

I. ALLOTMENT INFORMATION

- A. Soldier Meadows Allotment (0128) Federal Land Bank, Permittee.
Priority 1 Category I.
- B. Allotment Description

The Soldier Meadows Allotment is located in the northwest portion of Humboldt County. The allotment is approximately 42 miles long in a north-south direction and 16 miles wide in an east-west direction. The topography within the allotment ranges from the valley floor of the Black Rock Desert to the higher terrain and the higher mountains of the Black Rock and Calico Mountain ranges. Vegetation types in the allotment include those from the greasewood-saltbush/saltgrass flats (elevation 4000') to the sagebrush-bitterbrush/mountain mahogany sites in the higher elevations (8,600').

C. Livestock Use

1. Preference

Total Preference	16,070 AUMs
Active Preference	16,070 AUMs
Suspended Preference	0

2. Season of Use: Yearlong by pasture

a. Winter Use	11/16 - 04/15
b. Spring Use	04/16 - 06/15
c. Summer Use	06/16 - 11/15

The active preference for the Soldier Meadows Allotment has been 16,070 AUMs for at least the past ten (10) years. During the years 1977-1981 licensed livestock (cattle) use varied from 1,250 AUMs to 17,000 AUMs. Wild horse and burro use varied during this period from 6,996 (583) AUMs to 13,956 (1,163 head) AUMs.

For the years 1982-1985 the allotment was again not stocked to initial stocking levels. Licensed livestock (cattle) use varied from 256 AUMs to 13,794 AUMs. Wild horse and burro use varied during this period from 12,024 AUMs to 16,440 AUMs.

During the two year period, 1986-1987, only domestic sheep were licensed in the allotment. Active preference was again below initial stocking levels. Active preference during 1986 was 3,539 AUMs, for 1987 3,094 AUMs. Wild horse and burro use varied during this period from 18,000 AUMs to 18,660 AUMs.

Prior to 1960 when appeal No. NV-707 provided this allotment with its present grazing system, there was no grazing system in this allotment.

3. Kind and Class of Livestock Use

cattle cow-calf
sheep ewe-lamb (1986-1987)

4. Appropriate Management Levels for Horses

Set by MFP Decision 1982 is 835 horses and 10 burros, and 10,140 AUMs.

5. Grazing System

The Soldier Meadows Allotment grazing management system is a two-year deferred/rest rotation system under a four year cycle*. The grazing system was approved under court order, NV-2-79-9, and specified that the system be followed until an allotment management plan is developed and approved. The current grazing system was initiated in 1981. Since 1981 the livestock operation has been inconsistent and unstable in the allotment. Grazing use has not been at full active preference since the 1981 grazing year. During the 1986 and 1987 grazing years, domestic sheep were run in the allotment. Prior to that cattle were run.

*Refer to Table 1.

The Soldier Meadows grazing system has been divided into five use areas or pastures described as follows:

The grazing system was developed by the permittee and assured that it could be followed without fences to separate pastures. When the allotment was stocked there were numerous trespasses as the operator could not keep cattle or sheep in the correct pasture.

<u>Pasture</u>	<u>Period-of-Use</u>
a. Black Rock Pasture	Winter Use (11/16 - 04/15)
b. Soldier Meadows Pasture	Spring Use (04/16 - 06/15)
c. Summit Lake Pasture	Summer Use (06/16 - 11/15)
d. Calico Mountain Pasture	Spring Use (04/16 - 06/15)
e. Warm Springs Pasture	Summer Use (06/16 - 11/15)

6. Allotment Objectives

a. Short Term

- 1) Utilization of Willow (Salix spp.) and Aspen (Populus tremuloides) in streambank riparian areas shall not exceed 30% on the following streams. (WLA-1.3)

Mahogany Creek (outside enclosure)
 Mahogany Creek (inside enclosure-105)
 Summer Camp Creek
 Snow Creek
 Donnelly Creek
 Slungullion Creek
 Soldiers Creek

- 2) Utilization of Nevada bluegrass (*Poa nevadensis*) and Cinquefoil (*Potentilla* spp.) on 1,383 acres of wetland riparian habitat shall not exceed 50%. (WL-1.10)
- 3) Utilization shall not exceed 50% for mountain mahogany and 40% for aspen in upland sites. (WL-1.9)

Table 1.

Grazing Years 1 and 2 of 4 Year Cycle

Pasture	4/16	6/15	11/15	4/15
Black Rock Pasture	----- Rest Period -----			Graze
Soldier Meadows Pasture	Graze	----- Rest Period -----		
Summit Lake Pasture	Rest Period	Graze	- Rest Period -	
Calico Pasture	Complete Rest			
Warm Springs Pasture	Complete Rest			

Grazing Years 3 and 4 of 4 Year Cycle

Pasture	4/16	6/15	11/15	4/15
Black Rock Pasture	----- Rest Period -----			Graze
Calico Pasture	Graze	----- Rest Period -----		
Warm Springs Pasture	Rest Period	Graze	- Rest Period -	
Soldier Meadows Pasture	Complete Rest			
Summit Lake Pasture	Complete Rest			

- 1) Improve or maintain riparian habitat along the following streams as follows: (WLA-1.3 & WL-1.9)

<u>Stream Name</u>	<u>Acres</u>	<u>From - To</u>
*Mahogany Creek	100	At - Excellent
*Summer Camp Creek	30	At - Excellent
*Snow Creek	30	At - Good
Donnelly Creek	109	Fair - Good
Soldiers Creek	100	Fair - Good
Slumgullion Creek	100	Poor - Good

* These streams have populations of the federally listed threatened Lahontan Cutthroat Trout.

- 2) Improve or maintain the following streams from the percent of optimum indicated to 60% or better. (WLA-1.3)

<u>Stream Name</u>	<u>Present % of Optimum</u>	<u>Miles</u>
Mahogany Creek	67%	6
Summer Camp Creek	62%	2
Snow Creek	56%	3
Donnelly Creek	53%	8
Soldiers Creek	58%	8
Slumgullion Creek	46%	8

- 3) Maintain habitat for the federally listed threatened Desert Dace at excellent within the 307 acre ACEC. (WL-1.5a)
- 4) Improve to and maintain in good or higher condition, 1,383 acres of wetland riparian habitat. (WL-1.10)
- 5) Manage, maintain and improve public rangeland habitat condition to provide forage on a sustained yield basis, with an initial forage demand for big game of 786 AUMs for mule deer, 429 AUMs for pronghorn, and 264 AUMs for bighorn sheep by:
- Improving the following mule deer habitat from good to excellent condition: Bear Buttes DS-1 (4,174 acres); Mahogany DS-2 (24,047 acres); Soldier DW-7 (18,666 acres) and Warm Springs DW-8 (43,633 acres).
 - Improving Big Mountain DS-2 (7,077 acres) and Soldier DW-6 (6,995 acres) mule deer habitat from fair to good condition
 - Improving Black Mountain DS-3 (19,462 acres) and Paiute DS-2 (2,255 acres) mule deer habitat from poor to fair condition.

4) Improving Black Rock Range AW-1 (61,452 acres) pronghorn habitat from fair to good condition.

e) Improving High Rock Lake AW-1 (7,665 acres) pronghorn habitat from poor to fair condition.

f) Improving Calico Mts. BY-6 (28,516 acres) California bighorn sheep habitat from 70% to 90% of optimum.

g) Maintain 49,254 acres of Black Rock Range BY-4 potential California bighorn sheep habitat in good condition to support reestablishment.

6) Protect known sage grouse strutting and nesting habitat and improve brooding 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.

7) Maintain or improve 658 acres of aspen woodland and 1,825 acres of mountain mahogany thicket to late seral status or equivalent. (WL-1.9)

8) Manage, maintain and improve rangeland conditions to provide forage on a sustained yield basis with an initial stocking level of 16,070 AUMs.

Improve range/ecological 1/ condition from:

Poor to fair on 49,161 acres.

Fair to good on 131,096 acres.

Good to excellent on 98,321 acres.

9) Manage, maintain and improve public rangeland conditions to provide an initial level of 10,140 AUMs of forage on a sustained yield basis for 2/ 835 wild horses and 10 burros in the following Herd Areas:

	<u>AML</u>	<u>AUMs</u>
Warm Springs Canyon	294/10	3528/120
Black Rock Range-West	424/0	5088/0
Calico Mountains	117/0	1404/0

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.

27. All roads to adult horses and burros (100+ years of age).

- 10) Maintain and improve the free-roaming behavior of wild horses and burros by protecting and enhancing their home ranges.
- 11) Maintain/improve wild horse/burro habitat by assuring free access to water.
- 12) Improve or maintain Mahogany Creek to Class A water standards.
- 13) Improve or maintain the water quality of the following streams to the State criteria set for livestock drinking water, cold water aquatic life, water contact recreation (wading), and wildlife propagation:

Summer Camp Creek
Snow Creek
Donnelly Creek
Slungullion Creek
Soldiers Creek

- 14) Maintain water quality standards for Desert Dace habitat in the spring where they occur to the following:

temperature	32-38°C/90-100°F
nitrites	— 90 mg/L
turbidity	— 50 NTU
pH	6.5-9.0
D.O.	¶ 5.0 mg/L

E. Monitoring and Inventory Data

1. Climate

Two weather stations are available for data; Leonard Creek and Dufurrena.

For 1984, the total precipitation recorded at Dufurrena was 10.77" and 8.50" at Leonard Creek.

For 1985, total precipitation recorded at Dufurrena was 3.53" and 6.82" at Leonard Creek.

For 1986, total precipitation recorded at Leonard Creek Station was 9.60".

A Remote Automated Weather Systems (RAWS) meteorological station (Dry Canyon) was installed in June of 1986 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 chart depicts moisture received at this station since July 1986 and compares readings with those at Denio, Nevada:

	Jan.	Feb.	Mar.	Apr.	May	Jun.	July	Aug.	Sep.	Oct.	Nov.	Dec.	Total
1986(RAWS)								.0	.7	-	.1	.3	1.1
1986(Denio)				2.05	1.68	.69	.0	.08	.24				1.1
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 Leonard Creek Station is 15 miles northeast of the Soldier Meadows Allotment at 4,300' elevation. The following table depicts the moisture received from 1977 through 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

2. Livestock Use

Licensed Livestock Use (1978-1988)

Year	AUMs Licensed	
1978	1,250 AUMs	Cattle
1979	9,020 AUMs	Cattle
1980	17,872 AUMs	Cattle
1981	16,070 AUMs	Cattle
1982	0 AUMs	
1983	0 AUMs	
1984	13,794 AUMs	Cattle
1985	966 AUMs	Cattle
1986	3,539 AUMs	Sheep
1987	3,094 AUMs	Sheep

Utilization in the Warm Springs Pasture was slight to moderate on the uplands.

Utilization on the Black Rock Pasture was slight to moderate on the uplands.

Utilization on the Summit Lake Pasture was slight to moderate on the uplands.

Utilization data collected during the period for 1986-1987 measured utilization of key forage species.

The 1986 use of the uplands was below allowable use levels in Summit Lake and Soldier Meadows Pastures. Warm Springs Canyon, Calico and Black Rock Pastures were not mapped.

The 1987 use in uplands was again below allowable use levels in Summit Lake and Soldier Meadows Pastures and the Black Rock Pasture. Use in Warm Springs Pasture was slight to moderate. The Calico Pasture was not mapped.

4. Trend

Trend data was collected during the period 1977-1981 and is presented as follows:

Warm Springs Pasture

Quadrat frequency data is erratic. Photo plot (TIS) data indicates trend is downward. Two years of exclosure data does not give an indication of trend.

Black Rock Pasture

Quadrat frequency data is erratic. Photo plot (TIS) data indicates trend is improving. Two years of exclosure data does not give an indication of trend.

Summit Lake Pasture

Quadrat frequency data shows an erratic but improving trend. TIS data also shows erratic change but gradual improvement. Utilization was incomplete but data shows slight to moderate use.

Soldier Meadows/Calico Pastures

No data available (1977-1981).

Ecological Site Inventory has not been collected on the allotment.

<u>Wildlife Use Area</u>	<u>Current Condition</u>	<u>Limiting Factor</u>
<u>Mule Deer</u>		
Bear Buttes DS-1	Good	Forage quality
Mahogany DS-2	Good	Forage quality
Soldier DW-7	Good	Forage quality and human disturbance
Warm Springs DW-8	Good	Forage quality and human disturbance
Big Mountain DS-2	Fair	Forage quality; cover
Soldier DW-6	Fair	Forage quality; cover and human disturbance
Black Mountain DS-3	Poor	Key browse species condition forage quality; cover and human disturbance
Paiute DS-2	Poor	Forage quality and human disturbance
<u>Pronghorn</u>		
Black Butte AS-2	Fair	Vegetation quality and diversity
Warm Springs AW-2	Fair	Vegetation quality and diversity
High Rock Lake AW-1	Poor	Vegetation quality, diversity and quantity
<u>Bighorn Sheep</u>		
Calico Mts. BY-6	70% of optimum	Water distribution

6. Stream Survey

a. Inventory

All streams located in the Soldier Meadows Allotment have been inventoried at least once. Mahogany, Summer Camp and Donnelly Creeks have multiple inventory data which provides trend information. Snow, Slungullion, and Soldier Creeks have only been inventoried once which does not allow for the establishment of trend.

Data indicates that trend on Mahogany, Summer Camp and Donnelly Creeks is apparently static.

<u>Stream Name</u>	<u>Present % of Optimum</u>	<u>Miles</u>	<u>Limiting Factors</u>
Mahogany Creek	67%	6	N/A
Summer Camp Creek	62%	2	N/A
Snow Creek	56%	3	Streambank stability and loss of cover
Donnelly Creek	53%	8	Streambank stability and loss of cover
Soldiers Creek	58%	8	Streambank stability and loss of cover
Slumgullion Creek	46%	8	Streambank stability and loss of cover

7. Habitat Inventory and Evaluation

a. Inventory

- 1) A big game habitat inventory was completed during 1988 which indicates the following limiting factors. Long term trend data are gathered in conjunction with the standard rangeland frequency information.

Analysis of inventory data indicates key browse species in the Summit Lake Pasture outside the Mahogany Creek enclosure are being severely hedged and display unsatisfactory form and age classes. Browse and other big game forage in the rest of Soldier Meadows Allotment are in satisfactory condition.

- 2) To date, two sage grouse strutting grounds and eight brooding areas have been identified. These are located in the following pastures:

Warm Springs: 1 strutting ground
Summit Lake: 1 strutting ground, 8 brooding areas

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. Brooding areas are usually tied to wetland riparian. Use pattern mapping indicates the key plant species utilization objective is being exceeded.

Streambank riparian	469 acres
Wetland riparian	1,383 acres
Aspen woodlands	658 acres
Mtn. Mahogany thickets	1,825 acres

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 quantity, quality and vigor except inside the Mahogany and Summer Camp Creeks enclosures.

Baseline data collected during the big game habitat inventory indicates the aspen woodland and mountain mahogany thickets are stable at this time .

4) Other

Water temperature and quality have been gathered in the Warm Springs within the Desert Dace ACEC. Frequency trend has been gathered in representative mountain mahogany thickets and dry meadows. Changes in data gathering techniques and transect layout make these studies ineffectual at this time.

Water temperatures and quality indicates the habitat objective for Desert Dace is being met.

8. Water Quality

Several years stream survey data (dissolved oxygen, alkalinity, hardness, turbidity, pH, temperature, carbon dioxide, total dissolved solids), a four-month temperature study in 1977, and lab analysis in 1980 and 1982 (temp., pH, fecal coliform, phosphate, and total dissolved solids) are available. Refer to Table I for the State Water Quality Standards.

The pH readings on Mahogany Creek in 1980 ranged from 7.4 to 8.2 and in 1982 from 6.4 to 6.7. Temperatures at all sampling locations and dates were all below 20°C. Phosphate levels were generally nondetectable, but ranged to a high of 0.06 mg/l. Total dissolved solids were also low, usually below 100 mg/l. Fecal coliform ranged from 0 to 100 per 100 ml. except for one sample taken in September, 1982 which was 300 per 100 ml.

Stream survey water quality is available for all of the above streams except Slumgullion. Lab water quality data is available from 1980 for Snow, Donnelly, and Soldier Creeks. Lab water quality data from 1982 is available for Summer Camp Creek. No lab water quality data was collected on Slumgullion Creek.

Total dissolved solids were low, ranging from 30-13 mg/l. Phosphates were nondetectable and nitrate ranged from .18 to .38 mg/l in the May, July, and September, 1982 lab samples. Turbidity was 14 TUs in May, but the other readings were much lower. Temperatures were all below 50°F even during the summer. The three fecal coliform samples that were collected were all less than 100/100 ml. the pH readings ranged from 6.2 to 6.5 for the lab samples and from 6.55 to 6.9 for the Stream Survey Hach Kit Samples. Dissolved oxygen was only tested with a Hach Kit and was 9 and 10 mg/l.

Snow Creek

Stream temperatures ranged from 48 to 55°F and pH from 7.0 to 7.8. Spring turbidity was not measured, but later in the year it stayed below 2.0 TUs. Both times that total dissolved solids were measured they were below 100 mg/l. Nitrate ranged from .53 to .66 mg/l and phosphate was .06 mg/l both times it was measured. The fecal coliform counts were 2/100 ml and 270/100 ml and alkalinity ranged from 32 to 65 mg/l.

Donnelly Creek

Turbidity was high on Donnelly Creek; one sample was 45 TUs and another 73 TUs. Temperature was also high with a range of 51°F to 83°F and a summer measurement was not taken except for the stream survey. Total dissolved solids ranged from 140 to 236 mg/l and pH from 7.6 to 8.2. Alkalinity had a wide range of 57 to 125 mg/l and fecal coliform samples taken in April and September were less than 10/100 ml. Nitrate ranged from .02 to .94 mg/l and phosphate from .06 to .37 mg/l. Dissolved oxygen was not tested.

Soldier Creek

Stream temperatures ranged from 37°F in April to 110°F in early September. The pH ranged from 6.8 to 8.1 and total dissolved solids from 125 to 174 mg/l. Turbidity was very high at all times for the year with a range of 45 to 500 TUs. Nitrate ranged from .10 to .66 mg/l and phosphate from .19 to .37 mg/l. Fecal coliform counts ranged from 0 to 200/100 ml and alkalinity from 46 to 60 mg/l.

Slumgullion

No water quality data was collected.

The spring in which the Desert Dace occurs was sampled three times in 1980 and the water quality was analyzed by a certified lab. Temperature ranged from 32 to 38°C and pH 8.8 to 9.0. Turbidity was less than 1 TU every time it was measured. Nitrate ranged from 0.20 to 0.27 mg/l and dissolved oxygen was not tested.

a. Estimated Ecological Range Condition

Allotment	Acres <u>a/</u>	Range Condition Class							
		Excellent		Good		Fair		Poor	
		Acres	%	Acres	%	Acres	%	Acres	%
Soldier Meadows Allotment	338,739	49,161	15	98,321	30	131,095	40	49,161	15

Estimated Trend

Allotment	Total Acres <u>a/</u>	Trend Direction					
		Upward		Stable		Downward	
		Acres	%	Acres	%	Acres	%
Soldier Meadows Allotment	327,739	147,482	45	0	0	180,257	55

* The above information is cited from the Winnemucca EIS.

b) Wild Horses

Population Data.

	Est 7/83	Est 7/84	Est 7/85	Est 7/86	Est 1/87		Est 2/86		
					Census 6/86	Census After Gathering	Census 10/87	Census After Gathering	
Warm Springs Canyon	326/11	362/12	402/13	446/14	823/--	600/14	666/16	550/6	283/16
Black Rock Range West	471	523	581	645	241	550	611	537	300
Calico Mountain	304	337	374	415	436	236	262	---	261
TOTALS	1101/11	122/12	1357/13	1506/14	1500/--	1386/14	1539/16	1087/6	845/16

-Population estimates are based on a 11% increase and verified through aerial census.

Wild Horse Removals.

	Calico	Warm Springs Cyn.	Black Rock West	TOTAL
1/88	0	267	237	504
1986	560	223	193	976
12/79 to 2/80	?	?	?	1025/10

The Nevada Department of Wildlife (NDOW) does not provide wildlife population data by allotment. However, overall population trends in the management units involved appears to be up except in the Summit Lake Pasture. In the Summit Lake Pasture, over the past 2 years, the mule deer population has been reported to be down. This downward trend may be tied to the 2 year back to back summer use by domestic sheep. Based on density data provided by NDOW we have the following AUM demand in the Soldier Meadows Allotment.

California Bighorn Sheep:	0 AUMs
Male Deer:	2,930 AUMs
Pronghorn:	2,279 AUMs

II. MANAGEMENT EVALUATION

A. Short Term Objectives

1. Utilization of Willow (Salix spp.) and Aspen (Populus temuloides) in streambank riparian areas shall not exceed 30% on the following streams. (WLA-1.3)

Mahogany Creek (outside exclosure)
Mahogany Creek (inside exclosure-10%)
Summer Camp Creek
Snow Creek
Donnelly Creek
Slungullion Creek
Soldiers Creek

The purpose of this objective is to determine if progress is being made toward long term objectives 2b(1) and 2b(2).

Based on Use Pattern Mapping conducted in 1987 and the 1987 habitat examination the only area where this objective is being met is inside the Mahogany Creek enclosure. Livestock have a natural tendency to gravitate to streambank riparian areas. During the last 2 years domestic sheep have grazed this allotment. Although the utilization levels have been exceeded mechanical damage to the streambanks has not been as severe as would be expected from cattle.

2. Utilization of Nevada bluegrass (Poa nevadensis) and cinquefoil (Potentilla spp.) in 1,383 acres of wetland riparian habitat shall not exceed 50%. (WL-1.10)

The purpose of this objective is to determine if progress is being made toward long term objective 2b(4).

Use pattern mapping completed during 1987 indicates this objective is not being met.

The purpose of this objective is to determine if progress is being made toward long term objectives 2b(5) and 2b(7).

Use pattern mapping during 1987 and the 1987 big game inventory indicates this objective is not being met.

- 4. Maintain an acceptable allowable use level on key forage species 2/ that will provide a sustained yield.

Use Pattern Mapping data indicates use to be within allowable use levels in the Warm Springs Pasture which received only wild horse use and in Black Rock Pasture, Soldier Meadows and Summit Lake Pastures, which received both wild horse and sheep use.

Improve range/ecological 1/ condition from poor to fair on acres and from fair to good on acres and good to excellent on 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.

B. Long Term Objectives

- 1. Improve and maintain riparian habitat along the following streams as follows: (WLA-1.3 & WL-1.9)

<u>Stream Name</u>	<u>Acres</u>	<u>From-To</u>
*Mahogany Creek	100	At-Excellent
*Summer Camp Creek	30	At-Excellent
*Snow Creek	30	At-Good
Donnelly Creek	109	Fair-Good
Soldiers Creek	100	Fair-Good
Slum Gullion Creek	100	Poor-Good

* These streams have populations of the federally listed threatened Lahontan Cutthroat Trout.

Baseline and trend data are not available to quantify the achievement of this objective at this time. However, non-attainment of short objective 2a(1) indicates this objective is not being met under current management due to over utilization except inside the Mahogany Creek enclosure.

2. Improve or maintain the following stream to the percent of optimum indicated to 60% or better. (WL-1.3)

<u>Stream Name</u>	<u>Present % of Optimum</u>	<u>Miles</u>
Mahogany Creek	67%	6
Summer Camp Creek	62%	2
Snow Creek	56%	3
Donnelly Creek	53%	8
Soldiers Creek	58%	8
Slungullion Creek	46%	8

Trend data indicates this objective is being met on Mahogany and Summer Camp Creeks. Trend data is not available to quantify if the objective is being met on the remaining creeks. Non-attainment of short term objective 2a(1), however, implies this objective is not being met except on Mahogany and Summer Camp creeks.

3. Maintain habitat for the federally listed threatened Desert Dace at excellent within the 307 acres ACEC. (WL-1.5a)

Water temperature and water quality data as well as the presence of the Desert Dace indicates this objective is being met. Quantifiable habitat data and protection from mineral exploration or extraction may be necessary to insure this objective continues to be met.

4. Improve to and maintain in late seral or higher condition 1,383 acres of wetland riparian habitat unless adjusted by an approve activity plan. (WL-1.10)

Baseline and trend data is not available to quantify the achievement of this objective at this time. Non-attainment of short objective 2a(2) implies this objective is not being met.

5. 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 786 AUMs for mule deer, 429 AUMs for pronghorn and 264 AUMs for bighorn sheep by:
 - a. Improving the following mule deer habitat from good to excellent condition: Bear Buttes DA-1 (4,174 acres); Mahogany DS-2 (24,047 acres); Soldier DW-7 (18,666 acres) and Warm Springs DW-8 (43,633 acres).
 - b. Improving Big Mountain DS-2 (7,077 acres) and Soldier DW-6 (6,995 acres) mule deer habitat from poor to fair condition
 - c. Improving Black Mountain DS-3 (19,462 acres) and Paiute DS-2 (2,255 acres) mule deer habitat from poor to fair condition.
 - d. Improving Black Butte AS-2 (19,148 acres) and Warm Springs AW-2 (61,452 acres) pronghorn habitat from fair to good condition.

- e. Improving high timber habitat 17,800 acres from fair habitat from poor to fair condition.
- f. Improving Calico Mts. BY-6 (28,516 acres) California bighorn sheep habitat from 70% to 90% of optimum.
- g. Maintain 49,254 acres of Black Rock Range BY-4 potential California bighorn sheep habitat at its present condition.

Trend data are not available to quantify the achievement of this objective. Based on the big game inventory, however, there is indication that this objective is not being met in the Summit Lake Pasture.

- 6. Protect known sage grouse strutting and nesting habitat and improve brooding 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 are not available to quantify the achievement of this objective.

- 7. Maintain or improve 658 acres of aspen woodland and 1,825 acres of mountain mahogany thicket to late seral status or equivalent. (WL-1.9)

Baseline and trend data are not available to quantify the achievement of this objective. Attainment of short term objective 6a(3) indicates there is not a downward trend at this time.

- 8. Manage, maintain and improve public rangeland conditions to provide forage on a sustained yield basis with an initial stocking level of 16,070 AUMs.

Available rangeland monitoring data is inconclusive to determine if this objective is being met.

- 9. Manage, maintain and improve public rangeland conditions to provide an initial level of 10,140 AUMs of forage on a sustained yield basis for 2/ 835 wild horses and 10 burros in the following Herd Areas:

	AML	AUMs
Warm Springs Canyon	294/10	3528/120
Black Rock Range-West	424/0	5088/0
Calico Mountains	117/0	1404/0

The Appropriate Management Levels (AMLs) were established for the HMAs in this allotment in July 1982. Until removals began in 1986 and 1988, herd numbers were significantly above AMLs.

approximately 10 horses and 6 burros above AMU. However, the herd numbers in that portion of the Calico Mts. HMA within the allotment are still significantly above AMU. The objective has not been met in the Calico HMA.

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

Range improvements and other developments have not restricted the free roaming behavior of the wild horses and burros within the allotment. The objective has been met.

11. 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.

12. Improve or maintain Mahogany Creek to Class A water standards.

A summary of the water quality data collected on Mahogany Creek is presented in the watershed section of IE. The overall water quality is very good. One pH reading was slightly low, but the average pH of the creek is suitable for fish. The fecal coliform sample collected in September, 1982 exceeded the standard for water contact recreation, but the required minimum of 5 samples in a 30 day period were not analyzed. Assuming that the fecal coliform level is not a problem, the objective has been met. A significant factor in this objective being met is the Mahogany Creek enclosure.

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

Summer Camp Creek
Snow Creek
Donnelly Creek
Slungullion Creek
Soldiers Creek

Summer Camp Creek

Spring turbidity was slightly high for cold water aquatic life, and pH was a little low for cold water aquatic life and water contact recreation. The low pH is probably a natural condition and turbidity later in the year is very low, so the objective has been met.

Snow Creek

The objective has been met for all the beneficial uses except water contact recreation. The September fecal coliform level

exceed the acceptable level if it represents the geometric mean. Not enough fecal coliform samples were collected, so it is uncertain whether this objective is totally being met, although it probably is. The stream survey mentioned 65% of the stream is shaded which has kept stream temperatures low and would reflect good management (at least at that time, 1977).

Donnelly Creek

No dissolved oxygen nor summer fecal coliform data was collected on Donnelly Creek. The objective is being met for livestock water and wildlife propagation if the water is assumed to be aerobic. No conclusion can be made for water contact recreation since fecal coliform data is missing for the most critical time of year.

The objective is far from being met for cold water aquatic life. Temperatures and turbidity far exceed the State criteria and phosphate is higher than recommended. The data suggest that vegetative cover is probably inadequate in the riparian area and possibly in the uplands also.

Soldier Creek

Dissolved oxygen was not tested and not enough fecal coliform samples were collected on Soldier Creek. If the water is assumed to be aerobic and fecal coliform levels no higher than those previously sampled, the objective has been met for all beneficial uses except cold water aquatic life.

The objective is far from being met for cold water aquatic life. The stream is very turbid year-long and late summer stream temperatures are very high. One of the phosphate readings was higher than recommended also. The 1977 stream survey mentions that only 17% of the stream is shaded. The data suggests that vegetative cover is probably inadequate in the riparian area and possibly in the uplands also.

Slumgullion Creek

It is not known if the objective has been met since no data was collected.

14. Maintain water quality standards for Desert Dace habitat in the spring where they occur to the following:

temperature	32-38°C/90-100°F
nitrate	90 mg/L
turbidity	50 NTU
pH	6.5-9.0
D.O.	5.0 mg/L

The objective is being met.

A. The upland utilization objectives are being met in the allotment except for browse species in the Summit Lake Pasture. Riparian utilization objectives and water quality objectives are not being met over the allotment due to overutilization except in the protected areas of Mahogany Creek enclosure and . Failure to meet these conditions are due to the following factors:

1. Poor distribution livestock movement and horse numbers significantly above AMLs.
2. The tendency of livestock, wild horses, wild burros and wild ungulates to concentrate in riparian zones.
3. Wild horse and burro numbers have exceeded AMLs by as high as 60% prior to January 1988.
4. Inconsistent and unstable livestock operation which has caused the lack of range improvement maintenance to BLM standards.
5. Data indicates that current active preference in combination with AMLs of wild horses and burros will not allow management objectives to be met even when the grazing system is followed regardless of kind of livestock.

IV. RECOMMENDATION

A. Range

1. Negotiate a reduction in initial stocking levels from the current active preference of 16,070 AUMs to an active preference of 9,600 AUMs. Utilize base property within the grazing system particularly during the winter use period. This stocking level will provide forage for livestock and wild horses.
2. Maintain a consistent operation that will insure a stocking level of between 600 to 800 cattle each year, a reduction of 40%.
3. Maintain the existing grazing management system for the Soldier Meadows Allotment until an AMP is developed. Consider combining the Soldier and Paiute Meadows Allotments and develop one grazing system for both allotments.
4. Insure that Range Improvements are maintained to Bureau standards.
5. Consider combining Black Rock West and East Herd Management Areas and develop an HMAP. Census these HMAs winter and summer and monitor horse use.
6. Horse numbers should be adjusted to the AML.

1. Fence streambank riparian areas in the following streams:
Summer Camp Creek, Snow Creek, Donnelly Creek, Slungation
Creek.

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

VI. GENERAL INFORMATION

A. The following documents have been reviewed for the 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. Soldier Meadows Study File.
6. Mahogany Creek Study File.
8. Draft Habitat Management Plan for Fox Mountain. WHA-T-1
9. Draft Habitat Management Plan for Black Rock Range. WHA-T-0
10. Winnemucca District Coordinated Monitoring Plan.

11. Evans, G. 1984. Effects of cattle grazing on riparian
Use on Meadows in the Shoshone NWR. Thesis.

12. Wildlife Habitat in Managed Rangelands - The Great Basin of
Southeastern Oregon.
13. Sonoma-Gerlach RA Method for Evaluating and Monitoring Riparian
Habitat in Relation to Terrestrial Needs.
14. Bighorn Sheep Habitat Monitoring Plan For Sonoma-Gerlach R.A.
15. BLM Manual Supplement 6630-Big Game Studies.
16. BLM Manual Supplement 6671-Stream Surveys.
17. 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

AGREEMENT FOR IMPLEMENTATION AND CHANGE IN
AVAILABLE LIVESTOCK FORAGE AND LIVESTOCK
GRAZING USE ADJUSTMENTS FOR THE
SOLDIER MEADOWS ALLOTMENT

I. INTRODUCTION

This agreement is based on the Soldier Meadows Allotment Evaluation attached and documents the changes in existing livestock grazing practices on the Soldier Meadows allotment.

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

This agreement was prepared in consultation cooperation, and coordination with affected permittee, R.C. Roberts

II. ALLOTMENT SPECIFIC OBJECTIVES AND ANALYSIS, INTERPRETATION, AND EVALUATION OF EXISTING MONITORING DATA

A. Allotment Objectives

1. Short Term

- a. Utilization of Willow (Salix spp.) and Aspen (Populus tremuloides) in streambank riparian areas shall not exceed 30% on the following streams. (WLA-1.3)

Mahogany Creek (outside exclosure)
Mahogany Creek (inside exclosure-10%)
Summer Camp Creek
Snow Creek
Donnelly Creek
Slumgullion Creek
Soldiers Creek

- b. Utilization of Nevada bluegrass (Poa nevadensis) and Cinquefoil (Potentilla spp.) on 1,383 acres of wetland riparian habitat shall not exceed 50%. (WL-1.10)
- c. Utilization shall not exceed 50% for mountain mahogany and 40% for aspen in upland sites. (WL-1.9)

2. Long Term

- a. Manage, maintain and improve rangeland conditions to provide forage on a sustained yield basis with a goal of 16,070 AUMs.

Improve range/ecological 1/ condition from:

Poor to fair on 49,161 acres.
Fair to good on 131,096 acres.
Good to excellent on 98,321 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.

II. AGREED UPON CHANGES IN AVAILABLE LIVESTOCK FORAGE AND/OR LIVESTOCK USE ADJUSTMENTS

From: The Soldier Meadows Allotment grazing management system is a two-year deferred/rest rotation system under a four year cycle*. The grazing system was approved under court order, NV-2-79-9, and specified that the system be followed until an allotment management plan is developed and approved. The current grazing system was initiated in 1981. Since 1981 the livestock operation has been inconsistent and unstable in the allotment. Grazing use has not been at full active preference since the 1981 grazing year. During the 1986 and 1987 grazing years, domestic sheep were run in the allotment. Prior to that cattle were run.

*Refer to Table 1.

The Soldier Meadows grazing system has been divided into five use areas or pastures described as follows:

The grazing system was developed by the permittee and assured that it could be followed without fences to separate pastures. When the allotment was stocked there were numerous trespasses as the operator could not keep cattle or sheep in the correct pasture.

<u>Pasture</u>	<u>Period-of-Use</u>
a. Black Rock Pasture	Winter Use (11/16 - 04/15)
b. Soldier Meadows Pasture	Spring Use (04/16 - 06/15)
c. Summit Lake Pasture	Summer Use (06/16 - 11/15)
d. Calico Mountain Pasture	Spring Use (04/16 - 06/15)
e. Warm Springs Pasture	Summer Use (06/16 - 11/15)
Total Preference	16,070 AUMs
Suspended Preference	0 AUMs
Active Preference	16,070 AUMs

Table 1.

Grazing Years 1 and 2 of 4 Year Cycle

Pasture	4/16	6/15	11/15	4/15
Black Rock Pasture	----- Rest Period -----			Graze
Soldier Meadows Pasture	Graze		----- Rest Period -----	
Summit Lake Pasture	Rest Period		Graze	- Rest Period -
Calico Pasture	Complete Rest			
Warm Springs Pasture	Complete Rest			

Grazing Years 3 and 4 of 4 Year Cycle

Pasture	4/16	6/15	11/15	4/15
Black Rock Pasture	----- Rest Period -----			Graze
Calico Pasture	Graze		----- Rest Period -----	
Warm Springs Pasture	Rest Period		Graze	- Rest Period -
Soldier Meadows Pasture	Complete Rest			
Summit Lake Pasture	Complete Rest			

The previous operator licensed up to 1,339 cattle on a yearlong basis within the above mentioned grazing system.

To:

There will be a 25% negotiated reduction of livestock grazing privileges. The active preference will be 12,053 AUM's and suspended preference will be 4,017 AUM's. The 4,017 AUMs will be considered as a voluntary reduction.

Total Preference	16,070 AUMs
Suspended Preference	0 AUMs
Voluntary Reduction	4,017 AUMs

The allotment will remain divided into the same pastures as presently exist, except the use of the pastures will differ. On October 15th

1,500 cattle will be trailed into the privately owned meadows around Soldier Meadows. The cattle will remain on the meadows until January 10th.

The livestock will then be turned onto public lands for winter use for 3 months from January 10 until April 10. This use will be made in three pastures; the Black Rock, Calico, and Soldier meadows pastures. The cattle will then be moved to the Soldier Meadows pasture or the Calico pasture until May 20 then the 1,500 head will be trailed out of the allotment. (starting with the Calico pasture in 1989). There will be use allowed in the summer pastures. 500 head will alternate yearly use between the Warm Springs Canyon pasture and the Summit Lake pasture from May 21 to October 30, starting with the Warm Springs canyon pasture in 1989. Dates for pasture moves will be contingent upon a 50% utilization level.

Once a 50% level of utilization is reached the livestock will be moved back to private land.

Summer Camp, Snow, Donnelly, Slum Gullian, and Soldier's Creeks will be protected from grazing. This protection will range from gap fencing to corridor fencing of the stream. The permittee agrees to negotiate easements for fencing on private land, the BLM agrees to construct the fences. All fences will have water gaps and will be designed in coordination with the permittee. The permittee will be assigned maintenance of the fences. The Bureau will pursue the acquisition of these riparian areas through land trades. The granting of easements by the permittee will not have an effect on the values of the lands proposed in the exchange.

III. SPECIFIC MONITORING PROGRAM

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 Soldier Meadows Allotment 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.

AUTHORITY

The authority for this agreement given through 43 CFR 4110.3-2, 4110.3-3, 4130.6.

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.

VII. SIGNATURES

Date

Date

Gerald P. Brandvold
Area Manager, Sonoma-Gerlach RA

Date