horse numbers are not reduced to this level, monitoring indicates that upland riparian and Fox Mountain and Middle Creek burn area objectives will not be met. A 21.3% increase in wildlife numbers is also within the scope of the objectives. By allowing these increases in combination with the present grazing system and protection of the streambank riparian monitoring indicates that all objectives can be met.

#### IV. Recommendations

1. Increase wild horse numbers by 21.3% as based on AMLs to 1,526 AUMs and an AML of 127 in the Buffalo Hills grazing management system. Initiate this increase in the Buffalo Hills Herd Management Area only, increasing from 272 AML to 399 AML.



	<u>AML</u>	<u>AUMs</u>
Buffalo Hills	399	4,788
Granite Range	176	2,112
Calico Mountains	107	1,284

- Increase reasonable numbers of deer, pronghorn and bighorn sheep by 21.3%.
- Maintain the existing grazing management system for the Buffalo Hills and Calico Allotments as per the AMP, and maintain the grazing level of 4,114 AUMs.

Change the 722 AUMs of suspended preference, new issued as TNR, to all permittees as permanent active preference over a five year period. This increases active preference by 21.3%.

If the grazing preferences is increased above the 4,114 AUM level, the use would be authorized as winter use. The use would be authorized between 10/16 and 2/28. This would help to increase the livestock distribution on the allotment.

The winter use area would include the southern portion of the Buffalo Hills Use Area along the foothills of the Smoke Creek Desert, the western portion of the Granite Use Area not including the Crutcher Canyon area the south and east portion of Granite Use Area and the eastern portion of the Dolly Varden Pasture in the Hualapai Flat area.

The authorized grazing preference in the Buffalo Hills grazing management system will be changed as follows:

<u>Permittee</u>	<u>Preference</u>		
	<u>Total</u>	<u>Suspended</u>	<u>Active</u>
Jackson, A.F.	3,984	661	3,323
Selmi, J.	130	61	69
	<u>4,114</u>	<u>722</u>	<u>3,392</u>

<u>Permittee</u>	<u>Preference</u>			
	<u>Total</u>	<u>Suspended</u>	<u>TNR</u>	<u>Active</u>
Jackson, A.F.	3,984	595	595	3,984
Selmi, J.	130	55	55	130
	<u>4,114</u>			<u>4,114</u>

To facilitate a satisfactory level or intensity of grazing management, this grazing preference will be authorized within all pastures of the Buffalo Hills grazing management system as in accordance with the Buffalo Hills-Calico Allotment Management Plan.

- Consider authorizing exchange-of-use to non-permittees grazing use when objectives are met.

Maintain closure on Fox Mountain Fire through 1991 and reevaluate at that time.

Fence Red Mountain, Cottonwood, Wagontire and Donnelly Creek riparian areas in accordance with the Winnemucca District Riparian Implementation Schedule. Granite Creek and Rock Creek will be monitored in relation to the grazing system.

V. Monitoring And Inventory Needs

A. Monitoring

1. Actual Use
2. Utilization
3. Trend
4. Wild horse distribution and seasonal movements.
5. Collect climate data from existing stations
6. Water quality

B. Inventory

1. Wildlife habitat condition
2. Ecological Status
3. Riparian condition
4. Soil Survey
5. Habitat Suitability Index for Wild Horses
6. Sage Grouse Wintering Areas

VI. General Information

A. The following documents have been reviewed for this evaluation:

1. Sonoma-Gerlach Environmental Impact Statement (1981).
2. Sonoma-Gerlach Land Use Plan/MFP III.
3. Sonoma-Gerlach RPS
4. Sonoma-Gerlach HMA and WH&B Inventory and Population estimate Records.
5. Buffalo Hills and Calico Study Files
6. Draft Habitat Management Plan for Fox Mountain. WHA-T-1
7. Winnemucca District Coordinated Monitoring Plan.

8. Evans, Carol. 1986. Effects of Cattle Grazing on Sage Grouse Use on Meadows in the Sheldon NWR. Thesis.
9. Wildlife Habitat in Managed Rangelands - The Great Basin of Southeastern Oregon.
10. Sonoma-Gerlach RA Method for Evaluating and Monitoring Riparian Habitat in Relation to Terrestrial Needs.
11. Bighorn Sheep Habitat Monitoring Plan For Sonoma-Gerlach R.A.
12. BLM Manual Supplement 6630-Big Game Studies.
13. BLM Manual Supplement 6671-Stream Surveys.
14. Armentrout & Gardetto. Habitat Suitability Rating System For California Bighorn Sheep.

B. Participants involved with this evaluation:

1. Area Manager - Gerald Brandvold
2. Supervisory Range Conservationist - Paul Jancar
3. Range Conservationist - Chris Mayer
4. Wildlife Biologist - Don Armentrout
5. Wild Horse Specialists - Tom Seley/Dick Wheeler
6. District Wildlife Biologist - Dennis Tol
7. District Range Staff Officer - Ron Kay

Grazing Years 1 and 2  
of 4 Year Cycle

Pasture	4/1	5/1	6/1	7/1	8/1	9/1	10/1	11/1	12/1	1/1	2/1	3/1
Calico Use Area	Graze				Rest Period							
Dolly Varden Use Area	Critical Growth and Rest Period				Graze			Rest Period				

Pasture	4/1	5/1	6/1	7/1	8/1	9/1	10/1	11/1	12/1	1/1	2/1	3/1
Buffalo Hills Use Area	Complete Rest (except for sheep trailing)											
Granite Use Area	Complete Rest (except for sheep trailing)											

Grazing Years 3 and 4  
Of 4 Year Cycle

Pasture	4/1	5/1	6/1	7/1	8/1	9/1	10/1	11/1	12/1	1/1	2/1	3/1
Buffalo Hills Use Area	Graze				Rest (except for sheep trailing)							
Granite Use Area	Rest Period (except for cattle trailing)				Graze			Rest (except for sheep trailing)				

Pasture	4/1	5/1	6/1	7/1	8/1	9/1	10/1	11/1	12/1	1/1	2/1	3/1
Calico Use Area	Critical Growth and Rest Period				Complete Rest (except for cattle trailing)							
Dolly Varden Use Area	<i>Except for Cattle trailing</i>											

Both operators have been licensed to active preference with the suspended AUMs licensed as temporary non renewable. Once monitoring shows that the suspended AUMs are permanently available, then any increase will be proportionally adjusted between wildlife, wild horses and livestock. The following is the grazing preference:

Operator	Allotment	Preference		Number & Kind of Livestock	Period		AUMs	% F.R.
		Total	Active		From	To		
A.F. Jackson	Calico	2,584	2,584	613 C	4/1 - 10/15	2,584	100%	
	Buffalo Hills	1,400	1,400					
G. Selmi	Buffalo Hills	130	130	24 C	4/1 - 10/15	130	84%	

2. Long Term

a. Manage, maintain or improve ecological status to provide forage on a sustained yield basis with an initial stock level of 4,114 AUMs. The goal is to provide forage on a sustained yield basis with a stocking level of 11,

b. Improve range/ecological 1/ condition from:

Poor to Fair on 267,748 acres.

Fair to Good on 74,138 acres.

Good to Excellent on 37,764 acres.

II. Agreed Upon Changes in Available Livestock Forage and/or Livestock Use Adjustments

FROM:

Permittee	Preference		
	Total	Suspended	Active
Jackson, A.F.	3,984	661	3,323
Selmi, J.	130	61	69
	<u>4,114</u>	<u>722</u>	<u>3,392</u>

TO:

Permittee	Preference			
	Total	Suspended	TNR	Active
Jackson, A.F.	3,984	595	595	3,984
Selmi, J.	130	55	55	130
	<u>4,114</u>			<u>4,114</u>

To facilitate a satisfactory level or intensity of grazing management, this grazing preference will be authorized within all pastures of the Buffalo Hills grazing management system as in accordance with the Buffalo Hills-Calico Allotment Management Plan.

The two allotments, Calico and Buffalo Hills, were divided into four grazing pastures. The allotments will be combined and managed as one allotment. The livestock (637 cattle) are turned out on 4/1 into one of four pastures where they remain until 8/1. The livestock are then moved into the summer pasture and remain for the period from 8/1 to 10/15 and then trailed to private land. Two of the pastures are rested for the entire season. This rotation is repeated the second year, then grazing is switched to the two rested pastures for two years. Any use above the 647 cattle if authorized would be made during the winter 10/16-2/28. This is effective until such time as monitoring confirms that there is proper livestock distribution.

1/ The range/ecological conditions in this document are forage condition that will be replaced with ecological status condition as information becomes available. The objective will be redefined/quantified to obtain a particular ecological status when site potential and identified uses are combined to meet vegetative objectives.

AGREEMENT FOR IMPLEMENTATION AND CHANGES IN  
AVAILABLE LIVESTOCK FORAGE AND LIVESTOCK  
GRAZING USE ADJUSTMENTS FOR THE  
BUFFALO HILLS ALLOTMENT

I. Introduction

This agreement is based on the Buffalo Hills and Calico Allotment Evaluation attached, and documents the change in existing livestock practices on the Buffalo Hills and Calico Allotments.

The agreed upon changes in livestock, as documented below, are made in order to achieve the management objectives for the public lands and other lands under the Bureau of Land Management control identified in the Sonoma-Gerlach land use plan, which are specifically related to authorized livestock grazing use on the Buffalo Hills and Calico Allotments.

This agreement was prepared in consultation, cooperation, and coordination with affected permittees, Joe Selmi and Andrew Jackson. The CRMP committee, NDOW, Sierra Club, WHOA, and ISPMB participated in the early stages of the plan development.

A. Allotment Objectives

1. Short Term

- a. Utilization of key streambank riparian plant species shall not exceed 30% in the following streams except where adjusted by an approved activity plan. (WLA-1.3)

Red Mountain Creek  
Cottonwood Creek  
Wagontire Creek  
Granite Creek  
Rock Creek  
Donnelly Creek

- b. Total utilization of key plant species in 2,493 acres of wetland riparian habitat shall not exceed 50%. (WL-1.10)
- c. Utilization of key plant species in upland habitats shall not exceed 50% except where adjusted by an activity plan. (WL 1.7, WL 1.9, RM 1)
- d. Combine the Buffalo Hills Allotment with the Calico Allotment to be grazed as the Buffalo Hills grazing management system, as specified in Buffalo Hills AMP.

2/ Key forage species whose use serves as an indicator to the degree of use of associated species; or those species which must, because of their importance, be considered in a management program.

It was also agreed that the BLM would fence 9 miles of Red Mt. Creek and 6 miles of Cottonwood Creek to protect the fisheries. The projects are schedule for completion in 1990 and 1991 respectively.

The permittees agree to not use these areas and only trail through the Red Mt. Creek exclosure once a year to move their cattle in the rotation system. This would occur on 10/15 in the years when the permittee removes his cattle from the Dolly Varden Pasture. The trail through the exclosure would only be one day each way. There will also be occasional trailing of stray cattle through this exclosure. No livestock would remain overnight in the exclosure.

It is agreed that any increase or decrease in forage available will be proportionally divided among the range, wild horses and wildlife resources within these allotments as stated in the Sonoma-Gerlach Management Plan dated July, 1982.

The following is a list of key species and the allowable use levels that have been agreed to in the monitoring plan and allotment management plan. The monitoring plan has the key species located by key area.

Key Species	Allowable Use Levels
POA++	50%
STTH2	40%
BAHO	5%
POSC	50%
SIHY	40%
LUPIN	20%
PUTR2	50%
AGSP	50%
ELCI2	50%
BASA3	30%
SYMPH	40%
BRMA4	50%
HAVE	30%
CELE3	50%
FEID	40%
STCO3	50%
CREPI	50%
ERIOG	40%
CASTI	20%
POTR5	20%
ACMIL	10%
PONE3	50%
TAOF	30%
POAH	50%
STLE	50%

### III. Specific Monitoring Program

Refer to the monitoring section of the Buffalo Hills AMP for specific details. This plan is designed to describe the rangeland monitoring program and methodology that will be implemented in the Buffalo Hills and Calico Allotments. Standardized monitoring studies have been established on the Buffalo Hills and Calico Allotments and the gathering of data was initiated in 1984. Rangeland monitoring was conducted prior to 1984. The earliest studies conducted were 3 x 3 photo trend plots. These earlier studies will either be updated to present standards or if unsuitable, files will be maintained for future reference.

The process for establishing initial and subsequent levels of livestock grazing use and the rangeland monitoring program are discussed in the Rangeland Program Summary (RPS). The method for implementing the rangeland management program in the planning area will occur through monitoring and the selective management approach.

The monitoring program in the Buffalo Hills and Calico Allotments is designed to determine if the established management objectives are being met. Grazing use is one of the tools being used to meet these objectives. Monitoring will indicate if grazing use is following the grazing plan and provide the decision basis for any adjustments in annual operations. The objectives will be evaluated on a long-term basis utilizing permanent transects in key and/or critical areas. Short and long term management actions adjustments and/or decisions will be based on the evaluation of the results of these monitoring studies.

#### Types of Studies

All studies in this plan will be conducted in accordance with the "Nevada Rangeland Monitoring Handbook" (September 1984), the Winnemucca District Coordinated Monitoring Plan" (April 1985) and the appropriate BLM Manuals. Aquatic study methods will be performed to Bureau Manual Supplement (6671-NSO 6-38) standards. Special bighorn habitat monitoring will be in accordance with the Sonoma-Gerlach Resource Area Monitoring Plan.

### IV. Future Adjustments

#### A. Evaluation Process

Analysis will be based on the attainment of both key area and management objectives, identifying which objectives were or were not met (if applicable) and identifying why the objectives were or were not met (if applicable).

Techniques used or types of data collected for short-term monitoring and evaluation include: (1) grazing use records, (2) weather information, (3) use maps, and (4) key forage plant utilization using cages for comparison.



Techniques used or types of data collected periodically for long-term monitoring and evaluation include: (1) frequency, (2) percent composition by weight of the vegetation, (3) key forage plant utilization, (4) resource value ratings, (5) photography (photo plots), and (6) evaluation of permanent exclosures.

At the completion of the five year evaluation period, long-term time frames for further evaluations and schedules will be determined and included in the monitoring plan update.

Ecological status data will be analyzed and interpreted using standard SCS and BLM methodology.

Subsequent analysis and changes to the grazing system or Monitoring Plan will be made on a case by case basis, as directed by the Area Manager and Supervisory Range Conservationist in consultation with the permittees and other affected interests.

#### B. Evaluation Schedule

Evaluation schedules of monitoring data will be based on Sonoma-Gerlach Resource Area priorities. Monitoring data will be evaluated at the end of the initial consecutive three year period and again after the fifth year, which will complete the initial baseline data establishment period. During the initial establishment period evaluate all studies data (frequency trend, ecological status, utilization, actual use and climatological data). However, utilization studies data and Use Pattern Mapping will be the prime data used for analysis and making any needed adjustments during the short-term. Evaluate studies data as follows:

\_\_\_\_\_ year 3  
\_\_\_\_\_ year 5

If baseline and monitoring data are sufficient to make management adjustments at the end of the third and fifth years, adjustments to management practices can be made. At the end of the initial five year evaluation, subsequent evaluation time frames will be determined, agreed to by the permittee(s) and included as an update to the monitoring plan.

#### V. Authority

The authority for this agreement given through 43 CFR 4110.3-2, 4110.3-3, 4120.2.

VI. The agreed upon changes in available livestock forage and livestock use adjustments identified above are binding on any successor interest or future transferees with such modifications as approved or required by the authorized officer.

Signatures

Andrew F. Jackson  
Andrew Jackson

Nov. 2, 1988  
Date

Joe Selmi  
Joe Selmi

Nov 2, 88  
Date

Gerald Brandvold  
Gerald P. Brandvold  
Area Manager, Sonoma-Gerlach RA

11-2-88  
Date

livestock usage

record of decision

Buffalo Hills Allotment Evaluation

I. Allotment Information

- A. Buffalo Hills Allotment (0127) Category (I) Priority (2)
- Calico Allotment (0125) Category (I) Priority (3)

Permittees: Andrew Jackson  
 Guisepe Selmi  
 Jeanie Casey

B. Allotment Description

The Buffalo Hills Allotment is immediately north of Gerlach, Nevada and is located in a portion of northern Washoe County, the northwestern portion of Pershing County and the south western portion of Humboldt County. The Calico Allotment is located in south western Humboldt County.

The Buffalo Hills and Calico Allotments are within the Basin and Range Physiographic province. The typical features of the area are the high elevation north-south trending mountain ranges, the numerous buttes and mesas with rim rock bluffs the steep rocky canyons and gentle rolling terrain, to the broad flat Hualapai Valley. Elevation varies from 4,000' on the desert floors to 9,000'+ on the higher peaks.

Vegetation ranges from the greasewood-shadscale saltgrass communities on the lower elevations to the bitterbrush, mountain mahogany, needlegrass communities of the higher mountain ranges.

Total acreage of the two allotments is 461,739 acres broken down as follows:

Land Ownership Status

	<u>Public</u>	<u>Other</u>
Buffalo Hills	394,516 (92%)	30,607 (8%)
Calico	36,490 (99%)	126 (1%)

C. Livestock Use Buffalo Hills and Calico Allotments

Existing management combines both the Calico and Buffalo Hills Allotments to be grazed within the Buffalo Hills grazing management system. Active preference in the Buffalo Hills management unit is 4,114 AUMs and is as follows:

<u>Operator</u>	<u>Total</u>	<u>Preference</u>	
		<u>Suspended</u>	<u>Active</u>
Jackson, A.F.	3,984	*661	3,984
Selmi, J.	130	* 61	130

Active preference for A.F. Jackson combines the 2,584 AUMs active preference from Calico Allotment with the 1,400 AUMs active preference in Buffalo Hills Allotment for a total of 3,984 AUMs active preference.

\* Active preference includes issuance of suspended AUMs to be used in the Buffalo Hills and Calico Allotments by Andy Jackson, Joe Selmi and Jeanie Casey is licensed for exchange of use for unfenced private lands only.

2. Season of Use: 04/01 - 10/15
3. Kind and Class of Livestock Use

Cattle - cow/calf

4. Wild Horses and Burros

Appropriate Management Levels for the Buffalo Hills and Calico Allotments as set by MFP decision in 1982 are, Buffalo Hills 555 wild horses and Calico 42 wild horses.

5. Grazing System

The existing Buffalo Hills grazing management system is a modified Deferred-Rest-Rotation Grazing System under a four year cycle. At the completion of the four year period, the original order is repeated. The grazing system was implemented in 1983.

The Buffalo Hills grazing management system has been divided into four use areas or pastures which incorporates the Calico Allotment as Calico Pasture, described generally as follows:

<u>Pasture</u>	<u>Period-of-Use</u>
a) <u>Calico Use Area</u>	04/01 - 08/01
b) <u>Dolly Varden Use Area</u>	08/01 - 10/15
c) <u>Buffalo Hills Use Area</u>	04/01 - 08/01
d) <u>Granite Use Area</u>	08/01 - 10/15

Grazing Years 1 and 2  
of 4 Year Cycle

Pasture	4/1	5/1	6/1	7/1	8/1	9/1	10/1	11/1	12/1	1/1	2/1	3/1
Calico Use Area	Graze				Rest Period							
Dolly Varden Use Area	Critical Growth and Rest Period				Graze			Rest Period				

Pasture	4/1	5/1	6/1	7/1	8/1	9/1	10/1	11/1	12/1	1/1	2/1	3/1
Buffalo Hills Use Area	Complete Rest (except for sheep trailing)											
Granite Use Area	Complete Rest (except for sheep trailing)											

Grazing Years 3 and 4  
Of 4 Year Cycle

Pasture	4/1	5/1	6/1	7/1	8/1	9/1	10/1	11/1	12/1	1/1	2/1	3/1
Buffalo Hills Use Area	Graze				Rest (except for sheep trailing)							
Granite Use Area	Rest Period (except for cattle trailing)				Graze			Rest (except for sheep trailing)				

Pasture	4/1	5/1	6/1	7/1	8/1	9/1	10/1	11/1	12/1	1/1	2/1	3/1
Calico Use Area	Critical Growth and Rest Period				Complete Rest (except for cattle trailing)							
Dolly Varden Use Area	Critical Growth and Rest Period				Complete Rest (except for cattle trailing)							

AUM Use

1987	4,468 AUMs
1986	4,138 AUMs
1985	4,128 AUMs
1984	4,120 AUMs
1983	4,117 AUMs
1987	620 AUMs E/U
1984	479 AUMs E/U

	<u>1983</u>	<u>1984</u>	<u>1985</u>	<u>1986</u>	<u>1987</u>
Calico	--	--	2,575	2,575	8
Dolly Varden	230	130	1,553	1,614	
Buffalo Hills	2,450	2,453	--	--	2,749
Granite	<u>1,537</u>	<u>1,537</u>	*	--	<u>1,719</u>
	<u>4,117</u>	<u>4,120</u>	<u>4,128</u>	<u>4,189</u>	

\*Grazing use also made in Granite Pasture due to fires in Dolly Varden Pasture.

6. Other

- a. An adjustment in grazing preference was made in the Buffalo Hills Allotment during the 1987 grazing year beginning April 1, 1987. Grazing preference was adjusted by an increase of 326 AUMs to Andrew Jackson and 29 AUMs to Guisepe Selmi. These additional AUMs were issued as Temporary Non-renewable (TNR) to be used only in the Buffalo Hills Allotment as in accordance with the Buffalo Hills and Calico AMP.

The 326 AUMs increase to Andrew Jackson amounts to a 23% increase in the 1,400 AUMs Total Active Preference for Jackson in the Buffalo Hills Allotment. The 29 AUMs increase to Joe Selmi is also a 23% increase in his 130 AUMs Total Active Preference currently in the Buffalo Hills Allotment.

- b. The Fox Mountain and Middle Fork fires occurred in 1985. As a result of these fires, cattle use was allowed in the Granite Pasture which was scheduled for rest and some cattle also remained in the Dolly Varden Pasture.

1/ Wes Cook and Espil Sheep Co. trail domestic sheep through the Buffalo Hills Allotment during the fall and spring annually.

D. Allotment Objectives

1. Short Term

- a. Utilization of key streambank riparian plant species shall not exceed 30% in the following streams except where adjusted by an approved activity plan. (WLA-1.3)

Red Mountain Creek  
Cottonwood Creek  
Wagontire Creek  
Granite Creek  
Rock Creek  
Donnelly Creek

- b. Total utilization of key plant species in 2,493 acres of wetland riparian habitat shall not exceed 50%. (WL-1.10)
- c. Utilization of key plant species in upland habitats shall not exceed 50% except where adjusted by an activity plan. (WL 1.7, WL 1.9, RM 1)

2/ Key forage species whose use serves as an indicator to the degree of use of associated species; or those species which must, because of their importance, be considered in a management program.

- d. Combine the Buffalo Hills Allotment with the Calico Allotment to be grazed as the Buffalo Hills grazing management system.

2. Long Term

- a. Improve and maintain the overall stream habitat from the percent of optimum indicated to 60% or better. (WLA-1.3)

Red Mountain Creek	36%	9 miles
Cottonwood Creek	49%	3 miles
Wagontire Creek	23%	3 miles
Granite Creek	45%	2 miles
Rock Creek	65%	3 miles
Donnelly Creek	53%	2 miles

- b. Improve or maintain the condition of 2,493 acres of wetland riparian habitat to good or higher. (WL-1.10)
- c. Improve or maintain riparian habitat at good condition from the condition indicated. (WLA-1.3 & WL-1.9)

Red Mountain Creek	109 acres poor
Cottonwood Creek	36 acres good
Wagontire Creek	36 acres poor
Granite Creek	24 acres good
Rock Creek	36 acres good
Donnelly Creek	24 acres fair

- d. Protect sage grouse strutting grounds and brooding habitat and improve nesting and wintering habitat by: (WL-1.11)
  - 1) Following NDOW's guidelines for Vegetal Control Programs in Sage Grouse Habitat in Nevada.
  - 2) Maintain sagebrush canopy at 30% in sage grouse nesting areas where sagebrush does not exceed three (3) feet in height.



- e. Maintain or improve 565 acres of aspen woodland and 349 acres of mountain mahogany thicket to good or equivalent. This includes acres burned in the Fox Mountain and Middle Fork Fires during 1985. (WL-1.9)
- f. Manage, maintain or improve public rangeland habitat condition to provide forage on a sustained yield basis with an initial forage demand for big game of 6,340 AUMs for mule deer, 1,060 AUMs for pronghorn and 1,228 AUMs for bighorn sheep by:
  - 1) Improving 7,680 acres of priority mule deer habitat to excellent.
  - 2) Improving overall mule deer habitat as follows:
    - a) From good to excellent 61,945 acres: Granite Range DS-1; Poodle Mtn. DS-2; Granite Range DS-6; Crutcher Canyon DW-4; Donnelly Peak DS-5.
    - b) From fair to good 4,713 acres: Buffalo Reservoir DW-2.
  - 3) Maintaining mule deer habitat as follows:
    - a) Good condition 93,402 acres: Buffalo Hills DS-2; Horse Canyon DS-2; Sawmill Canyon DS-2; Granite Basin DS-5; Granite Range DW-6.
    - b) Excellent condition 5,249 acres: Granite Range DW-7; Rock Creek DW-8; Granite Creek DW-9.
  - 4) Improving pronghorn habitat as follows:
    - a) From fair to good 140,068 acres: Buffalo Hills AS-3; Granite Range AS-8; Middle Fork AS-8; Granite Basin AS-9; Crutcher Canyon AW-1; South Buffalo Hills AW-2; Middle Fork AW-8; Rock Creek AW-9; Donnelly Peak AS-1; Division Peak AS-6.
    - b) From poor to fair 3,845 acres: Clear Creek AW-5; Granite Point AW-10.
  - 5) Maintain pronghorn habitat as follows:
    - a) Good condition 57,298 acres: Buffalo Hills AW-3.
  - 6) Improving 26,376 acres of priority bighorn sheep habitat (Granite Range BY-1) and Division Peak BY-5 from 70% to 90% of optimum and Division Peak BY-5.
  - 7) Manage, maintain or improve ecological status to provide forage on a sustained yield basis with an initial stocking level of 4,114 AUMs. The goal is to provide forage on a sustained yield basis with a stocking level of 11, 920 AUMs.

8) Improve range/ecological 1/ condition from:

Poor to Fair on 267,748 acres.

Fair to Good on 74,138 acres.

Good to Excellent on 37,764 acres.

1/ The range/ecological conditions in this document are forage condition that will be replaced with ecological status condition as information becomes available. The objective will be redefined/quantified to obtain a particular ecological status when site potential and identified uses are combined to meet vegetative objectives.

9) Manage, maintain and improve public rangeland conditions to provide an initial level of 6,660 AUMs of forage on a sustained yield basis for 555 (AMLs) 1/ wild horses in the following Herd Use Areas:

	<u>AML</u>	<u>AUMs</u>
Buffalo Hills	272	3264
Granite Range	176	2112
Calico Mountains	107	1284

10) Manage, maintain and improve public rangeland conditions to provide an initial level of 504 AUMs of forage on a sustained yield basis for 42 (AMLs) 1/ wild horses in the Calico Mountains Herd Use Areas.

11) Maintain and improve the free-roaming behavior of wild horses and burros by protecting and enhancing their home ranges.

12) Maintain/Improve wild horse/burro habitat by assuring free access to water.

13) Improve or maintain the water quality of the following streams to State criteria set for livestock drinking water, cold water aquatic life, water contact recreation (wading), and wildlife propagation:

Red Mountain Creek  
Cottonwood Creek  
Wagontire Creek  
Granite Creek  
Rock Creek  
Negro Creek  
Donnelly Creek

14) Maintain the water quality of Negro Creek from its origin to the first irrigation diversion to the State Class A water quality standards.

## E. Monitoring and Inventory Data

### 1. Climatological Data

Four weather stations are available for data; Leonard Creek, Duffurrena Ponds, Dry Canyon RAWS Station and Denio.

Leonard Creek Station is located approximately 15 miles northeast of Soldier Meadows Ranch. Duffurrena Ponds is located approximately 30 miles west of Denio on Sheldon Antelope range.

The Remote Automated Weather Systems (RAWS) meteorological station (Dry Canyon) is approximately nine miles north of Soldier Meadows Ranch on the west side of the Black Rock Range at an elevation of 4,900'.

The following table depicts moisture received at Leonard Creek Station for the period 1977-1987.

Leonard Creek Station

Year	Precipitation in Inches		Departure From Normal*	
	Growing Season	Annual Total	Growing Season	Annual
1977	4.33	8.23	+ .09	-1.99
1978	4.81	10.20	+ .57	- .02
1979	5.84	12.26	+1.60	+2.04
1980	3.45	8.55	- .79	-1.67
1981	4.29	11.43	+ .05	+1.21
1982	2.38	8.87	-1.86	-1.35
1983	6.94	17.74	+2.70	+7.52
1984	3.00	8.50	-1.24	-1.72
1985	2.48	6.82	-1.76	-3.40
1986	4.85	9.60	+ .61	- .62
1987				

\* - Normal = 10 year average = 10.22" Annual  
= 4.24" Growing Season

The following chart depicts moisture received at Dry Creek (RAWS) station since July 1986 when it was established and compares readings with those of Denio, Nevada.

	Jan.	Feb.	Mar.	Apr.	May	Jun.	July	Aug.	Sep.	Oct.	Nov.	Dec.	Total
1986 (RAWS)								.0	.7	-	.1	.3	1.2
1986 (Denio)				2.05	1.68	.69	.00	.08	.24				
1987 (RAWS)	.9	.6	.7	1.3	2.7	1.1	.1	.0	.4	.3	.3	.3	8.7
1987 (Denio)			1.17	1.05		2.61	.61	T					

The following chart depicts moisture received at Dufurrena Ponds for the period 1977-1985.

Dufurrena Ponds

Year	Precipitation in Inches
1977	7.35
1978	10.33
1979	11.10
1980	8.18
1981	7.19
1982	4.13
1983	11.18
1984	10.77
1985	3.53
1986	8.56
1987	no data

The 10 year average = 8.23" Annual

2. Actual Use

Refer to Section I C. 5 for licensed use.

3. Utilization

a. Use Pattern Mapping

1984

Use pattern mapping was conducted only in the Buffalo Hills Pasture. Use levels were mostly moderate use with heavy use occurring near stock water and undeveloped water sources.

1985

Use pattern mapping was conducted in all pastures. Use levels in all pastures was light to moderate with heavy use occurring near stock waters and undeveloped water sources.

1986

Use pattern mapping was conducted in the Calico and Dolly Varden Pastures.

Use levels in the Calico's ranged from light to moderate use. On the average, use was light in the lower county and moderate in the Calico Mountains.

Use in the higher country of the Dolly Varden Pasture ranged from light to moderate with heavier use occurring around stock waters and undeveloped waters. Use in the lower country was none to light.

1987

Buffalo Hills Pasture

Utilization ranged from light to moderate use. Heavy use occurred near waters.

Granite Pasture

Utilization averaged light use. Heavy use occurred near waters.

Dolly Varden Pasture

Utilization ranged from slight to light use with some moderate use near waters.

Calico Pasture

Utilization was moderate in the higher country and light in the lower country. Moderate and heavy use occurred near waters.

b. Key Forage Plant Method

Utilization data indicates light use was recorded at all key areas in each pasture for the period 1984-1986. In 1985 moderate and heavy use was recorded in Calico Pasture.

In 1987 light use was recorded in the Dolly Varden and Buffalo Hills Pastures. The Granite Pasture received moderate use at all key areas, while use in Calico Pasture was light to moderate.

- c. Cattle do not utilize the lower country in the Buffalo Hills, Granite and Dolly Varden Pastures. The grazing system allows for use to occur in the higher country. Field observation during utilization studies indicates no use in the lower country.

4. Trend

Trend data as collected during the period 1984-1987 indicates not conclusive indication of a trend change and that trend is static in change. Trend at the Fox Mountain burn site is downward.

5. Ecological Site Inventory

Ecological site data has not been collected. Ecological status has been collected at key areas. Refer to Table 1.

## 6. Stream Survey

### a. Inventory

All streams located in the Buffalo Hills/Calico Allotments have been inventoried at least once since 1977 except Negro Creek. Land status does not allow for a positive attempt at managing Negro Creek. Red Mountain, Cottonwood, Donnelly and Wagontire Creeks have multiple year surveys for monitoring trend.

### b. Habitat Evaluation

Red Mountain, Cottonwood and Wagontire Creeks are in a downward trend. Donnelly Creek appears to be stable. Two years data, however, is marginal for establishing trend. All streams except Rock Creek are below the 60% of optimum objective.

## 7. Habitat Inventory and Evaluation

### a. Inventory

1) A big game habitat inventory was completed during 1987. The data were used to establish the long term objectives for California bighorn sheep, mule deer and pronghorn. Long term trend data are gathered in conjunction with the standard rangeland frequency information. Two browse utilization studies have been established. Special studies have been established to monitor the recovery of the Fox Mtn. and Middle Fork Fires. These data are used to indicate changes in mule deer and pronghorn habitat condition. Bighorn sheep habitat follow-up studies were begun during 1986.

2) To date five sage grouse strutting grounds and three brooding areas have been identified. These are located in the following pastures:

Buffalo Hills: 2 strutting grounds  
Dolly Varden: 1 strutting ground, 1 brooding area  
Granite: 2 strutting grounds, 2 brooding areas

### 3) Crucial habitats

Streambank riparian	265 acres
Wetland riparian	2,493 acres
Aspen woodlands	565 acres
Mtn. Mahogany thickets	349 acres

#### 4) Other

In addition to gathering data on changes in big game habitat the Fox Mtn./Middle Fork Fire study began gathering small mammal diversity and abundance information. These data are correlated between burned and unburned portions of identical ecological sites.

#### b. Evaluation

- 1) Browse utilization is increasing and exceeds the key plant species utilization objectives. Combined with this increase in utilization is a decline in seedlings observed and sampled as well as an increase in moderate to severe hedging. The loss of key mule deer habitat in the Fox Mtn. and Middle Fork Fire is partly responsible for the increased utilization. If the fires are allowed to properly recover the mule deer browse use should respond favorably. Two mild winters which allowed mule deer to remain in their summer range could also have contributed to the increased utilization.
- 2) No data are available to quantify the impacts of management actions on the strutting grounds and nesting habitat. Use pattern mapping, however, indicates nesting habitat has not declined.
- 3) Data are not available to quantify the streambank riparian in association with their terrestrial species use. Stream survey data, however, reflect that streambank riparian vegetation is declining in relation to its potential.

Wetland riparian has been discussed in 2) above.

Baseline data collected during the establishment of the monitoring indicates the aspen woodland and mountain mahogany thickets are stable at this time, but below the long term objective level.

- 4) One year's trapping data are insufficient to determine small mammal trend response to fire. Preliminary data collection does show a higher diversity of species in the unburned sites.

#### 8. Water Quality

Red Mountain and Cottonwood Creeks have lab water quality data from 1980 and 1982, stream survey Hach Kit water quality data from 1977, and temperature, pH, and specific conductance data collected by the district hydrologist in 1987. Granite Creek has only Hach Kit stream survey water quality data. Rock Creek has 1980 lab and 1977 Hach Kit water quality data. There is no water quality data available on Wagontire Creek.

## Results

### Red Mountain Creek

The lower sections of the stream have temperatures that are too high for cold water aquatic life during the summer. One fecal coliform reading was extremely high,  $10^5/100$  ml., which is 100 times too high for even cattle to drink, and too high for water contact sports and wildlife propagation. Another fecal coliform reading was too high for only water contact sports. The pH readings for most samples were too high for wading and the sample for livestock water and cold water aquatic life was too high also. TDS levels are low which indicate good overall water quality. There was no data on dissolved oxygen.

### Cottonwood Creek

Temperatures are generally suitable during most of the year for cold water aquatic life; however, high temperatures are a problem in the lower sections of the stream during the summer. Not enough fecal coliform samples were taken to get a geometric mean, but the samples that were taken indicate a possible problem for wading during the summer. Most of the turbidity readings far exceeded the criteria for cold water aquatic life during spring and summer. The pH readings were suitable for all samples other than those taken during 1980. It would take more investigation to determine if this is the natural condition or not.

### Wagontire Creek

There is no water quality data.

### Granite Creek

The Hach Kit water quality analysis from 1977 indicates possible problems with high turbidity and low pH. Total dissolved solids are low which is an indicator that the overall water quality is good. Not all the constituents from Table 1 were analyzed.

### Rock Creek

The available data indicates turbidity was too high in the spring and even borderline in July 1980. Turbidity was 0 in 1977. 1977 pH data for Rock Creek was slightly low for wildlife propagation and water contact sports, but 1980 data indicated much higher pH. Several factors could account for this and more data would have to be collected to determine if there is a problem. Otherwise data indicates good water quality.



The only available water quality analysis was done in April, July, and September 1980 by Sierra Environmental Monitoring lab. All of the above constituents except dissolved oxygen were tested. The July fecal coliform reading was 1200/100 ml., above the standard although 5 samples were not taken. All other water quality parameters were at acceptable levels.

Calico Allotment

Water quality samples were analyzed by Sierra Environmental Monitoring lab for samples collected on 4/30/80 and 9/4/80. A limited water quality analysis using a Hach Kit was done as part of the stream survey during 1976.

At some locations summer stream temperatures exceed the maximum by 10 degrees for cold water aquatic life. Spring turbidity readings ranged from 45-73 TUs. Dissolved oxygen was not tested.

9. Past Inventories

The estimated ecological range condition class and estimated trend as cited from the Sonoma-Gerlach EIS for the Buffalo Hills and Calico Allotments is as follows:

Range Condition Class

Allotment	Total Acres	<u>Excellent</u>		<u>Good</u>		<u>Fair</u>		<u>Poor</u>	
		Acres	%	Acres	%	Acres	%	Acres	%
Buffalo Hills	394,516	47,342	12%	31,561	8%	59,177	15%	256,436	65%
Calico	36,490	4,014	11%	6,203	17%	14,961	41%	11,312	31%

Trend Direction

Allotment	Total Acres	<u>Upward</u>		<u>Stable</u>		<u>Downward</u>	
		Acres	%	Acres	%	Acres	%
Buffalo Hills	394,516	0	0	47,342	12%	347,174	88%
Calico	36,490	0	0	0	0	36,490	100%

10. Wild Horse and Burro

Baseline wild horse and burro data has not been collected.

F. Management Actions

1. Wild Horse and Burro

a. Buffalo Hills Allotment

Population Data

	Census 7/83	Est 7/84	Est 7/85	Est 7/86	Census 6/86	Est 1/87 After Removal	Est 7/87	Est 7/88
Buffalo Hills	722	801	889	987	1015	652	724	804
Granite Range North	109	121	134	149	246	--	273	303
South of Drift Fence	159	176	196	217	124	--	138	153
Calico Mountain	198	220	244	271	273	143	159	177
Totals	1188	1318	1463	1624	1658	--	1294	1437

Population estimates are based on a 11% increase.

Horse Removals

	Buffalo Hills	Granite Range	Calico Mountain
7-8/86	349	0	51
1979	533	0	0

Buffalo Hills HMA will be gathered during October 1988, to management levels. If funding allows, the Granite Range and Calico Mountain HMAs will be gathered during Nov/Dec 1988, to management levels.

b. Calico Allotment

Population Data

	Census 7/83	Est 7/84	Est 7/85	Est 7/86	Census 6/86	Est 1/87 After Removal	Est 7/87	Est 7/88
	104	115	128	142	217	107	119	132

Horse Removals

7-8/86	100
--------	-----

If funding allows the Calico HMA will be gathered in Nov/Dec 1988, to management levels.

## F. Management Actions and Other Factors

### 2. Change in Wildlife Population

The Nevada Department of Wildlife (NDOW) does not provide wildlife population data by allotment. However, overall population trends in the management units involved appear to be up except in the Buffalo Hills pasture. Poor recruitment and low post season buck ratios continue to be a problem (Dobel 1988). Based on density data provided by NDOW we have the following AUM demand in the Buffalo Hills/Calico Allotment.

California Bighorn Sheep:	132 AUMs
Mule Deer:	10,683 AUMs
Pronghorn:	2,891 AUMs

Note: The methodology used in calculating reasonable numbers versus existing numbers and the redefinition of use area boundaries does not allow for a determination of significance in change in forage demand at this time.

#### Historical Grazing Use

- a. The Buffalo Hills Allotment was used for the grazing of cattle, horses and sheep before the adjudication process. The period-of-use was yearlong grazing in common for all types of livestock as per customary use. The adjudication of the Buffalo Hills grazing unit was February 8, 1965, by Notice of Advisory Board recommendation and Decisions of the District Manager. At the time of adjudication a 47.2% reduction was imposed on the base property qualifications in order to reach the grazing capacity of the federal range.

The Holland livestock operation was originally adjudicated 35,144 AUMs of grazing. After reduction of 47.2% the active privileges were 18,520 AUMs. In addition to cattle use, there were 11,156 AUMs of active sheep use adjudicated to the Holland Livestock operation in the Buffalo Hills Planning Unit. Mr. Casey applied for cattle use on the base property used for sheep use in parallel with other cattle privileges in the Buffalo Hills Allotment. The District Manager's Final Decision dated February 12, 1975 states that since Mr. Casey applied to graze cattle on an exchange of use license on unfenced sheep use land, that this base land was no longer dependent on the Federal Range for sheep and thus the sheep privileges were cancelled. Mr. Casey did not appeal this decision and the 11,156 AUMs were cancelled. On February 15, 1979, a decision by the Interior Board of Land Appeals decided against the Holland Livestock Ranch and a reduction of 40% of the active grazing privileges was imposed, based on the numerous willful trespasses on the allotment. The 40% reduction left the Holland livestock operation with 11,112 AUMs of the active grazing preference.

On November 15, 1982 the grazing preference and grazing permit held by John Jay Casey in the Winnemucca District was permanently revoked. As ordered by the Decision of Administrative Law Judge Robert W. Mesch case Nevada 2-80-4 (SC) which so states in pertinent part: The grazing permit and grazing preference (including both active use and suspended nonuse) held by John J. Casey in the Winnemucca Grazing District, which are based upon and attached to base properties known as the Granite Ranch, Clear Creek Ranch, Squaw Valley Ranch, Finley Ranch, Great Boiling Springs, Fly Ranch, Hot Springs Field, Deephole Ranch, and Sam Parker property, are permanently cancelled.

The 11,112 AUMs active preference which were permanently cancelled has not been attached to any base properties since revocation.

## II. MANAGEMENT EVALUATION

### A. Short Term Objectives

1. Utilization of key streambank riparian plant species shall not exceed 30% in the following streams except where adjusted by an approved activity plan. (WLA-1.3)

Red Mountain Creek  
Cottonwood Creek  
Wagontire Creek  
Granite Creek  
Rock Creek  
Donnelly Creek

Use pattern mapping indicates this objective is not being met. The general tendency of cattle is to heavily utilize streambank riparian areas. Granite and Rock Creeks may recover due to topography if the grazing system works as designed.

2. Total utilization of key plant species in 2,493 acres of wetland riparian habitat shall not exceed 50%. (WL-1.10)

Use pattern mapping indicates this objective is not being met. The grazing system provides the meadows and upland sites with 2 years rest. This may be adequate to maintain or improve meadow condition except for other ungulate use. During periods of livestock rest wild horse use is still present.

3. Utilization of key plant species in upland habitats shall not exceed 50% unless adjusted by an approved activity plan.

In most upland areas this objective is being met. Browse utilization studies indicate this objective is not being met for bitterbrush, serviceberry, and snowberry in those sites adjoining the Fox Mtn. and Middle Fork Fires. Those areas adjoining the fires are experiencing 64% utilization on bitterbrush, up to 80% on serviceberry and 60% on snowberry.

More importantly reproduction is down and the hedging of key species is increasing to severe. Loss of habitat has concentrated mule deer into a smaller area. As the burned area recovers the increase in succulent forbs and grasses has attracted wild horses and pronghorns as well as trespass cattle. The presence of a stable water source (Rocky Basin) has not helped the situation.

Use Pattern Mapping (UPM) and utilization data indicates use is light to moderate over all pastures from 1984-1987. In 1985 heavy use was recorded in the Calico Pasture.

B. Long Term Objectives

1. Improve and maintain the overall stream habitat from the percent of optimum indicated to 60% or better. (WLA-1.3)

Red Mountain Creek	36%	9 miles
Cottonwood Creek	49%	3 miles
Wagontire Creek	23%	3 miles
Granite Creek	45%	2 miles
Rock Creek	65%	3 miles
Donnelly Creek	53%	2 miles

Baseline and trend data indicate Rock Creek is the only stream where this objective is being achieved. Due to topography and propensity of cattle, wild horses and wild ungulates to congregate in streambank riparian areas Red Mtn., Cottonwood, Wagontire and Donnelly Creeks may not meet this objective without protection. Granite Creek should meet the objective if the grazing system works as it is supposed to.

2. Improve or maintain the condition of 2,493 acres of wetland riparian habitat to late seral or higher. (WL-1.10)

Baseline and trend data are not yet sufficient to determine if this objective is being met. Non-attainment of short-term objective 2, however, indicates this objective is not being achieved. Causes for this are discussed in A2 above.

3. Improve or maintain riparian habitat at good condition from the condition indicated. (WLA-1.3 & WL-1.9)

Red Mountain Creek	109 acres poor
Cottonwood Creek	36 acres good
Wagontire Creek	36 acres poor
Granite Creek	24 acres good
Rock Creek	36 acres good
Donnelly Creek	24 acres fair

Baseline and trend data are not available to determine if this objective is being achieved. Non-attainment of short term objective 1, however, indicates this objective is not moving toward achievement.

4. Protect sage grouse strutting grounds and brooding habitat and improve nesting and wintering habitat by: (WL-1.11)
  - a. Following NDOW's guidelines for Vegetal Control Programs in Sage Grouse Habitat in Nevada.
  - b. Maintain sagebrush canopy at 30% in sage grouse nesting areas where sagebrush does not exceed three (3) feet in height.

Baseline and trend data do not exist to determine if the objective for strutting grounds is being met or not. Present trend and baseline data do indicate the nesting habitat objective is being met. Brooding areas are usually tied to wetland riparian. Use pattern mapping indicates the key plant species utilization objective is being exceeded in all areas monitored. Because of these results we can assume that brood areas may be in a stable to downward trend.

5. Maintain or improve 565 acres of aspen woodland and 349 acres of mountain mahogany thicket to good condition. This includes acres burned in the Fox Mountain and Middle Fork Fires during 1985. (WL-1.9)

Baseline and trend data indicate this objective is being met through the management system outside the Fox Mtn. and Middle Fork Fires. No data has been gathered to determine if those key types are recovering toward the objective in the burn area.

6. Manage, maintain or improve public rangeland habitat condition to provide forage on a sustained yield basis with an initial forage demand for big game of 6,340 AUMs for mule deer, 1,060 AUMs for pronghorn and 1,228 AUMs for bighorn sheep by:
  - a. Improving 7,680 acres of priority mule deer habitat to excellent.
  - b. Improving overall mule deer habitat as follows:
    - 1) From good to excellent 61,945 acres: Granite Range DS-1; Poodle Mtn. DS-2; Granite Range DS-6; Crutcher Canyon DW-4.
    - 2) From fair to good 4,713 acres: Buffalo Reservoir DW-2.
  - c. Maintaining mule deer habitat as follows:
    - 1) Good condition 93,402 acres: Buffalo Hills DS-2; Horse Canyon DS-2; Sawmill Canyon DS-2; Granite Basin DS-5; Granite Range DW-6.
    - 2) Excellent condition 5,249 acres: Granite Range DW-7; Rock Creek DW-8; Granite Creek DW-9.
  - d. Improving pronghorn habitat as follows:

- 1) From fair to good 140,068 acres: Buffalo Hills AS-3; Granite Range AS-8; Middle Fork AS-8; Granite Basin AS-9; Crutcher Canyon AW-1; South Buffalo Hills AW-2; Middle Fork AW-8; Rock Creek AW-9; Donnelly Peak AS-1; Division Peak AS-6.
- 2) From poor to fair 3,845 acres: Clear Creek AW-5; Granite Point AW-10.

e. Maintain pronghorn habitat as follows:

- 1) Good condition 57,298 acres: Buffalo Hills AW-3.

f. Improving 26,376 acres of priority bighorn sheep habitat (Granite Range BY-1) and Division Peak BY-5 from 70% to 90% of optimum.

Baseline data indicates this objective has not been achieved. Long term trend data are not sufficient to date to determine if the objective is being moved toward achievement. However, it appears this objective can be met through a combination of the grazing system, proper wild horse management, specific rangeland projects and a positive adequate recovery of the Fox Mtn. and Middle Fork Fires.

7. Manage, maintain or improve public rangeland conditions and ecological status to provide forage on a sustained yield basis with an initial stocking level of 4,114 AUMs.

Available trend data for four year (1984-1987) at the 15 key areas indicates no conclusive indication of a trend change. Trend at the Fox Mountain Burn study site is still downward with some species improving.

Utilization in the uplands tends to show this objective is being met.

Ecological status as collected during the initial year of establishment (1984) is as follows:

Seral Stage	Total Number of Key Areas by Seral Stage
Early Seral 0-25%	
Mid Seral 16-50%	5
Late Seral 51-75%	9
Potential Natural Community (PNC) (76-1001)	<u>1</u>

8. a. Manage, maintain and improve public rangeland conditions to provide an initial level of 6660 AUMs of forage on a sustained yield basis for 555 (AMLs) wild horses in the following Herd Use Areas:

	<u>AML</u>	<u>AUMs</u>
Buffalo Hills	272	3264
Granite Range	176	2112
Calico Mountains	107	1284

- b. Manage, maintain and improve public rangeland conditions to provide an initial level of 504 AUMs of forage on a sustained yield basis for 42 (AMLs) wild horses in the Calico Mountains Herd Use Areas:

Calico Mountains	107	1284
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The Appropriate Management Levels (AMLs) for the HMAs within the Buffalo Hills and Calico Allotments were established in July 1982. Herd numbers have been significantly above AMLs since 1982. The objective has not been met.

HMA	% above AML
Buffalo Hills	165% to 173%
Granite Range	52% to 159%
Calico Mts. 1/	68% to 229%

1/ Buffalo Hills and Calico Allotments are combined.

9. Maintain and improve the free-roaming behavior of wild horses and burros by protecting and enhancing their home ranges.

This objective is being met.

Maintain/improve wild horse/burro habitat by assuring free access to water.

Wild horses and burros within the allotment have free access to all waters. The objective has been met.

10. Improve range/ecological condition 1/ from poor to fair on 267,748 acres and from fair to good on 74,138 acres and good to excellent on 37,764 acres.

1/ The condition objective will be redefined/quantified to obtain a particular ecological status when site potential and identified uses are combined to meet vegetative objectives.

Preliminary data indicates that ecological condition as a whole is being increased.

11. Improve or maintain the water quality of the following streams to State criteria set for livestock drinking water, cold water aquatic life, water contact recreation (wading), and wildlife propagation:

Red Mountain Creek  
Cottonwood Creek  
Wagontire Creek  
Granite Creek  
Rock Creek  
Negro Creek  
Donnelly Creek



Red Mt. Creek - The objective is not being met because summer stream temperatures, fecal coliform, and pH are high. Water quality problems are probably being caused by too many animals along the stream.

Cottonwood Creek - The objective is not being met for Cottonwood Creek because some of the samples for stream temperature, fecal coliform, turbidity, pH, and alkalinity exceed the State water quality criteria. The cause of the problem probably is too many livestock along the stream.

Wagontire Creek - There is no data to evaluate whether the objective is being met.

Granite Creek - Not enough data was collected to determine whether the objective has been met.

Rock Creek - The data was inconclusive to determine whether the objective is being met.

Donnelly Creek - The objective is not being met for cold water aquatic life. Summer stream temperatures and spring turbidity exceed the State criteria. This is probably caused by inadequate streambank cover.

The objective is being met for the other beneficial uses.

12. Maintain the water quality of Negro Creek from its origin to the first irrigation diversion to the State Class A water quality standards.

The existing data suggests that the objective is not being met because of a high fecal coliform reading. High fecal coliform levels are probably caused by too many animals along the creek. It is not known whether dissolved oxygen is at an acceptable level. Only one summer stream temperature was taken which is not enough to determine if the objective is being met. If the objective is not being met it may be due to the large area of private land surrounding the stream.

### III. Conclusion

The upland short term utilization objectives are being met except in the priority mule deer habitat adjoining the Fox Mountain Fire. The short term utilization objectives for streambank and wetland riparian are not being met. Inability to meet the short term objectives is the result of the following factors:

- A. An imbalance in livestock distribution due to the following conditions:
  1. Steep rocky topography, limits livestock use to the meadow complexes in the Granite Pasture as well as basins and flat areas of the other three pastures.

2. The tendency of livestock, wild horses and burros and wild ungulates to concentrate in upland riparian zones.
  3. Inadequate water distribution in the upland sites.
  4. Movement of Susanville District livestock across the western boundaries.
  5. Allotment wide the AML has varied from 95% above AMLs to 220% above AMLs.
- B. Monitoring studies indicates the lower country of the Buffalo Hills, Granite and Dolly Varden Pastures is not grazed by livestock.
- C. The Fox Mountain Burn removed approximately half of the priority mule deer area, therefore concentrating mule deer use into the unburned habitat.

Pronghorn, wild horse and cattle use has increased in the burned portion of the Fox Mountain Burn slowing fire recovery.

- D. Current stocking levels and the grazing management system are providing for a sustained yield on forage in the upland sites to the benefit of all ungulates.

Monitoring data indicates light to moderate use over the allotment, this would indicate that an increase could be made above present numbers. But monitoring also indicates that streambank riparian and upland riparian areas are being utilized above utilization levels stated in the objectives. Monitoring also indicates that the Fox and Middle Creek burned area is not responding as quickly as expected. Monitoring data indicates that livestock, wild horses and wildlife are partially responsible. The grazing system that has been developed for this area indicates that the objective can be met if streambank riparian areas are protected, and the grazing system is allowed to run for more than just one cycle. Because of these indications wild horse numbers will not have to be reduced to the AML of 555 on the Buffalo Hills and 42 on the Calicos. The numbers can be increased by the proportionate 21.3% that was authorized at temporary non-renewable to livestock. Therefore horse AML would be 724 total horses verses 597. If present horse numbers are not reduced to this level, monitoring indicates that upland riparian and Fox Mountain and Middle Creek burn area objectives will not be met. A 21.3% increase in wildlife numbers is also within the scope of the objectives. By allowing these increases in combination with the present grazing system and protection of the streambank riparian monitoring indicates that all objectives can be met.

#### IV. Recommendations

1. Increase wild horse numbers by 21.3% as based on AMLs to 1,526 AUMs and an AML of 127 in the Buffalo Hills grazing management system. Initiate this increase in the Buffalo Hills Herd Management Area only, increasing from 272 AML to 399 AML.

	<u>AML</u>	<u>AUMs</u>
Buffalo Hills	399	4,788
Granite Range	176	2,112
Calico Mountains	107	1,284

- Increase reasonable numbers of deer, pronghorn and bighorn sheep by 21.3%.
- Maintain the existing grazing management system for the Buffalo Hills and Calico Allotments as per the AMP, and maintain the grazing level of 4,114 AUMs.

Change the 722 AUMs of suspended preference, new issued as TNR, to all permittees as permanent active preference over a five year period. This increases active preference by 21.3%.

If the grazing preferences is increased above the 4,114 AUM level, the use would be authorized as winter use. The use would be authorized between 10/16 and 2/28. This would help to increase the livestock distribution on the allotment.

The winter use area would include the southern portion of the Buffalo Hills Use Area along the foothills of the Smoke Creek Desert, the western portion of the Granite Use Area not including the Crutcher Canyon area the south and east portion of Granite Use Area and the eastern portion of the Dolly Varden Pasture in the Hualapai Flat area.

The authorized grazing preference in the Buffalo Hills grazing management system will be changed as follows:

FROM:

<u>Permittee</u>	<u>Preference</u>		
	<u>Total</u>	<u>Suspended</u>	<u>Active</u>
Jackson, A.F.	3,984	661	3,323
Selmi, J.	130	61	69
	<u>4,114</u>	<u>722</u>	<u>3,392</u>

TO:

<u>Permittee</u>	<u>Preference</u>			
	<u>Total</u>	<u>Suspended</u>	<u>TNR</u>	<u>Active</u>
Jackson, A.F.	3,984	595	595	3,984
Selmi, J.	130	55	55	130
	<u>4,114</u>			<u>4,114</u>

To facilitate a satisfactory level or intensity of grazing management, this grazing preference will be authorized within all pastures of the Buffalo Hills grazing management system as in accordance with the Buffalo Hills-Calico Allotment Management Plan.

- Consider authorizing exchange-of-use to non-permittees grazing use when objectives are met.

Maintain closure on Fox Mountain Fire through 1991 and reevaluate at that time.

Fence Red Mountain, Cottonwood, Wagontire and Donnelly Creek riparian areas in accordance with the Winnemucca District Riparian Implementation Schedule. Granite Creek and Rock Creek will be monitored in relation to the grazing system.

V. Monitoring And Inventory Needs

A. Monitoring

1. Actual Use
2. Utilization
3. Trend
4. Wild horse distribution and seasonal movements.
5. Collect climate data from existing stations
6. Water quality

B. Inventory

1. Wildlife habitat condition
2. Ecological Status
3. Riparian condition
4. Soil Survey
5. Habitat Suitability Index for Wild Horses
6. Sage Grouse Wintering Areas

VI. General Information

A. The following documents have been reviewed for this evaluation:

1. Sonoma-Gerlach Environmental Impact Statement (1981).
2. Sonoma-Gerlach Land Use Plan/MFP III.
3. Sonoma-Gerlach RPS
4. Sonoma-Gerlach HMA and WH&B Inventory and Population estimate Records.
5. Buffalo Hills and Calico Study Files
6. Draft Habitat Management Plan for Fox Mountain. WHA-T-1
7. Winnemucca District Coordinated Monitoring Plan.

8. Evans, Carol. 1986. Effects of Cattle Grazing on Sage Grouse Use on Meadows in the Sheldon NWR. Thesis.
  9. Wildlife Habitat in Managed Rangelands - The Great Basin of Southeastern Oregon.
  10. Sonoma-Gerlach RA Method for Evaluating and Monitoring Riparian Habitat in Relation to Terrestrial Needs.
  11. Bighorn Sheep Habitat Monitoring Plan For Sonoma-Gerlach R.A.
  12. BLM Manual Supplement 6630-Big Game Studies.
  13. BLM Manual Supplement 6671-Stream Surveys.
  14. Armentrout & Gardetto. Habitat Suitability Rating System For California Bighorn Sheep.
- B. Participants involved with this evaluation:
1. Area Manager - Gerald Brandvold
  2. Supervisory Range Conservationist - Paul Jancar
  3. Range Conservationist - Chris Mayer
  4. Wildlife Biologist - Don Armentrout
  5. Wild Horse Specialists - Tom Seley/Dick Wheeler
  6. District Wildlife Biologist - Dennis Tol
  7. District Range Staff Officer - Ron Kay