Trend Study 9-8-00

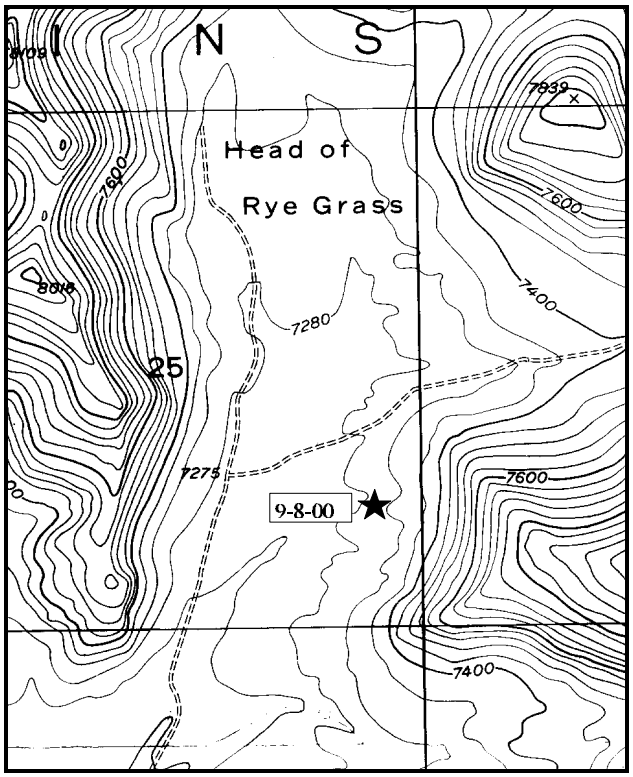
Study site name: Rye Grass . Range type: Big Sagebrush-Grass .

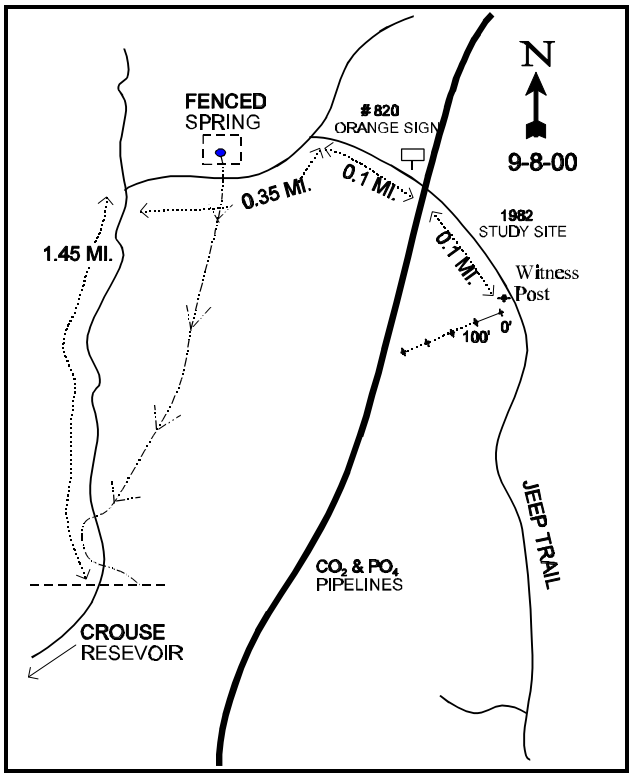
Compass bearing: frequency baseline 232°M .

First frame placement on frequency belts 5 feet. Frequency belt placement; line 1 (11 & 95ft), line 2 (34ft), line 3 (59ft), line 4 (71ft).

LOCATION DESCRIPTION

From Crouse Reservoir, proceed north up Mail Draw for 4 miles. Turn right and proceed towards the Head of Rye Grass valley. Go 0.4 miles to a fence. Continue 1.45 miles to a fork. Turn right and proceed 0.35 miles, crossing the wash, then turn right towards the pipeline. Go 0.l miles to the pipeline. Cross the pipeline and head back south 0.1 miles to the study on the right side of the road. This study site is adjacent to the 1982 study area, which was destroyed by pipeline construction. The 0-foot baseline stake is about 10 feet west of the road. All study stakes are short green fenceposts.





Map Name: Warren Draw Diagrammatic Sketch

Township lN , Range 24E , Section 25 UTM 4516781.432 N, 656532.518 E

DISCUSSION

Trend Study No. 9-8 (11-9)

The Rye Grass study samples winter range in Rye Grass Draw on Diamond Mountain. The study was placed on Division owned property because it was used by a substantial number of deer and elk in most years. There was evidence of year-round use; antler drops, recent deer pellet groups, a winter-killed fawn, elk pellet groups, and the remains of a newborn calf in 1988. This important area was originally sampled with a trend study further up the slope in a mixed sagebrush and mountain mahogany type. The old trend study, #25-8-82, was disturbed by underground gas pipeline construction and was relocated 175 yards to the south in a more open sagebrush-grass flat, typical of the valley location. Data from the 1982 reading was left in the report and some changes in cover measurements and shrub densities are due mostly to the relocation, but general trends can still be determined. A pellet group transect read along the baseline in 2000 estimates light use by wildlife with 9 deer days use/acre (22 ddu/ha) and 7 elk days use/acre (17 edu/ha) on the site. Several successive mild winters most likely account for the current light level of use by big game on this site.

The study site is on an 8% slope with a southwest exposure at an elevation of 7,300 feet. Soils are a sandy clay loam texture and are neutral in reactivity (pH of 6.6). Estimated effective rooting depth over the entire site is nearly 15 inches, but soil depth is variable as indicated by the mixture of black sagebrush and mountain big sagebrush. Phosphorus is low at 7.6 ppm as values less than 10 ppm may limit normal plant growth and development. Shrub interspaces contain a lot of exposed bare soil, but erosion is minimal. Bare ground moderately increased in 2000, while litter cover slightly decreased.

The valley floor in Rye Grass Draw is dominated by mountain big sagebrush with a significant component of black sagebrush, grasses, and forbs. Mountain big sagebrush averaged 11% cover in 1988 with a density of 4,199 plants/acre. Fifty-four percent of the population consisted of large decadent plants and 24% were mature. Reproductive potential (percent of seedlings to the population) was high at 33%, with 22% of the population classified as young. Use was light to moderate with 13% of the shrubs displaying heavy hedging. With the much larger sample utilized in 1995, mountain big sagebrush averaged 16% cover with an estimated 4,900 plants/acre. The number of decadent plants declined to only 16%, while mature plants increased to 73% of the population. It appeared that many of the decadent plants sampled in 1988 had recovered. Use was light to moderate and vigor good on all but 2% of the population. In 2000, mountain big sagebrush is estimated at 5,460 plants/acre and 19% cover. Percent decadency slightly increased to 27%, with poor vigor increasing to 15%. Heavy use increased to an estimated 21% of the population. However, with apparent light use from wildlife, heavy use may have been overestimated in 2000 due to many plants having a hedged appearance due to a very low annual growth. It was noted in 2000 that some mountain big sagebrush plants had a lot of leader growth while others had virtually none. As with other sites in this unit, increases in decadency and poor vigor and low annual growth are most likely drought related. These parameters should improve with a return to normal precipitation patterns. Currently (‘00), recruitment is fair with an estimated 340 young plants/acre. However, there is twice as many decadent, dying plants (780 plants/acre) as young ones which could result in some population loss in the future.

Black sagebrush is numerous, but only accounted for 6% of the browse cover in 2000. Mature plants are relatively small (8" x 15") and normally occur in small, dense patches. It was reported in the 1988 that nearly all of the black sagebrush counted that year occurred in one of the three density plots. This inflated the actual density which was reported at 7,866 plants/acre with 75% of the population being classified as decadent. Use was moderate to heavy with good vigor on all but 15% of the decadent plants. Seedlings were extremely numerous. The much larger, better distributed sample taken in 1995 more accurately estimates black sagebrush density. The black sagebrush density is much more consistent with the larger sampling design, where its density has been about 2,700 plants/acre in both 1995 and 2000. Percent decadency is currently (‘00) 14%, an increase

from 4% in 1995. Use is estimated at a moderate to heavy level in 2000, but as with mountain big sagebrush at this site, this may be overestimated due to low annual growth.

Slenderbush eriogonum is abundant throughout the site and lightly hedged. Only one small, dying serviceberry was found on the study site in 1988. Serviceberry and curlleaf mountain mahogany are more common on the surrounding slopes than in the valley bottom. Other shrubs sampled include: mountain low rabbitbrush, broom snakeweed and gray horsebrush.

Herbaceous vegetation is diverse on the site with grasses and forbs each producing 8% to 10% average cover in 1995 and 2000. Herbaceous cover actually declined from 1995 estimates due to drought. Nine grass species, all perennials, were identified in 1995 and 2000. Thickspike wheatgrass, bluebunch wheatgrass, mutton bluegrass, Sandberg bluegrass and needle-and-thread were the most abundant. Nearly all of these species, except for thickspike, significantly decreased in nested frequency in 2000. Twenty-eight species of perennial forbs were identified in 1995, where only 24 species were identified in 2000. Rose pussytoes, timber poisonvetch, hairy goldaster, rock goldenrod and Hood's phlox are the most abundant. Sum of nested frequency for forbs slightly decreased in 2000 with drought.

1982 APPARENT TREND ASSESSMENT

Both soil and vegetative trends appear stable to improving. This site is in generally good condition. A possible increase of broom snakeweed is a potential problem, but from an overall standpoint, current management seems adequate.

1988 TREND ASSESSMENT

Even with a moderately dense sagebrush population and an abundant and diverse understory, there is a higher than expected estimate for bare soil on this site (38%). Basal vegetative cover is adequate at 13%, but the site is deficient in litter cover. However, bare spots are not continuous and do not encourage serious erosion. Trend for soil appears stable. Due to the extremely dry conditions, both key browse species on the site have very high decadency rates. Biotic potential (# of seedlings) is excellent for both species and young plants are also adequate. Trend for both black sagebrush and mountain big sagebrush is slightly down. The herbaceous understory is diverse, but not particularly abundant. Herbaceous trend is up compared to the data from the original site.

TREND ASSESSMENT
soil - stable (3)
browse - slightly down (2)
herbaceous understory - up (5)

1995 TREND ASSESSMENT

Ground cover conditions have improved somewhat since the last reading. Percent litter has declined slightly but percent bare ground has also declined from 38% to 27%. Nested frequency of grasses and forbs have declined, yet herbaceous vegetation produces 50% of the vegetative cover and nested frequency for vegetation and litter are high indicating well dispersed cover. Trend for soil is slightly up. Trend for browse is slightly up for both mountain big sagebrush and black sagebrush. The high number of decadent black sagebrush sampled in 1988 were not encountered in 1995. This transect was read in mid-September of 1988 which was a very dry year. According to weather data from Flaming Gorge Dam, normal annual precipitation averages about 16 inches. From 1987 through 1989, conditions were unusually dry with only 10.2", 9.5" and 9.6" of precipitation measured respectively. Due to the lack of many dead plants (20 plants/acre), it is evident that no large die-off

has occurred. Plants had likely dropped many of their leaves by September of 1988 and were mistakenly classified as decadent. Mature black sagebrush have increased from 1,600 plants/acre to 2,000. Decadency of mountain big sagebrush has also improved from 54% to 16%. The number of mature plants increased along with average height and crown measurements. Trend for the herbaceous understory is down due to a large decline in the sum of nested frequency of grasses and forbs. All grass species except bluebunch wheatgrass declined in nested frequency. Three species significantly declined.

TREND ASSESSMENT
soil - slightly up (4)
browse - slightly up for black sagebrush and mountain big sagebrush (4)
herbaceous understory - downward (1)

2000 TREND ASSESSMENT

Although bare ground increased in 2000, trend for soil is still considered stable. Erosion remains minimal as nested frequency of vegetation and litter are high indicating well disbursed protective cover. Trend for browse is stable. The mountain big sagebrush and black sagebrush populations both increased in decadency, but in a drought year these increases are not severe. Current decadency levels are much lower than those of the drought year in 1988. Use is estimated at higher levels for both species in 2000. However due to drought, annual growth is low and many sagebrush plants have a more hedged appearance than normally observed. As a result, use may have been overestimated on both species. Normal precipitation in the future will likely result in decreased decadency and better annual growth on sagebrush. Trend for the herbaceous understory is slightly down overall. Perennial grasses moderately decreased in sum of nested frequency and perennial forbs slightly decreased in sum of nested frequency due to the dry conditions in 2000.

TREND ASSESSMENT
soil - stable (3)
browse - stable (3)
herbaceous understory - slightly down (2)

HERBACEOUS TRENDS --
Herd unit 09 , Study no: 8

Type	Species	Nested Frequency			Quadrat Frequency				Average Cover %	
		'88	'95	'00	'82	'88	'95	'00	'95	'00
G	Agropyron dasystachyum	$_{b}$208	$_{a}$140	$_{ab}$186	60	78	51	68	1.38	1.62
G	Agropyron spicatum	$_{a}$68	$_{b}$138	$_{a}$84	58	32	50	33	1.74	1.75
G	Carex spp.	9	5	8	10	7	2	4	.53	.44
G	Elymus cinereus	4	-	-	-	2	-	-	-	-
G	Koeleria cristata	$_{c}$111	$_{b}$46	$_{a}$26	35	56	24	9	.32	.43
G	Oryzopsis hymenoides	-	-	-	2	-	-	-	-	-
G	Poa fendleriana	156	93	112	24	63	37	44	.92	2.46
G	Poa secunda	$_{b}$185	$_{b}$138	$_{a}$56	93	76	55	20	1.14	.37
G	Sitanion hystrix	2	3	2	38	1	1	1	.00	.00
G	Stipa comata	$_{c}$190	$_{b}$153	$_{a}$30	62	78	59	11	3.41	.40
G	Stipa lettermani	$_{ab}$36	$_{b}$41	$_{a}$13	10	15	16	5	.91	.12
Total for Annual Grasses		0	0	0	0	0	0	0	0	0
Total for Perennial Grasses		969	757	517	392	408	295	195	10.38	7.62
Total for Grasses		969	757	517	392	408	295	195	10.38	7.62
F	Allium spp.	-	-	-	4	-	-	-	-	-
F	Antennaria rosea	$_{b}$128	$_{a}$56	$_{b}$101	-	50	23	36	1.21	2.29
F	Arabis spp.	$_{b}$19	$_{a}$3	$_{a}$-	-	12	2	-	.01	-
F	Astragalus argophyllus	-	3	2	-	-	1	1	.00	.03
F	Astragalus convallarius	$_{b}$127	$_{a}$86	$_{a}$80	16	63	45	41	2.30	1.27
F	Aster spp.	-	-	1	-	-	-	1	-	.00
F	Balsamorhiza hookeri	$_{b}$69	$_{a}$36	$_{a}$35	-	32	20	21	.27	.33
F	Calochortus nuttallii	$_{a}$-	$_{b}$9	$_{a}$-	-	-	5	-	.02	-
F	Chaenactis douglasii	7	10	8	1	5	4	4	.02	.04
F	Comandra pallida	$_{b}$33	$_{a}$16	$_{a}$19	-	17	9	8	.05	.06
F	Collinsia parviflora (a)	-	3	1	-	-	1	1	.00	.00
F	Crepis acuminata	-	1	-	-	-	1	-	.00	-
F	Erigeron eatonii	$_{a}$-	$_{b}$17	$_{b}$15	-	-	9	7	.07	.06
F	Erigeron flagellaris	$_{b}$67	$_{a}$16	$_{a}$4	2	34	6	2	.05	.03
F	Eriogonum umbellatum	$_{b}$14	$_{a}$-	$_{c}$28	1	5	-	14	-	.24
F	Gayophytum ramosissimum (a)	-	$_{b}$114	$_{a}$5	-	-	45	2	.42	.01
F	Gilia spp	-	-	-	5	-	-	-	-	-
F	Heterotheca villosa	$_{a}$8	$_{a}$14	$_{b}$30	28	3	6	10	.49	.58
F	Hymenoxys richardsonii	11	10	21	-	4	5	8	.10	.16
F	Ipomopsis aggregata	$_{a}$3	$_{ab}$11	$_{b}$1	-	2	5	1	.02	.00
F	Lappula occidentalis (a)	-	1	-	-	-	1	-	.00	-
F	Lactuca serriola	$_{a}$-	$_{b}$5	$_{ab}$3	-	-	4	1	.02	.00

Type	Species	Nested Frequency			Quadrat Frequency				Average Cover %	
		'88	'95	'00	'82	'88	'95	'00	'95	'00
F	Lithospermum spp.	2	-	2	-	1	-	1	-	.00
F	Lomatium spp.	5	4	4	-	4	2	2	.01	.01
F	Lupinus argenteus	$_{a}$-	$_{ab}$2	$_{b}$8	20	-	1	4	.00	.21
F	Machaeranthera grindelioides	3	2	-	-	2	1	-	.00	-
F	Microsteris gracilis (a)	-	$_{b}$7	$_{a}$-	-	-	4	-	.02	-
F	Orthocarpus luteus (a)	-	26	43	6	-	11	21	.47	.38
F	Pedicularis centruthera	-	-	-	12	-	-	-	-	-
F	Penstemon humilis	$_{c}$92	$_{b}$69	$_{a}$22	3	44	29	10	.62	.12
F	Petradoria pumila	$_{b}$30	$_{ab}$28	$_{a}$15	-	15	11	8	2.60	.39
F	Phlox hoodii	$_{b}$118	$_{a}$71	$_{a}$67	-	46	31	29	1.16	.91
F	Phlox longifolia	$_{b}$8	$_{a}$-	$_{ab}$2	-	4	-	2	-	.01
F	Polygonum douglasii (a)	-	20	14	-	-	9	6	.04	.03
F	Sedum lanceolatum	-	-	-	2	-	-	-	-	-
F	Senecio multilobatus	$_{b}$6	$_{b}$7	$_{a}$-	6	4	3	-	.01	-
F	Sphaeralcea coccinea	$_{b}$62	$_{ab}$38	$_{a}$24	-	25	16	10	.25	.12
F	Taraxacum officinale	$_{a}$3	$_{b}$17	$_{ab}$13	-	1	9	6	.04	.08
F	Tragopogon dubius	-	3	-	-	-	1	-	.00	-
F	Trifolium gymnocarpon	$_{a}$4	$_{b}$52	$_{a}$10	4	2	23	5	.21	.02
F	Valeriana edulis	4	-	-	-	2	-	-	-	-
Total for Annual Forbs		0	171	63	0	0	71	30	0.97	0.42
Total for Perennial Forbs		823	586	515	110	377	272	232	9.62	7.05
Total for Forbs		823	757	578	110	377	343	262	10.59	7.48

Values with different subscript letters are significantly different at % = 0.10

BROWSE TRENDS --
Herd unit 09 , Study no: 8

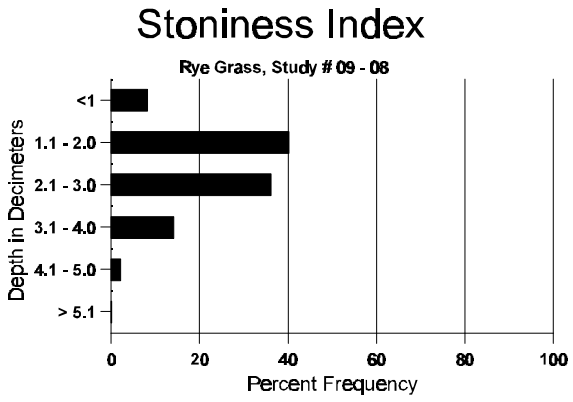
Type	Species	Strip Frequency		Average Cover %	
		'95	'00	'95	'00
B	Amelanchier alnifolia	0	1	-	-
B	Artemisia nova	29	20	2.40	1.41
B	Artemisia tridentata vaseyana	94	93	16.35	19.31
B	Ceratoides lanata	1	2	-	-
B	Chrysothamnus viscidiflorus lanceolatus	17	5	.04	.03
B	Eriogonum microthecum	61	44	1.53	.55
B	Gutierrezia sarothrae	34	23	.84	.80
B	Pediocactus simpsonii	4	4	.03	.03
B	Tetradymia canescens	6	0	-	-
Total for Browse		246	192	21.21	22.15

BASIC COVER --
Herd unit 09 , Study no: 8

Cover Type	Nested Frequency		Average Cover %			
	'95	'00	'82	'88	'95	'00
Vegetation	366	342	7.25	13.00	37.97	37.80
Rock	66	29	1.75	1.00	.99	.91
Pavement	206	135	0	4.50	2.83	2.35
Litter	395	373	67.75	43.25	40.59	37.79
Cryptogams	35	33	.75	.50	.32	.42
Bare Ground	330	322	22.50	37.75	26.97	44.37

SOIL ANALYSIS DATA --
Herd Unit 09, Study # 8, Study Name: Rye Grass

Effective rooting depth (inches)	Temp °F (depth)	pH	%sand	%silt	%clay	%0M	PPM P	PPM K	dS/m
14.83	64.2 (15.20)	6.6	64.3	12.2	20.6	1.5	7.6	92.8	0.8



PELLET GROUP FREQUENCY --
Herd unit 09 , Study no: 8

Type	Quadrat Frequency		Pellet Transect	
	'95	'00	Pellet Groups per Acre '00	Days Use per Acre (ha) '00
Sheep	-	2	-	-
Rabbit	23	32	609	N/A
Moose	-	1	17	1 (2)
Elk	24	9	96	7 (18)
Deer	25	9	113	9 (22)
Cattle	6	2	-	-

BROWSE CHARACTERISTICS --
Herd unit 09 , Study no: 8

AGE	YR	Form Class (No. of Plants) 1	2	3	4	5	6	7	8	9	Vigor Class 1	2	3	4	Plants Per Acre	Average (inches) Ht.	Cr.	Total
Amelanchier alnifolia																		
S	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	95	2	-	-	-	-	-	-	-	-	2	-	-	-	40			2
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
Y	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	95	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	00	-	-	-	-	-	-	1	-	-	1	-	-	-	20			1
M	82	-	1	-	-	-	-	-	-	-	-	1	-	-	66	10	12	1
	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	95	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
D	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	88	1	-	-	-	-	-	-	-	-	-	-	1	-	66			1
	95	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'82	100%	00%	00%	+ 0%
'88	00%	00%	100%	
'95	00%	00%	00%	
'00	00%	00%	00%	

Total Plants/Acre (excluding Dead & Seedlings)				
'82	66	Dec:	0%
'88	66		100%
'95	0		0%
'00	20		0%

AGE	YR	Form Class (No. of Plants) 1	2	3	4	5	6	7	8	9	Vigor Class 1	2	3	4	Plants Per Acre	Average (inches) Ht.	Cr.	Total
Artemisia nova																		
S	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	88	83	-	1	-	-	-	-	-	-	84	-	-	-	5600			84
	95	1	-	-	-	-	-	-	-	-	1	-	-	-	20			1
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
Y	82	7	-	-	-	-	-	-	-	-	7	-	-	-	466			7
	88	1	3	1	-	-	-	-	-	-	5	-	-	-	333			5
	95	29	-	-	-	-	-	-	-	-	29	-	-	-	580			29
	00	-	2	-	-	-	-	-	-	-	2	-	-	-	40			2
M	82	17	2	-	-	-	-	-	-	-	19	-	-	-	1266	8	20	19
	88	7	11	5	-	-	1	-	-	-	24	-	-	-	1600	5	10	24
	95	79	20	1	-	-	-	-	-	-	100	-	-	-	2000	5	16	100
	00	12	34	69	-	-	-	-	-	-	115	-	-	-	2300	8	15	115
D	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	88	13	35	41	-	-	-	-	-	-	76	-	13	-	5933			89
	95	1	3	1	-	-	-	-	-	-	4	-	-	1	100			5
	00	1	13	5	-	-	-	-	-	-	13	-	-	6	380			19
X	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	95	-	-	-	-	-	-	-	-	-	-	-	-	-	20			1
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	20			1

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'82	08%	00%	00%	+78%
'88	42%	41%	11%	-66%
'95	17%	01%	.74%	+ 1%
'00	36%	54%	04%	

Total Plants/Acre (excluding Dead & Seedlings)				
'82	1732	Dec:	0%
'88	7866		75%
'95	2680		4%
'00	2720		14%

AGE	YR	Form Class (No. of Plants) 1	2	3	4	5	6	7	8	9	Vigor Class 1	2	3	4	Plants Per Acre	Average (inches) Ht.	Cr.	Total
Artemisia tridentata vaseyana																		
S	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	88	18	2	-	1	-	-	-	-	-	21	-	-	-	1400			21
	95	1	-	-	-	-	-	-	-	-	1	-	-	-	20			1
	00	8	-	-	-	-	-	-	-	-	8	-	-	-	160			8
Y	82	6	-	-	-	-	-	-	-	-	6	-	-	-	400			6
	88	12	1	1	-	-	-	-	-	-	14	-	-	-	933			14
	95	19	7	-	-	-	-	-	-	-	26	-	-	-	520			26
	00	14	3	-	-	-	-	-	-	-	17	-	-	-	340			17
M	82	13	-	-	-	-	-	-	-	-	13	-	-	-	866	23	39	13
	88	5	9	1	-	-	-	-	-	-	14	1	-	-	1000	14	20	15
	95	76	98	6	-	-	-	-	-	-	180	-	-	-	3600	17	32	180
	00	76	58	47	1	-	-	-	-	-	181	-	1	-	3640	18	29	182
D	82	2	-	-	-	-	-	-	-	-	1	1	-	-	133			2
	88	9	19	6	-	-	-	-	-	-	30	-	2	2	2266			34
	95	6	26	7	-	-	-	-	-	-	33	-	-	6	780			39
	00	39	13	10	2	4	1	5	-	-	34	-	1	39	1480			74
X	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	95	-	-	-	-	-	-	-	-	-	-	-	-	-	640			32
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	640			32

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'82	00%	00%	00%	
'88	46%	13%	06%	+67%
'95	53%	05%	02%	+14%
'00	29%	21%	15%	+10%

Total Plants/Acre (excluding Dead & Seedlings)				
'82	1399	Dec:	10%
'88	4199		54%
'95	4900		16%
'00	5460		27%

Ceratoides lanata																		
M	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	95	1	-	-	-	-	-	-	-	-	1	-	-	-	20	8	16	1
	00	2	-	-	-	-	-	-	-	-	2	-	-	-	40	11	9	2

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'82	00%	00%	00%	
'88	00%	00%	00%	
'95	00%	00%	00%	+50%
'00	00%	00%	00%	

Total Plants/Acre (excluding Dead & Seedlings)			
'82	0	Dec:	-
'88	0		-
'95	20		-
'00	40		-

AGE	YR	Form Class (No. of Plants) 1	2	3	4	5	6	7	8	9	Vigor Class 1	2	3	4	Plants Per Acre	Average (inches) Ht.	Cr.	Total
Cercocarpus ledifolius																		
Y	82	5	-	-	-	-	-	-	-	-	5	-	-	-	333			5
	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	95	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
M	82	10	-	-	-	-	-	-	-	-	10	-	-	-	666	13	16	10
	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	95	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'82	00%	00%	00%	
'88	00%	00%	00%	
'95	00%	00%	00%	
'00	00%	00%	00%	

Total Plants/Acre (excluding Dead & Seedlings)				
'82	999	Dec:	-
'88	0		-
'95	0		-
'00	0		-

Chrysothamnus viscidiflorus lanceolatus																		
S	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	88	3	1	-	-	-	-	-	-	-	3	-	1	-	266			4
	95	2	-	-	-	-	-	-	-	-	2	-	-	-	40			2
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
Y	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	88	2	2	-	2	-	-	-	-	-	6	-	-	-	400			6
	95	6	-	-	1	-	-	-	-	-	7	-	-	-	140			7
	00	1	-	-	-	-	-	-	-	-	1	-	-	-	20			1
M	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	88	1	-	-	1	-	-	-	-	-	2	-	-	-	133	5	7	2
	95	9	1	1	2	-	-	-	-	-	13	-	-	-	260	7	9	13
	00	3	-	-	1	-	-	1	-	-	5	-	-	-	100	11	13	5
D	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	88	1	-	-	1	-	-	-	-	-	2	-	-	-	133			2
	95	1	-	-	-	-	-	-	-	-	1	-	-	-	20			1
	00	-	-	-	1	-	-	-	-	-	1	-	-	-	20			1

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'82	00%	00%	00%	
'88	20%	00%	00%	-37%
'95	05%	05%	00%	-67%
'00	00%	00%	00%	

Total Plants/Acre (excluding Dead & Seedlings)			
'82	0	Dec:	0%
'88	666		20%
'95	420		5%
'00	140		14%

AGE	YR	Form Class (No. of Plants) 1	2	3	4	5	6	7	8	9	Vigor Class 1	2	3	4	Plants Per Acre	Average (inches) Ht.	Cr.	Total
Eriogonum microthecum																		
S	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	88	1	-	-	-	-	-	-	-	-	1	-	-	-	66			1
	95	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
Y	82	3	-	-	-	-	-	-	-	-	3	-	-	-	200			3
	88	10	-	-	-	-	-	-	-	-	10	-	-	-	666			10
	95	23	-	-	1	-	-	-	-	-	24	-	-	-	480			24
	00	4	-	-	-	-	-	-	-	-	4	-	-	-	80			4
M	82	20	-	-	-	-	-	-	-	-	20	-	-	-	1333	9	5	20
	88	4	2	-	2	-	-	-	-	-	8	-	-	-	533	5	5	8
	95	125	-	-	23	-	-	-	-	-	148	-	-	-	2960	5	7	148
	00	51	-	-	15	-	-	10	-	-	74	-	2	-	1520	5	5	76
D	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	88	-	-	1	-	-	-	-	-	-	1	-	-	-	66			1
	95	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	00	5	-	-	5	-	-	-	-	-	6	-	-	4	200			10

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'82	00%	00%	00%	-17%
'88	11%	05%	00%	+63%
'95	00%	00%	00%	-48%
'00	00%	00%	07%	

Total Plants/Acre (excluding Dead & Seedlings)				
'82	1533	Dec:	0%
'88	1265		5%
'95	3440		0%
'00	1800		11%

Gutierrezia sarothrae																		
S	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	88	18	-	-	-	-	-	-	-	-	18	-	-	-	1200			18
	95	3	-	-	-	-	-	-	-	-	3	-	-	-	60			3
	00	7	-	-	-	-	-	-	-	-	7	-	-	-	140			7
Y	82	10	-	-	-	-	-	-	-	-	10	-	-	-	666			10
	88	14	-	-	-	-	-	-	-	-	14	-	-	-	933			14
	95	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	00	53	-	-	-	-	-	-	-	-	53	-	-	-	1060			53
M	82	30	-	-	-	-	-	-	-	-	30	-	-	-	2000	5	6	30
	88	25	-	-	-	-	-	-	-	-	24	1	-	-	1666	5	6	25
	95	79	-	-	2	-	-	-	-	-	81	-	-	-	1620	8	10	81
	00	112	-	-	-	-	-	-	-	-	112	-	-	-	2240	5	5	112

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'82	00%	00%	00%	- 3%
'88	00%	00%	00%	-38%
'95	00%	00%	00%	+51%
'00	00%	00%	00%	

Total Plants/Acre (excluding Dead & Seedlings)			
'82	2666	Dec:	-
'88	2599		-
'95	1620		-
'00	3300		-

AGE	YR	Form Class (No. of Plants) 1	2	3	4	5	6	7	8	9	Vigor Class 1	2	3	4	Plants Per Acre	Average (inches) Ht.	Cr.	Total
Opuntia spp.																		
M	82	1	-	-	-	-	-	-	-	-	1	-	-	-	66	4	21	1
	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	95	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'82	00%	00%	00%	
'88	00%	00%	00%	
'95	00%	00%	00%	
'00	00%	00%	00%	

Total Plants/Acre (excluding Dead & Seedlings)				
'82	66	Dec:	-
'88	0		-
'95	0		-
'00	0		-

Pediocactus simpsonii																		
Y	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	95	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	00	1	-	-	-	-	-	-	-	-	1	-	-	-	20			1
M	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	95	4	-	-	-	-	-	-	-	-	4	-	-	-	80	4	5	4
	00	3	-	-	-	-	-	-	-	-	3	-	-	-	60	2	3	3
X	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	95	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	20			1

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'82	00%	00%	00%	
'88	00%	00%	00%	
'95	00%	00%	00%	+ 0%
'00	00%	00%	00%	

Total Plants/Acre (excluding Dead & Seedlings)			
'82	0	Dec:	-
'88	0		-
'95	80		-
'00	80		-

AGE	YR	Form Class (No. of Plants) 1	2	3	4	5	6	7	8	9	Vigor Class 1	2	3	4	Plants Per Acre	Average (inches) Ht.	Cr.	Total
Purshia tridentata																		
S	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	95	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	00	1	-	-	-	-	-	-	-	-	1	-	-	-	20			1
M	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	95	-	-	-	-	-	-	-	-	-	-	-	-	-	0	20	52	0
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	0	22	74	0

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'82	00%	00%	00%	
'88	00%	00%	00%	
'95	00%	00%	00%	
'00	00%	00%	00%	

Total Plants/Acre (excluding Dead & Seedlings)				
'82	0	Dec:	-
'88	0		-
'95	0		-
'00	0		-

Tetradymia canescens																		
Y	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	95	4	-	-	-	-	-	-	-	-	4	-	-	-	80			4
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
M	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	88	1	1	-	-	-	-	-	-	-	2	-	-	-	133	5	5	2
	95	2	-	-	-	-	-	-	-	-	2	-	-	-	40	6	8	2
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'82	00%	00%	00%	
'88	50%	00%	00%	-10%
'95	00%	00%	00%	
'00	00%	00%	00%	

Total Plants/Acre (excluding Dead & Seedlings)			
'82	0	Dec:	-
'88	133		-
'95	120		-
'00	0		-