



United States Department of the Interior

BUREAU OF LAND MANAGEMENT
Winnemucca Field Office
5100 East Winnemucca Boulevard
Winnemucca, Nevada 89445
702-623-1500

In Reply Refer To:
4400.3
NV-22,41)

October 23, 1997

Dear Reader:

Our last South Rochester Evaluation meeting was March 11, 1996. Since the Ecological Site Inventory data has been summarized, we are now planning another meeting for November 3, 1997 from 1:00 until 4:30 P.M. It will be held in the north conference room of the Bureau of Land Management Bldg.

Enclosed please find a copy of last meeting's minutes and an updated copy of the evaluation thus far. Please be aware this is NOT a draft copy, but only a working copy as far as it completed to date. Please note there is a difference in acreage of public and private land between the last copy of the evaluation you saw and this copy of the evaluation. Since the Land Use Plan was written, the implementation of the Geographical Information System (GIS) has resulted in a more accurate assessment of the allotment boundaries. As a result, the total acreage of public and private land has been adjusted to reflect the information obtained using the GIS data.

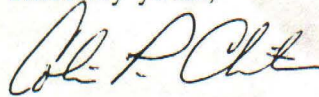
The agenda for the upcoming meeting is as follows:

1. General comments on the document
2. Discussion of carrying capacity calculations
3. Evaluation of objectives met/not met
4. Discussion of conclusions

As before, we strongly urge you to attend all the evaluation meetings and participate. We would like to reach consensus between all members of the evaluation team on conclusions and recommendations. Technical recommendations in the Final South Rochester Allotment Evaluation will form the basis upon which the Multiple Use Decision will be written. These recommendations will be in effect until another evaluation is completed some year in the future.

If you have any questions, please contact Nadine Francis or Rich Adams at (702) 623-1500.

Sincerely yours,

A handwritten signature in black ink, appearing to read "Colin P. Christensen". The signature is fluid and cursive, with the first name "Colin" being the most prominent.

Colin P. Christensen, Asst. Dist. Mgr.
Renewable Resources
Winnemucca Field Office

South Rochester Allotment Evaluation Meeting
March 11, 1996 - Minutes

The meeting began about 1:15 in the West Hall of the Winnemucca Convention Center. Permittees and Bureau of Land Management (BLM) personnel were welcomed and the meeting commenced. A total of two permittees and six BLM employees were in attendance. Linda Jackson facilitated and Rich Adams recorded for the meeting.

Lynnda called for re-introductions around so that Mike Zielinski, the BLM soil scientist, could become acquainted with everyone. We again reviewed the meeting Guide Lines and went over the meeting agenda:

- 1) General comments on the document
- 2) Comments on the present grazing system as documented on the allotment maps sent out to the permittees
- 3) Evaluation of objectives met/not met
- 4) Present carrying capacity calculations
- 5) Requantify objectives

Comment on Document

1. Comment: Have we been able to locate the acreage to be improved, as listed on pages 3 and 13 (19,747 acres from poor to fair, 6,711 acres from fair to good and 557 acres from good to excellent) and documented under allotment management objectives in the Land Use Plan?

Answer: No. We don't have a map showing these acres, nor are they relevant to the evaluation. The "poor" acres are associated with the greasewood flats (vegetation type) along Buena Vista Valley and Carson Sink and are ≥ 35 acres/Aum land. Many of these "poor" areas have been reclassified by use of Ecological Site Inventory (ESI) information and are now considered to be either in Late Seral Stage or at their potential whereas previously they were considered "poor" because of their value as cattle forage production acreage.

2. Comment: Where we have listed a percentage of the Allotment, does that include public and private land or just public land?

Answer: It includes both public and private land.

3. Comment: Do ESI maps exist, and does the table represent 100% of the Allotment? (ref: pg. 9)

Answer: Yes, the maps do exist, but they have not, as of now, been summarized. The table, as it stands now, does not represent 100% of the Allotment. It has been requested that, before our next meeting all the maps be planimetered and summarized and the table include all the summarized data.

4. Comment: When referring to 2.4 miles of riparian on page 11 - #7, what is the width covered?

Answer: It covers about 20 feet on either side of the stream bed.

5. Comment: Page 11 - #8. The water inventory -- where is it.

Answer: It hasn't been compiled by our hydrologist yet.

6. Comment: Is the "initial level" Aum figure on page 13 a "preference" for wild horses?

Answer: No, this was the actual use figure when the Land Use Plan was prepared.

Comments On Grazing System

1. We have copies of the allotment maps outlining grazing areas and times from Pleasant Valley Ranch and from the Olagary Sheep Ranch. From these maps it becomes apparent that we will have to re-calculate carrying capacity Aums because sheep did use part of the area studied in utilization studies and use pattern mapping.

Objective Met/Not Met (pg 13)

- 1.a. Manage, maintain, and improve public rangeland condition to provide forage on a sustained yield basis with an initial stocking level of 3,964 AUM's.

Met - have been able to graze full numbers during the evaluation period. Also, the majority of the Allotment was estimated to be in mid to late seral* which supports this use and has been on a sustained yield basis.

* Need to confirm what overall ecological status is when ESI data is summarized.

- 1.b. Maintain an acceptable allowable use level on key forage species that will provide a sustained yield.

[Key species: Bluegrass, Squirreltail, and Basin Wildrye (upland species), and Willow, Budsage, Juncus, Sedges (riparian species)] (Nadine will put a key species list in the Appendix.)

COVER LETTER

For those permittees unable to attend this last meeting, please return the maps sent to you with the grazing information included. This will help us plan for the next meeting.

Since our last meeting, our office has moved to a new location:

Bureau of Land Management
Winnemucca District Office
5100 E. Winnemucca Blvd.
Winnemucca, NV 89445.

We have also reorganized our office from the old Resource Areas into Renewable and Non- Renewable Resource Divisions. Therefore, all correspondence, proposed decisions, etc. on this allotment will be signed by Colin Christensen, the Assistant District Manager in charge of Renewable Resources.

Next Meeting

A date for the next meeting was not set. It will be set for after the completion of the Ecological Site Inventory data is summarized, new carrying capacity calculations using new data are finished, and questions presented at this meeting have been answered. We will send you an updated working copy of the evaluation and notify you of the date and time of the next evaluation meeting.

Attendance

March 11, 1996

South Rochester Evaluation Meeting

Permittees

Richard Carter
Salvadore Olagaray

Pleasant Valley Ranch
Sheep Ranch

Bureau of Land Management Personnel

Nadine Jackson
Dave Murphy
Leigh Redick
Mike Zielinski
Lynnda Jackson
Rich Adams

Team lead - Eval. (WH&B Spec)
Geologist
Allotment Range Conservationist
Resource Staff Soil Scientist
Facilitator - Range Conservationist
Recorder - Allotment Range

Conservationist

I. INTRODUCTION

- A. Allotment Name: South Rochester
Allotment Number: 00117
- B. Permittee(s): Salvadore Olagaray
Pleasant Valley Ranch
Safford & Safford 100% Exchange of Use
Safford & Safford Land
& Livestock Co. 100% Exchange of Use
Don & Martha Sims
Unionville Land & Cattle
- C. Evaluation Period: 1982 - 1995
- D. Selective Management Category: C
Priority: 8
- E. Allotment Description

South Rochester Allotment is located southeast of Lovelock, Nevada. It is about 13 miles long in a north-south direction and 27 miles wide in an east-west direction. The allotment is bordered by Humboldt Sink and Ragged Top Allotments to the west, Coal Canyon - Poker and Rawhide Allotments to the north, South Buffalo, Jersey Valley and Cottonwood Allotments to the east, and Copper Kettle Allotment in Carson City District to the south.

The allotment consists of high elevation north-south trending mountain ranges sloping to valley floors. The North Stillwater Herd Management Area (HMA) lies within the North Stillwater Range which is not extremely high, though its cliffs rise abruptly from the valley floor with very little alluvial fan composition, except approaching Fencemaker Canyon, where the slopes are gentler. Part of the Humboldt Herd Area (HA) lies in the western part of the allotment and includes part of both the Humboldt Range and the West Humboldt Range.

Vegetation types in this allotment include salt desert shrub communities and greasewood flats in the valley (elevation 4,200'), to the sagebrush-bluegrass community (elevation 5,000"), to pinon-juniper and juniper-sage communities in the higher elevations.

There are 16.4 acres, or 6.77 miles of lotic riparian on the allotment. This includes the free-flowing streams in Willow Canyon, Kitten Springs Canyon, New York Canyon, and Hughes Canyon in the Humboldt and North Stillwater Ranges.

Land Status - Percentages (Sonoma-Gerlach Grazing EIS - Draft)
Land Status - Acres (Geographical Information System)

<u>Public Land</u>	<u>Percent</u>	<u>Other Land</u>	<u>Percent</u>	<u>Total Land</u>	<u>Percent</u>
175,457	69%	80,074	31%	255,531.1	100%

II. INITIAL STOCKING RATE

A. Livestock Use:

1.	Total Preference	3964 AUMs
	Active Preference	3964 AUMs
	Suspended Preference	0 AUMs
	Exchange of Use	2258 AUMs

<u>Permittee</u>	<u>Animal#s</u>	<u>%PL</u>	<u>Act.Pref.</u>	<u>Act.Use</u>	<u>N-use</u>
Olagaray	700 S	100%	1400	111	1289
Pleasant Valley Ranch	44 C	100%	400	400	
Sims	171 C	38%	778	778	
Unionville	141 C	98%	1386	1386	
<u>Land & Cattle</u>					
			3964	2675	1289

	<u>Animal #s</u>	<u>Exchange of Use</u>
Sims	(171 C)	1269
Unionville	(141 C)	28
Safford & Safford		
Land & Livestock Co.	124 C	746
<u>Safford & Safford</u>	<u>27 C</u>	<u>215</u>
		2258

2. Season of Use

<u>Permittee</u>	<u>Season</u>	<u>Dates</u>
Olagaray	Spring	(4/1 - 4/24)
Pleasant Valley Ranch	Spring - Winter	(4/1 - 12/31)
Sims	Year Round	(3/1 - 2/28)
Unionville		
Land & Cattle	Spring - Winter	(4/1 - 1/31)
Safford & Safford		
Land & Livestock Co.	Spring - Fall	(4/15 - 10/14)
Safford & Safford	Spring - Fall	(4/1 - 11/30)

3. Livestock Type & Numbers
(Consists of Active Preference and Exchange of Use)

Cattle	507	4822	AUMs
Sheep	700	1400	AUMs

4. Grazing System - None

B. Wildlife Use:

1. Reasonable Numbers (from Sonoma- Gerlach Land Use Plan - 1982)

Mule Deer - (<u>Odocoileus hemionus</u>)	45 AUMs
Antelope - (<u>Antilocapra americana</u>)	0 AUMs
Bighorn Sheep - (<u>Ovis canadensis</u>)	15 AUMs

Mule Deer - 15 total reasonable number

Antelope - No antelope present on allotment when Land Use Plan was implemented,

however, a few were observed in the past year or two which may require the allocation of AUM's in the future.

Bighorn Sheep - 6 total reasonable number

2. Wildlife Management Areas within the allotment.

West Humboldt Range - Mule Deer DY-1, Chukar, and Dove populations exist in this range along with other small game and non-game species. The placement of 7 guzzlers in the West Humboldt Range has and will further enhance dove and chukar populations.

Humboldt Range - Mule Deer DY-2 and DS-3, Chukar, other small game and non-game species.

North Stillwaters - Mule Deer DY-1, DY-3 and DS-3, Bighorn Sheep BY-1B, California Quail, Chukar populations, and other small game and non-game species.

C. Wild Horse Use:

Initial stocking level of wild horses and burros from the 1982 Sonoma-Gerlach Land Use Plan for the South Rochester Allotment

	<u>Number</u>	<u>Aum's</u>
North Stillwater HMA (NV-229)*	36	432
Humboldt HA (NV-224)**	0	0

* Only 39% of the entire North Stillwater (HMA), which occurs in both the Winnemucca and Carson City Districts, is located within the South Rochester Allotment. [Fifty-four percent of the HMA in the Winnemucca District only, occurs in the South Rochester Allotment (Sonoma-Gerlach Draft EIS, Table 2-11).] The number of horses shown above is for the South Rochester percent of the HMA.

** Humboldt HA is checkerboard land and managed for a horse population of 0.

III. **LAND USE PLAN - ALLOTMENT MANAGEMENT OBJECTIVES**

A. Livestock:

1. Manage, maintain, and improve public rangeland condition to provide forage on a sustained yield basis with an initial stocking level of 3,964 AUMs.
2. Maintain an acceptable allowable use level on key forage species that will provide a sustained yield (Sonoma-Gerlach Draft EIS, Table 1-4).
3. Improve range/ecological condition from poor to fair on 19,747 acres and from fair to good on 6,711 acres and from good to excellent on 557 acres.

B. Wildlife:

1. 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 45 AUMs for mule deer and 15 AUMs for bighorn sheep, by:
 - a. Improving or maintaining the following mule deer habitat to at least good condition in West Humboldt DY-1, Stillwater Range DY-3, and Humboldt Range DY-2.

2. Wildlife habitat management objectives for vegetation utilization shall be as follows:
 - a. Terrestrial: will not exceed levels established in the Sonoma-Gerlach EIS Table 1-4 for key species.
 - b. Wetland Riparian: shall not exceed 50% for key species. Develop a Habitat Management Plan (HMP) for the Stillwater Range.

C. Wild Horses:

1. Manage, maintain, and improve public rangeland conditions to provide an initial level of 432 AUMs of forage on a sustained yield basis for 36 wild horses in the North Stillwater HMA [Land Use Plan decision, Wild Horse and Burros 1.3 (WH&B 1.3)].
2. Remove wild horses from checkerboard land HA's unless a cooperative agreement providing for the retention and protection of wild horses is consummated with the affected land owner(s) (WH&B 1.3).
3. Manage wild horse habitat to improve range-ecological condition as listed under livestock objectives.
4. Maintain an acceptable allowable use level on key forage species that are consistent with those established for livestock and wildlife.
5. Maintain and improve the free-roaming behavior of wild horses by:
 - a. protecting their home range
 - b. assuring free access to water

IV. STILLWATER RANGE HABITAT MANAGEMENT PLAN OBJECTIVES

The Stillwater Range Habitat Management Plan (HMP) WHA-T-16 lists specific objectives for the Wildlife Habitat Area (WHA) in the Stillwater Range of the South Rochester Allotment. Maps of identified mule deer habitat and potential bighorn sheep habitat can be found in the HMP in the Winnemucca District Office.

1. Reintroduce desert bighorn sheep (Ovis canadensis nelsoni) to WHA-T-16 BY-1 during 1986.
2. Monitor bighorn sheep seasonally for a minimum of 5 years beginning in 1986 to determine population distribution and density.
3. Monitor bighorn sheep habitat seasonally for a minimum of 5 years beginning in 1986 to determine actual habitat use.
4. Provide forage and cover annually to support mule deer on a yearlong basis.
5. Raise the water suitability index for the low sagebrush/bunchgrass plant community (7000' to 7200') from 0.0 to 1.0 and the weighted water index from 0.56 to 0.62 by 1989 (Table 3, HMP).
6. Raise the visual obstruction rating for bighorn sheep in the juniper/singleleaf pinyon/mountain big sagebrush plant community from 0.05 to 0.5 by 1990 (HMP).

V. **MANAGEMENT EVALUATION**

A. Summary of Studies Data

1. Actual Use: Actual use is defined as where, how many, what kind or class of animal, and how long the animals graze on an allotment.

a. Livestock (includes public and private AUMs)

<u>Year</u>	<u>Aums</u>	<u>Cattle</u>	<u>Sheep</u>
1988	4424	4312	112
1989	4987	4844	143
1990	4494	4351	143
1991	4978	4835	143
1992	4379	4236	143
1993	3762	3651	111
1994	4627	4516	111
1995	4883	4772	111

Cattle are not required to graze specific areas. They graze the entire allotment during their season of use as prescribed under Initial Stocking Rate above. Sheep do not graze the entire allotment.

b. Wildlife Population Estimates and Trend

Nevada Department of Wildlife biologist, Philip Benolkin, provided the wildlife population and adult to fawn ratio data on the allotment. Mule deer were estimated using a population model. Bighorn Sheep population numbers were estimated without the aid of a model.

Using a population model for estimating existing numbers has several shortcomings when weighed as an indication of habitat condition or actual use. Mule deer are a highly mobile species, and may use different locations each year as a result of weather conditions, forage availability, water distribution, and stress.

Mule Deer 4 deer = 1 Aum

<u>Year</u>	<u>Est. Pop.</u>	<u>Aums</u>
1989	35	105
1990	48	144
1991	68	204
1992	70	210
1993	66	198
1994	70	210
1995	68	204

Fawn/100 Adults Ratio

<u>Year</u>	<u>Spring</u>	<u>Fall</u>
1989	16	63
1990	75	42
1991	51	--
1992	40.8	53.7
1993	27.4	39
1994	13.5	53.7
1995	19	--

Bighorn Sheep 5 sheep = 1 Aum

<u>Year</u>	<u>Est. Pop.</u>	<u>Aums</u>
1989	20	48
1990	15	36
1991	14	34
1992	10	24
1993	10	24
1994	10	24
1995	10	24

c. Wild Horses

An Interdistrict Resource Agreement between the Winnemucca (N-2), Carson City (N-3), and Battle Mountain (N-6) Districts -- AGREEMENT NUMBER BLM-MOU-NV020-62 was finalized May 22, 1995. In section B2 of the agreement, it states that the North Stillwater HMA will be administered by the Winnemucca District. This includes wild horse census and distribution flights, capture operations, and studies.

North Stillwater HMA (NV-229)

Census data were collected in September 1974, June 1977, September 1979, May 1980, September 1986 and 1988, and August 1991. The population levels for 1992, 1993, 1994, and 1995 are estimated. The 1992 estimate was established by averaging the number of horses observed on 3 distribution flights, the first being done from a Cessna 210, the second and third being done from a Maule MX-5. The table below reflects numbers observed in the South Rochester Allotment only.

<u>Year</u>	<u>Population</u>	<u>Aum's</u>	<u>Aircraft Type</u>
1974	13	156	Piper Super Cub
1977	25	300	Piper Super Cub
1979	28	336	Bell 47G3B-1
1980	29	348	Bell 47
1986	105	1260	Bell 47G3B-1
1988	85	1020	Bell 47G3B-2
1991	73	876	Bell 47G4
1992	100	1200	Estimated from average of 1992 distribution flights
1993	113	1356	Estimate
1994	126	1512	Estimate
1995	141	1692	Estimated from Cessna 210T distribution flight

Humboldt HA (NV-224)

Census data were collected in September 1974, April and June 1977, August 1980, October 1982, June 1985, August 1989 and 1991, and July 1992 and 1993. No census have been done on the Humboldt HA since 1993.

<u>Year</u>	<u>Population in Allot.</u>	<u>Aum's</u>	<u>Aircraft Type</u>
1974	20	240	Piper Super Cub
1977	124	1488	Bell 47G3B-1
1980	254	3048	Bell 47
1982	82	984	Bell Jet Ranger
1985	64	768	Bell 47B1
1989	0	0	Shrike Aero Commander
1991	10	120	Bell 47G4
1992	12	144	Bell 47G4A-1
1993	7	84	Bell 47G4A-Soloy

The Humboldt HA is a checkerboard area and not managed for horses. The appropriate management level (AML) for this herd area is 0.

Procedures for determining actual use for wild horses are described in Appendix 1.

2. Wild Horse Removal Data

There have been no authorized removals of wild horses from the North Stillwater Range since the passage of the 1971 Wild and Free-Roaming Horse and Burro Act. However, there have been several removals from the Humboldt HA since the passage of the act in an attempt to keep this checkerboard area horse free. No cooperative agreement providing for the retention and protection of wild horses was consummated with the private land owner(s), but a letter received from them requesting the removal of wild horses is on file in the Winnemucca District Office (43 CFR 4720.2-1).

Humboldt HA

<u>Year</u>	<u>No. Removed*</u>
1980	239
1981	247
1982	554
1985	665
1987	23
1993	173

* No. removed reflects total number removed from the whole HA, not just those removed within the allotment.

3. Climatological Data

Climatological data were collected at various National Oceanic and Atmospheric Administration (NOAA) stations and at two Remote Automated Weather Station (RAWS) for a period ranging from 1987 through 1993. Climatological data were used to help interpret use pattern mapping data.

From 1987 until 1994 or so the state of Nevada experienced adrought. This effected the vegetative resource in many ways. It caused reduction in plant growth, seedling development, plant vigor, quality and quantity in varying degrees and in different areas of the country. Springs and creeks had reduced flow.

In the South Rochester Allotment the annual percent of normal precipitation was generally below average in 1989, 1991, 1992, and probably in 1994, judging from the limited amount of data available. The growing season percent of precipitation was below average in 1989, 1992, and 1994, but above average in 1987, 1988, 1990, 1991, and 1993. Winter

precipitation was below average throughout the period data were collected except for 1988 and 1993. In general below average winter precipitation results in increased windblown erosion, reduced soil moisture content, and lower spring flows. No specific measurements however, were monitored during this period. See Appendix II for complete data.

4. Utilization

Use Pattern Mapping

Use Pattern Mapping (UPM) was used to determine levels of use throughout the allotment. The procedures used to collect this data can be found in the Nevada Rangeland Monitoring Handbook and BLM Handbook TR-4400-3. These data are used to document the effectiveness of management and to determine carrying capacity. Coupled with climatological data (Appendix II), we can determine if moisture and/or heat contributed to an area receiving heavy or severe use. The analysis summary of the UPM data is below; the data and the use pattern maps can be found in the South Rochester Allotment and the North Stillwaters HMA monitoring files.

UPM data for this evaluation was collected using six use classes: no use (0%), slight use (1-20%), light use (21-40%), moderate use (41-60%), heavy use (61-80%) and severe use (81-100%).

Area Mapped Outside HMA

<u>Date Mapped</u>	<u>Use Class</u>	<u>Acres</u>	<u>Percent*</u>
<u>Total 1991 Use</u> 4/92	No App. Use	37,106	86%
	Moderate	2,662	6%
	<u>Heavy</u>	<u>3,562</u>	<u>8%</u>
	Total	43,330	100%
<u>Fall 1992</u> 11/92	No App. Use	933	6%
	Slight	8,998	59%
	Moderate	790	5%
	<u>Heavy</u>	<u>4,609</u>	<u>30%</u>
	Total	15,330	100%
<u>Total 1995 Use</u> 3-5/96	No App. Use	28,763	54%
	Slight	22,083	42%
	Light	2,125	4%
	Moderate	0	0%
	Heavy	0	0%
	<u>Severe</u>	<u>25</u>	<u><1%</u>
	Total	52,996	100%

Area Mapped Within HMA

The North Stillwater HMA constitutes 28% of the allotment.

<u>Total 1991 Use</u>	<u>Use Class</u>	<u>Acres</u>	<u>Percent</u>
4/92	No App. Use	11,903	72%
	Moderate	1,349	8%
	Heavy	2,237	14%
	<u>Severe</u>	<u>1,053</u>	<u>6%</u>
	Total	16,542	100%

<u>Fall 1992</u>			
11/92	No App. Use	6,639	13%
	Slight	6,135	12%
	Light	19,391	38%
	Moderate	17,617	35%
	Heavy	775	2%
	<u>Severe</u>	<u>20</u>	<u><1%</u>
	Total	50,577	100%

<u>Fall 1994</u>			
11/94	Slight	524	96%
	<u>Severe</u>	<u>20</u>	<u>4%</u>
	Total	544	100%

<u>Total 1995 Use</u>			
3-5/96	No App. Use	21,511	39%
	Slight	21,605	39%
	Light	8,599	15%
	Moderate	3,762	7%
	Heavy	321	<1%
	<u>Severe</u>	<u>0</u>	<u>0.0%</u>
	Total	55,798	100%

* This is the percentage of the total area mapped on the dates shown, not the percentage of the allotment in the use class.

Total percent of Allotment mapped annually

Total 1991 use = 59,872 acres = 23% mapped
 Fall 1992 use = 65,907 acres = 26% mapped
 Total 1995 use = 108,794 acres = 43% mapped

5. Trend

There are no trend studies established on this allotment.

6. Ecological Site Inventory

An ecological site is a distinctive kind of rangeland that differs from other kinds of rangeland in its

ability to produce a characteristic natural plant community. An ecological site is the product of all environmental factors responsible for its development. It is capable of supporting a native plant community typified by an association of species that differ from that of other range sites in the kind or proportion of species or in total production.

Ecological sites are a basic component of rangeland inventories. They are ecological subdivisions into which rangeland is divided for study, evaluation, and management. The ecological site map provides the basic ecological data for planning the use, development, rehabilitation, and management of the rangeland.

Ecological site information can be interpreted as a suitability of a site for a single use as grazing or many other uses such as: wildlife habitat, recreation, natural beauty, watershed, and open space. Ecological Site Inventory (ESI) data was used to develop Desired Plant Communities (DPC). Desired Plant Communities are the plant communities that produce the kind, proportion and amount of the vegetation necessary for meeting or exceeding the Land Use Plan goals and activity plan objectives established for the site.

The ecological site inventory for South Rochester Allotment was completed in 1992. It found 31 different ecological site types on the allotment. The following lists the overall acreage and percentages by seral stage for the allotment.

<u>Seral Stage</u>	<u>Acres</u>	<u>Percentage</u>
Early	4,984.1	1.9
Mid	54,339.5	21.3
Late	131,342.7	51.4
Potential	15,839.6	6.2
Barren	39,069.2	15.3
Woodlands	<u>9,956</u>	<u>3.9</u>
TOTAL ACRES	255,531.1	100%

The following table summarizes the characteristics of the predominate ecological sites and accounts for 62% of the acreage within the allotment. Complete ecological site information may be found in Appendix III.

Ecological Site Summary Table

<u>Site Number & Name</u>	<u>Total annual air-dry production</u>	<u>Seral Stage</u>	<u>Percent of site</u>	<u>Lifeform percentages at PNC</u>	
027XY013 Loamy 4-8" P.Z.		<u>lbs/ac</u>	PNC	0%	Grasses - 35%
	Favorable yrs	600	Late	51%	Forbs - 5%
	Normal yrs	450	Mid	48%	Shrubs - 60%
	Unfavor. yrs	250	Early	>1%	
Total acres of 027XY013 = 60,789 acres or 24% of the allotment					
027XY024 Sodic Terrace 3-8" P.Z.		<u>lbs/ac</u>	PNC	0 ac / 0%	Grasses - 25%
	Favorable yrs	500	Late	27560 ac / 57%	Forbs - 5%
	Normal yrs	350	Mid	14286 ac / 35%	Shrubs - 70%
	Unfavor. yrs	150	Early	3809 ad / 8%	
Total acres of 027XY024 = 48,510 acres or 19% of the allotment					
027XY018 Gravelly Loam 4-8" P.Z.		<u>lbs/ac</u>	PNC	0 ac / 0%	Grasses - 30%
	Favorable yrs	400	Late	25078 ac / 100%	Forbs - 5%
	Normal yrs	250	Mid	0 ac / 0%	Shrubs - 65%
	Unfavor. yrs	100	Early	0 ac / 0%	
Total acres of 027XY018 = 25,078 acres or 10% of the allotment					
027XY019 Stony Slope 4-8" P.Z.		<u>lbs/ac</u>	PNC	6546 ac / 30%	Grasses - 25%
	Favorable yrs	300	Late	15256 ac / 70%	Forbs - 5%
	Normal yrs	175	Mid	0 ac / 0%	Shrubs - 70%
	Unfavor. yrs	50	Early	0 ac / 0%	
Total acres of 027XY019 = 21,803 acres or 9% of the allotment					

Following is a brief description of each major ecological site.

Ecological Site 027XY013

The site occurs on piedmont slopes, alluvial plains, and relict alluvial flats. Slopes range from 2 to 30% and elevations from 4000 to 5000 feet. Twenty-four percent of the allotment is made up of this site. Dominating the plant community are shadscale, bud sagebrush, and Indian ricegrass. Where management results in abusive livestock use, Bailey greasewood, shadscale, and Douglas rabbitbrush increase, as Indian ricegrass, winterfat and bud sagebrush decrease. Further abuse, particularly in late-winter/early-spring, will result in shadscale decreasing. Where surface soils are high in silt content, Sandberg bluegrass is most prevalent. Invader species on this site include halogeton, Russian thistle, cheatgrass, and annual mustards. The majority of this site is in late and mid seral condition, 51% and 48% respectively, with a small percentage in early seral condition. There is a predominate amount of shadscale. Cheatgrass and halogeton, both invader species, dominate the grasses and forbs.

Ecological Site 027XY024

This site occurs on fan skirts, beach terraces, beach plains, alluvial flats, and lake plain terraces. Elevations are 3300 to 4500 feet. Nineteen percent of the allotment is made up of this site. The plant community is dominated by shadscale, black greasewood and Indian ricegrass. As ecological condition deteriorates due to abusive livestock management, Indian ricegrass and bottlebrush squirreltail decrease while shadscale and black greasewood increases. Species likely to invade this site are halogeton, annual mustards and cheatgrass. Fifty-seven percent of this site is in a late seral condition with the rest in mid and early. Most of these sites on the allotment are dominated by shrubs, namely shadscale and greasewood, with very few forbs and no perennial grasses. Some cheatgrass and a predominate amount of halogeton occur on this allotment.

Ecological Site 027XY018

This site occurs on piedmont slopes ranging from 0 to 30 degrees. Elevations are 3400 to 5000 feet. Seven percent of the allotment is made up of this site. The plant community is dominated by Bailey greasewood, shadscale, and Indian ricegrass. As ecological conditions deteriorate, Bailey greasewood and shadscale will increase while Indian ricegrass and other palatable grasses and shrubs decrease. Species most likely to invade this site are cheatgrass and annual mustards. One-hundred percent of this site in the South Rochester Allotment is in late seral condition. The presence of Bailey greasewood, shadscale, and some palatable grass species, excluding Indian ricegrass, is highly evident, as is a lack of invader species.

Ecological Site 027XY019

This site occurs on lower mountains, hills and piedmont slopes on all aspects. Slopes range from 8 to 75 percent with elevations ranging from 3400 to 5000 feet. The native vegetation community is dominated by Bailey greasewood, shadscale, and Indian ricegrass. When disturbance from erosion or grazing cause a decline in ecological condition, shadscale, littleleaf horsebrush, and Bailey greasewood increase as Indian ricegrass decreases. Cheatgrass is the vanguard invader species. Ecological site 027XY019 covers 13% of the allotment. It is predominately in late seral condition. However, forbs are almost nonexistent; in some areas shadscale and greasewood are increasing; Indian ricegrass is nonexistent, but the incidence of cheatgrass is low.

7. Wildlife Habitat

Wildlife habitat monitoring data consisted of utilization data collected in summer and fall 1993. About 2.4 miles of riparian were found to be in moderate condition in August of 1993, and about 11 acres of upland meadow received severe use by November 1993. No wildlife trend data were collected during the evaluation period.

8. Water Inventory

A water inventory was done from 1979 through 1986. It identifies 25 perennial springs, 12 intermittent springs, 1 well, 2 perennial seeps, 6 intermittent seeps, and 2 pipelines. In addition to the data provided by the inventory there are at least 4 more perennial springs.

9. Fisheries Habitat

No streams within the South Rochester Allotment have been designated to be managed as fisheries habitat by the Land Use Plan and no fish population or habitat inventories were conducted during the evaluation period.

10. Threatened & Endangered Species

- a. Flora - There are no threatened or endangered species in South Rochester Allotment. A list of candidate species can be found in Appendix IV.
- b. Fauna - There are no threatened or endangered species in South Rochester Allotment. A list of candidate species can be found in Appendix IV.

11. Wild Horse Distribution

Data on the distribution of wild horses has been collected from the ground and by aircraft (helicopter and fixed-wing) since 1974. Aerial distribution maps are on file in the Winnemucca District Office. Appendix V describes the methodology, results of each distribution flight, date flown, type of aircraft, and the number of horses observed.

North Stillwater's wild horses are generally found in the southern half of that portion of the HMA occurring in the South Rochester Allotment, with an occasional few in the north half. During spring and summer months they may locate at any elevation, and very rarely they may disperse themselves from north to south and from upper to lower elevation. The two times they've been observed from the ground in the fall, they've been in the south half of the allotment around Fencemaker Canyon and Mustang Springs, and around the mouth of Logan Canyon both times at lower elevations. In the winter they generally stay in mid to lower elevations and generally move between available water and forage with no particular pattern of movement.

12. Mining

Two working mines, Coeur Rochester and Relief Canyon Mines, as well as several abandoned mines are located partially or wholly within the boundaries of the allotment.

Coeur Rochester Mine is a large silver mine located in T28N, R34E, Sections 9, 10, 11, 15, 16, 21, and 22, MDB&M. The mine disturbance is limited to the adjacent Rawhide and Coal Canyon - Poker Allotments. No mine disturbance occurs within the Rochester Allotment. However, a small portion of the Coeur Rochester project area, within the plan of operations boundary, extends into the Rochester Allotment in sections 22 and 27 of T28N, R34E. No future disturbance is planned by Coeur Rochester Mine within the Rochester Allotment. The portion of the project within the Rochester Allotment is not fenced.

Relief Canyon Mine is located at the southern end of the Humboldt Range, T. 27 N., R. 34 E., in portions of sections 16, 17, 18, 19, and 20. Mining was initiated in 1984 and ceased in 1990. Reclamation in the area of the open pits and waste dumps was initiated in the fall of 1990. The heap leach pads have been considered rinsed since October 1993. The current owner of the mine, Newgold, Inc., intends to resume mining and cyanide heap leaching in the near future.

Total area disturbed by the project is approximately 300 acres. The waste dumps comprise approximately 60 acres of disturbance. They have been recontoured, seeded, and are about 25% revegetated. Selected areas of the waste dumps had manure applied. The open pits consist of 70 acres. The open pits are more or less inaccessible, and have not revegetated. The heap leach, pond, and plant areas are completely fenced with a 4 strand barbed wire fence and consist of 70 acres. The ponds are fenced with chain link. With the exception of heap rinsing, no reclamation has been completed in that part of the project site. The remaining disturbed acreage consists of the haul road and other access roads. These have been partly recontoured, seeded and revegetated.

The mine supplies water to livestock and wildlife via a pipeline that tee's from the water tank to the processing plant. The water is piped to a location immediately south of the water tank, outside the fenced area.

13. Hazardous Materials

American Antimony Company has a mill site in Buena Vista Valley.
Antimony storage - status - Rod

14. Range Improvement Projects

<u>Project</u>	<u>Status*</u>	<u>Legal Description</u>
Logan Spring Pipeline	F	T25,26N, R36E, Sec.29,30,4,5
Antelope Spring	F	T26N, R34E, Sec. 4 NW¼ of SE¼
Muttlebury Well	F	T26N, R33E, Sec.10 NE¼ of NE¼
Cry Aloud Spring	F - NM - Pvt.	T27N, R34E, Sec. 5
Packard Flat Well	F	T27N, R33E, Sec.24 SW¼ of SW¼

* F = functional
 NM = needs maintenance
 U = unknown
 Pvt. = private

15. Other

1. Cultural

a. Several areas in the North Stillwater Range have been identified by the Lovelock Paiute as being areas where their people have traditionally collected pinyon pine nuts. The Paiutes are concerned that the wood cutting and Christmas tree cutting is and will jeopardize their traditional use of the area.

2. Forestry

a. Fifteen to twenty wood cutting permits are issued annually in the North Stillwaters.

b. Christmas Tree permits average between 400 and 450 annually in the North Stillwater Range.

VI. EVALUATION OF OBJECTIVES

A. Evaluation of Allotment Management Objectives

1. Livestock:

a. Manage, maintain, and improve public rangeland condition to provide forage on a sustained yield basis with an initial stocking level of 3,964 AUM's.

This objective has been met. The full complement of 3,964 AUM's was available on public lands during the evaluation period. The majority of the allotment, 51%, has been determined to be in a late seral condition which supports this use on a sustained yield basis.

b. Maintain an acceptable allowable use level on key forage species that will provide a sustained yield.

c. Improve range/ecological condition from poor to fair on 19,747 acres and from fair to good on 6,711 acres and from good to excellent on 557 acres.

2. Wildlife:

a. 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 45 AUMs for mule deer and 15 AUMs for bighorn sheep, by:

1. Improving or maintaining the following mule deer habitat to at least good condition in West Humboldt DY-1, Stillwater Range DY-3 and Humboldt Range DY-2.

b. Wildlife habitat management objectives for vegetation utilization shall be as follows:

1. Terrestrial: will not exceed levels established in the Sonoma-Gerlach EIS Table 1-4 for key species.
2. Wetland Riparian: shall not exceed 50% for key species. Develop an HMP for the Stillwater Range.

WHA-T-16 Stillwater Range Habitat Management Plan was developed and approved by the Sonoma-Gerlach Resource Area Manager July 23, 1986.

3. Wild Horses:

- a. Manage, maintain, and improve public rangeland conditions to provide an initial level of 432 AUMs of forage on a sustained yield basis for 36 wild horses in the North Stillwater HMA.
- b. Manage wild horse habitat to improve range-ecological condition as listed under livestock objectives.
- c. Maintain an acceptable allowable use level on key forage species that are consistent with those established for livestock and wildlife.
- d. Maintain and improve the free-roaming behavior of wild horses by protecting and enhancing their home ranges.
- e. Maintain and improve wild horse habitat by assuring free access to water.

This objective was accomplished.

B. Evaluation of WHA-T-16 Stillwater Range Habitat Management Plan Objectives

1. Reintroduce desert bighorn sheep (Ovis canadensis nelsoni) to WHA-T-16 BY-1 during 1986.

This objective has been accomplished. There have been a total of 4 reintroductions of desert bighorns made into the N. Stillwater Range by the Nevada Department of Wildlife. The reintroductions were all made from the Carson City District allotments of Hare Canyon in 1985, Mississippi Canyon in 1986, Boyer Ranch's Bell Mare Canyon in 1987, and Cottonwood in 1989. All reintroductions were made on the east slopes of the North Stillwater Range.

2. Monitor bighorn sheep seasonally for a minimum of 5 years beginning in 1986 to determine population distribution and density.

This objective was not met. However, wildlife monitoring is the responsibility of the Nevada Department of Wildlife and is not within the scope of this evaluation.

3. Monitor bighorn sheep habitat seasonally for a minimum of 5 years beginning in 1986 to determine actual habitat use.
4. Provide forage and cover annually to support mule deer on a yearlong basis.
5. Raise the water suitability index for the low sagebrush/bunchgrass plant community (7000' to 7200') from 0.0 to 1.0 and the weighted water index from 0.56 to 0.62 by 1989 (Table 3, HMP).
6. Raise the visual obstruction rating for bighorn sheep in the juniper/singleleaf pinyon/mountain big sagebrush plant community from 0.05 to 0.5 by 1990 (HMP).

VII. CONCLUSIONS

*. Wildlife

Reduction in Bighorn Sheep numbers in this allotment could be due to movement between allotment and/or district, or to drought conditions during the years since introduction.

*. Wild Horses

Fluctuation of population numbers in the Rochester part of the North Stillwater HMA is undoubtedly due to natural drift of bands across allotment and district boundary lines within the HMA. Heavy

* TO BE COMPLETED

VIII. **RECOMMENDATIONS**

A. Technical Recommendations

1. Carrying Capacity
2. Grazing System

B. Range Improvements

1. Grayson Springs - potential development project
2. Possible spring protection of spring complex in Cornish Canyon
3. Rabbits for Kitten Springs
- 4.

C. Allotment Objectives

1. Short Term
2. Long Term
3. Desired Plant Community Objectives

D. Recommended Management Actions

The establishment of water developments, springs and/or guzzlers, would enhance populations of big game species, upland birds, and non-game species.

E. Wildlife Monitoring

F. Wild Horse Monitoring

Continue collecting wild horse census and seasonal distribution data, budget allowing, to determine population trends (reproductive rates, recruitment rates, etc.) and seasonal use areas. Wild horse monitoring should be conducted as follows:

1. Census every three years following the foaling season.
2. Aerial distribution mapping, budget allowing, every three years with flights conducted in January, April, July, and October; or flights conducted in winter and summer, as an alternative.
3. On the ground distribution mapping every three years. On the ground distribution mapping will supplement or possibly replace aerial distribution mapping, and provide more specific population information on band size and composition.

G. TO BE COMPLETED

H. Set Schedule for Next Evaluation

APPENDIX 1

Wild Horse Actual Use Procedures

In an affidavit to the Interior Board of Land Appeals in 1992, the Nevada State Director for the BLM stated that Nevada has no written policy with regard to distinguishing between foals and adults in compilation of census data, establishing appropriate management levels or determining the number of animals to be removed. However, it is and has been BLM Nevada's practice to include foals for total counts and as part of the number of horses remaining after a removal. Foals are included in the determination of actual use and appropriate management levels for wild horses because they are consuming forage during the year counted (Summary Order IBLA 92-241, Oct. 15, 1992).

Actual use data for wild horses is derived from the total number of horses (adults and foals) inhabiting a Herd Management Area multiplied by 12 months (March 1 through February 28). The number of wild horses is based on the most recent helicopter census. For years in which an aerial census is not conducted a population estimate is calculated by multiplying the previous year's census or population estimate by 11% as outlined in the Draft Sonoma-Gerlach Grazing Environmental Impact Statement. The 11% rate of increase is based on an analysis of helicopter census data collected by experienced personnel in the Sonoma-Gerlach Resource area in 1974, 1977, and 1980, verified by data gathered during wild horse and burro removals.

Census population is obtained by utilizing a helicopter to conduct a direct count of all adults and foals found within the HMA. This method assumes complete coverage of the HMA and observation of all animals. However, Cauley (1974) found in his study and literature search that the closest an aerial survey ever came to the actual population size was 89%. Wagner reported that studies conducted in four horse management areas (Nevada - 2, Oregon and Wyoming) showed about 93% accuracy in areas of low vegetation and moderate terrain, while 60% of the animal in wooded and mountainous topography were missed (TRANSACTIONS of the Forty-eighth North American Wildlife and Natural Resources Conference). Actual use is calculated on the total census population, per Nevada State Office policy.

When conducting a census, an HMA is flown in a modified transect pattern utilizing topography and natural or man-made barriers to ensure complete coverage and that animals are not counted twice.

APPENDIX II

CLIMATOLOGICAL DATA

The following table describes the amount of precipitation for the entire water year, the growing season, the winter season, and the percent of normal precipitation recorded at Antelope Valley, Fallon Experimental Station, Lovelock, Lovelock Airport, and Rye Patch Dam NOAA weather stations from 1987 through 1993, at Siard RAWS weather station from 1987 through 1992, and at Red Butte RAWS weather station from 1990 through 1992.

STATION	ELEVATION	ANN. NORM ₁	GROW NORM ₂	WINTER NORM ₃
Antelope Valley	4901'	6.42	3.16	2.55
Fallon Exp. Stn.	3965'	5.06	2.47	1.90
Lovelock	3975'	5.52	2.44	2.24
Lovelock AP*	3900'	4.82	2.41	1.82
Red Butte RAWS**	5050'	4.27	2.60	1.17
Rye Patch Dam	4135'	7.69	3.95	2.77
Siard RAWS	4600'	5.85	3.60	1.77
<u>1987</u>	<u>Ann. %/Norm</u>	<u>Grow %/Norm</u>	<u>Win. %/Norm</u>	
Antelope Valley	6.70l 104%	5.04e 159%	1.44c 56%	
Fallon Exp. Stn.	4.18 83%	3.34 135%	0.72 38%	
Lovelock	5.42 98%	4.64 190%	0.73 30%	
Lovelock AP***				
Red Butte RAWS***				
Rye Patch Dam	9.22a 120%	6.64a 168%	2.58 93%	
Siard RAWS	5.20 89%	4.40 122%	0.70 40%	
<u>1988</u>	<u>Ann. %/Norm</u>	<u>Grow %/Norm</u>	<u>Win. %/Norm</u>	
Antelope Valley	7.93r 124%	3.49 110%	4.27m 167%	
Fallon Exp. Stn.	6.08a 120%	3.43 139%	1.75a 92%	
Lovelock	7.17 130%	3.44 141%	2.49 111%	
Lovelock AP	***	2.47 102%	***	
Red Butte RAWS***				
Rye Patch Dam	9.16j 119%	5.19 131%	2.66j 96%	
Siard RAWS	7.40 126%	3.80 106%	3.00 170%	
<u>1989</u>	<u>Ann. %/Norm</u>	<u>Grow %/Norm</u>	<u>Win. %/Norm</u>	
Antelope Valley	3.18z 50%	0.48z 15%	1.29p 51%	
Fallon Exp. Stn.	5.52 109%	2.57 104%	2.25 118%	
Lovelock	5.00 91%	2.69 110%	1.59 71%	
Lovelock AP	3.63 82%	1.60 60%	0.44 44%	
Red Butte RAWS***				
Rye Patch Dam	5.45 71%	2.81 71%	2.61 94%	
Siard RAWS	5.40 92%	2.40 67%	1.60 91%	
<u>1990</u>	<u>Ann. %/Norm</u>	<u>Grow %/Norm</u>	<u>Win. %/Norm</u>	
Antelope Valley	5.29g 82%	4.01c 127%	0.82d 32%	
Fallon Exp. Stan.	5.32 105%	3.73 151%	0.94 49%	
Lovelock	5.65 102%	4.13 169%	0.85 38%	
Lovelock AP	4.69 106%	3.36 123%	1.18 119%	
Red Butte RAWS	4.50 105%	3.20 123%	1.00 86%	
Rye Patch Dam	7.39z 96%	5.77 146%	0.99z 36%	
Siard RAWS	6.60 113%	4.80 133%	1.60 91%	
<u>1991</u>	<u>Ann. %/Norm</u>	<u>Grow %/Norm</u>	<u>Win. %/Norm</u>	
Antelope Valley	3.64z 57%	2.48k 78%	1.16b 46%	
Fallon Exp. Stn.	3.42 68%	2.08 84%	1.06 56%	
Lovelock	4.91 89%	2.92 120%	1.10 49%	
Lovelock AP	5.16 117%	2.91 109%	1.32 133%	

Red Butte RAWS	3.60	84%	2.60	100%	0.90	77%
Rye Patch Dam	8.59	112%	5.81	147%	2.06	74%
Siard RAWS	4.30	74%	2.40	67%	0.80	45%

<u>1992</u>	<u>Ann. %/Norm</u>		<u>Grow %/Norm</u>		<u>Win. %/Norm</u>	
Antelope Valley	6.75p	105%	2.48	78%	2.50a	98%
Fallon Exp. Stn.	3.81	75%	2.34	95%	1.44	76%
Lovelock	3.04	55%	1.72	70%	1.18	53%
Lovelock AP	3.05	69%	1.65	62%	0.72	73%
Red Butte RAWS	4.70	110%	2.00	80%	1.60	137%
Rye Patch Dam	6.30	82%	3.59	91%	2.40	87%
Siard RAWS	6.20	106%	3.80	106%	1.70	96%

<u>1993</u>	<u>Ann. %/Norm</u>		<u>Grow %/Norm</u>		<u>Win. %/Norm</u>	
Antelope Valley	7.14n	111%	2.94	93%	3.92n	154%
Fallon Exp. Stn.	6.12e	121%	3.13c	127%	2.27b	119%
Lovelock	5.92a	107%	3.10	127%	2.56a	114%
Lovelock AP	5.55	126%	3.49	130%	1.81	183%
Red Butte RAWS***						
Rye Patch Dam	9.11p	118%	4.05	103%	4.03	145%
Siard RAWS***						

<u>1994</u>	<u>Ann. %/Norm</u>		<u>Grow %/Norm</u>		<u>Win. %/Norm</u>	
Antelope Valley***						
Fallon Exp. Stn.	4.88c	96%	2.55c	103%	1.51	79%
Lovelock	3.66	66%	1.97	81%	0.80	36%
Lovelock AP	***		***		0.46	46%
Red Butte RAWS***						
Rye Patch Dam	5.66k	74%	2.99	76%	1.36k	49%
Siard RAWS***						

¹ Annual is October - September

² Growing Season is March - August

³ Winter Snowfall is November - February

a = missing 1 days data

b = missing 2 days data

c = missing 3 days data, ...etc..

z = missing 26 days data or more

* AP = Airport

** 3 years data available only

*** No data available

APPENDIX III

Ecological Site Inventory Data

APPENDIX III

Ecological Site Inventory Summary

Summary

Early Seral Stage = 4,984.1 acres = 1.9% of the allotment
Mid Seral Stage = 54,339.5 acres = 21.3% of the allotment
Late Seral Stage = 131,342.7 acres = 51.4% of the allotment
PNC = 15,839.6 acres = 6.2% of the allotment
206,505.9 acres = 80.8%

Barren, Pinyon/
Juniper, Woodland = 49,025.2 acres = 19.2% of the allotment
255,531.1 acres = 100% of the allotment

TO BE COMPLETED

APPENDIX IV

Candidate Species List

	<u>Federal Status</u>	<u>Common Name</u>	<u>Scientific Name</u>
Mammals	2	pygmy rabbit	<i>Brachysagus idahoensis</i>
	2	spotted bat	<i>Euderma maculatum</i>
Birds	2	northern goshawk	<i>Accipiter gentilis</i>
	2	black tern	<i>Chilidonias niger</i>
	2	loggerhead shrike	<i>Lanius ludovicianus</i>
	2	white-faced ibis	<i>Plegadis cnihi</i>
	2	ferruginous hawk	<i>Buteo regalis</i>
	2	western least bittern	<i>Ixobrychus exilis hesperis</i>
Plants	2	windloving buckwheat	<i>Eriogonum anemophilum</i>
	2	Nevada oryctes	<i>Oryctes nevadensis</i>
	2	Eastwood's milkweed	<i>Asclepias easwoodiana</i>

Sensitive Species List

	<u>Recommended Status*</u>	<u>Common Name</u>	<u>Scientific Name</u>
Plants	T**	Lahontan milkvetch	<i>Astragalus porrectus</i>
	T	smooth phacelia	<i>Phacelia glaberrima</i>

* Recommended by Nevada Threatened and Endangered Plants workshop held in Reno, NV on November 2, 1979

** E - endangered

T - threatened

S - species of special concern

APPENDIX V

Aerial Distribution Mapping

When collecting distribution data by fixed-wing aircraft the objective is to identify those areas that wild horses are utilizing at that point in time, not to obtain a count as accurate as a helicopter census. The entire HMA is flown in a transect pattern with the flight lines ranging from 1/2 mile to 2 miles apart depending on visibility and flight conditions. In steep mountainous country the straight line transects are modified to follow the topography of the area to ensure complete coverage. Aircraft altitude ranged from approximately 300 to 600 feet above ground level, depending on visibility and local flight conditions.

During the evaluation period data was collected from four different fixed-wing aircraft: Piper Super Cub, Maule MX-5, Shrike Aero Commander, and Cessna 210. In addition to the fixed-wing distribution data, each census provides distribution information on wild horses. When utilizing the Cessna 210, there were two observers on board, one individual recorded flight lines, animal locations, and the number of animals (adults and foals) seen at each location, while the other individual did the counting. In areas of high concentrations a total count of all bands was recorded on the map rather than each individual band.

When conducting a flight using the Maule MX-5 there were two observers on board and the pilot. Distribution data collected by the Maule was stored in an on-board computer system. As horses were seen, the observers called out the number of adults and foals to the pilot who entered the data into the on-board computer system. The computer recorded the number of horses seen, their location by latitude and longitude using a global positioning system, and any remarks the observer wanted to record for a specific sighting. One the flight was completed, the results were printed and transferred by hand to an HMA map. This system does not record the general flight path as is done when recording manually in the Cessna. Again, in areas of high concentrations a total count of all bands is recorded in the computer systems.

The following tables show the results of each flight and the type of aircraft used to map wild horse distributions. Census and distribution maps showing the animals locations can be found in the North Stillwater HMA and study files and the Humboldt/West Humboldt HA file in the Winnemucca District Office.

North Stillwater HMA

<u>Date</u>	<u>Number Observed</u>	<u>Aircraft Type</u>
9/74	13	Piper Super Cub
6/77	25	Piper Super Cub
3/79	28	Bell 47G3B-1
5/80	29	Bell 47G3B-1
9/86	105	Bell 47G3B-1
9/88	85	Bell 47G3B-2
8/91	73	Bell 47G4
2/92	37	Cessna 210
5/92	156	Maule MX-5
7/92	110	Maule MX-5
8/95	141	Cessna 210T

DEFINITION: Elevations range from 4,200 to 7,000 feet and are differentiated into 3 categories: low, middle, and upper elevations. Low elevations range between 4,000 and 5,000 feet, mid elevations between 5,000 and 6,000 feet, and upper elevations between 6,000 and 7,000 feet.

September 1974

All the horses were found at upper elevations in the south part of the HMA.

June 1977

The horses were all located in the southern part of the HMA with 10 found at upper elevations and the rest at mid elevations.

March 1979

Horses were observed mid to lower elevations. Concentrations were seen around Red Hill and around Logan Springs. All were in the south part of the HMA.

June 1980

All horses were found in the south part of the allotment at mid elevations; most were around Logan Springs with a few observed near Fencemaker Pass.

September 1986

Most of the horses were distributed over the entire HMA on the west side of the North Stillwater Range. About 35 horses were observed at upper elevations, a few at middle elevations, and about the same number as at upper elevations were located at lower elevations.

September 1988

Of the 85 or so horses seen on South Rochester's part of the HMA about 25 were at mid to upper elevations and the rest were scattered between 4,300 and 5,000 feet.

August 1991

Eleven were observed at mid elevations, and the rest were found between 4,400 and 5,000 feet in the southern end of the HMA.

February 1992

A total of 37 horses were all observed at middle elevations with the largest concentration of 20 in the Hughes Canyon area. Only 4 were seen in the north end of the HMA about 2 miles from Grayson Spring.

May 1992

Main concentrations of horses were observed at the mouth and up into Logan Canyon between 4,500 and 5,800 feet, and on the valley floor.

July 1992

All the horses were at lower elevations. The greatest concentration was between the mouths of Hughes and Cornish Canyons trailing out into the desert.

August 1995

All the horses were observed at lower elevations and on the flats, with the exception of 3 adults on Table Mountain. All, except for 6 adults and 3 foals, were in the southern half of the HMA.

Humboldt HMA

<u>Date</u>	<u>No. Observed in Allotment</u>	<u>Aircraft Type</u>
9/74	20	Piper Super Cub
4&6/77	124	Piper Super Cub
8/80	254	Bell B-1
10/82	82	Bell Jet Ranger
6/85	64	Bell 47B-1
8/91	10	Bell 47G4-Soloy
1/92	16	Cessna 210
7/92	12	Bell 47G4A
6/93	7	Bell 47G4A-Soloy

September 1974

Horses were observed at lower to mid elevations along allotment boundary lines. About 17 additional horses were located at similar elevations just outside the boundary lines.

April and June 1977

A few horses were seen at lower to mid elevations at the southern end of the Humboldt Range. Most of the others were seen in concentrations on Packard Flat or in the mid to upper elevations north and west of Muttlebury Spring with a few

August 1980

Concentrations of horses occurred in Packard Flat and up the southwestern slopes of the Humboldt Range to mid elevations, as well as at mid elevations north and west of Muttlebury Spring on both sides of the allotment boundary line. There were small concentrations scattered along the east side of the West Humboldt Range within the allotment at lower to mid elevations.

October 1982

Most of the horses were found at mid and upper elevations in concentrations along the west and south end of the Humboldt Range within the allotment and north and west of Muttlebury Spring within the allotment. Mostly smaller concentrations were found scattered down the eastern side of the West Humboldt's.

June 1985

Horses were concentrated mostly at mid and upper elevations north and west of Muttlebury Spring with some around the spring itself.

August 1989

No horses were found inside the allotment boundaries during this census.

August 1991

Two small, separate bands were observed at upper elevations in the south end of the Humboldt Range.

January 1992

Sixteen horses in three separate bands were seen in the allotment on the Humboldt Range. They were all at mid elevations.

July 1992

Three small bands were found on the lower end of the Humboldts at mid elevations.

June 1993

One band of seven were seen at upper elevations and on the allotment boundary in the Humboldt Range.

APPENDIX VI

Ground - Horse Observations & Distribution Mapping

<u>Date</u>	<u>Number Observed</u>	<u>Observer</u>
3/88	38	LLoyd Munson
3/90	54	Kathy McKinstry
7/90	37	Kathy McKinstry
1/91	6	P.Wiltse, D.Owen
5/91	104	Kathy McKinstry
2/92	237	Dale Owen
4/92	80	Leigh Redick
11/94	31	N.Jackson, L.Redick
6/95	109	Nadine Jackson

March 1988

All horses were observed between Logan Canyon and Big Ben Canyon. Fifteen were observed at elevations between 5300 and 6000 feet with the rest down to 4700 feet.

March 1990

Twenty-one horses were observed about 1 mile east of Buena Vista windmill while the other 33 were situated between Kitten Springs road and Big Ben Canyon out to the flats at about 4700 feet; 25 of these were around Logan Canyon.

July 1990

Six horses were observed around the mouth of Logan Canyon, while 31 were about 2 1/2 miles northeast of Chocolate Butte.

January 1991

Six horses were found adjacent to Fencemaker Pass road at the lower end of Fencemaker Canyon - elevation about 4500 feet. Conditions were snowy and roads were generally impassable, preventing further observation.

May 1991

Four horses were seen near Grayson Spring, the remaining 100 were observed between the mouths of Logan Canyon and Big Ben Canyon. Most were at about 5000 feet with 19 on the fans between the canyons.

February 1992

Thirty-two horses were adjacent to Fencemaker Pass road about a mile from Mustang Spring. The rest (205 horses) were observed between Kitten Springs road and the mouth of New York Canyon. All were between 4150 and 4900 feet.

April 1992

Four horses were observed about 2 miles from the Grayson Spring area, while 76 were near Kitten Springs. The route of travel did not go south of Kitten Springs. Elevations varied between 4500 and 5000 feet.

November 1994

Six horses were observed about 2 miles southwest of Grayson Spring and 25 were located between Kitten Springs road and just north of Fencemaker Pass road.

June 1995

All horses were grazing between the mouths of Logan Canyon and Big Ben Canyon. Distance of observation prevented observation of foals.

WILL CHECK ON NUMBERS FROM MAPS AGAINST NUMBERS ABOVE AND ON PENCILLED WORK SHEET IN EVAL FOLDER.