

Trend Study 30-41-08

Study site name: Joe Spring.

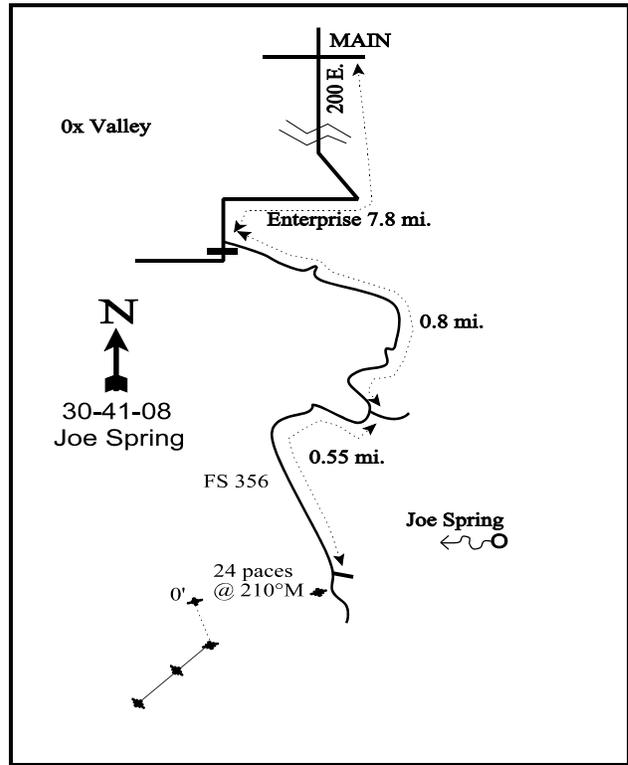
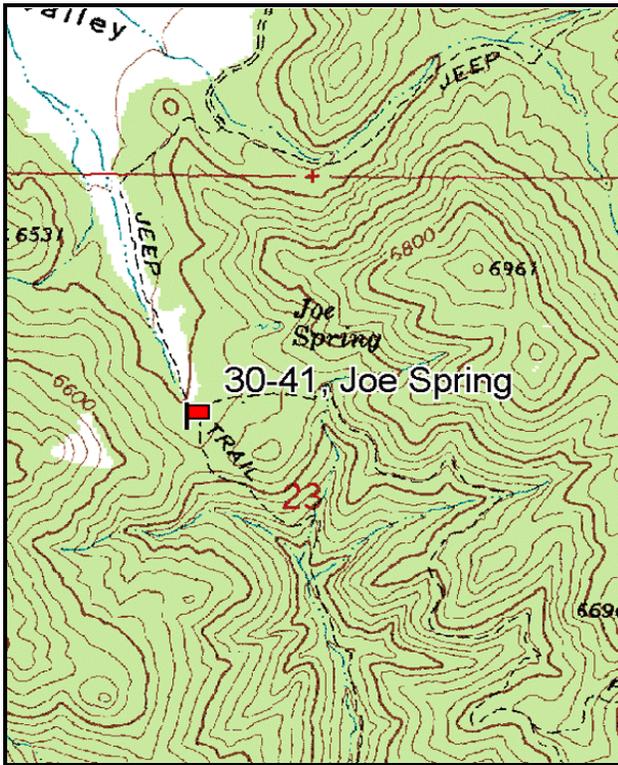
Vegetation type: Mountain Brush.

Compass bearing: frequency baseline 152 degrees magnetic. (Lines 2 & 3, 231°M)

Frequency belt placement: line 1 (1 & 93ft), line 2 (71ft), line 3 (34 & 59ft).

LOCATION DESCRIPTION

From 200 East and Main in Enterprise, travel southwest 7.8 miles to Ox Valley. Take a left at the ranch gate and continue east and south 0.8 miles to the next fork. Turn right on FS road 356 and travel 0.55 miles to the next fork at Joe Spring. From the intersection walk up the right fork 32 paces to a full-high marker post on the right side of the road. The 0-foot baseline is 24 paces at 210 degrees magnetic and is marked by browse tag #7015. The study is marked by green steel "T" fence posts approximately 12 to 18 inches in height.



Map Name: Central West

Diagrammatic Sketch

Township 38S, Range 17W, Section 23

GPS: NAD 83, UTM 12S 258687 E, 4150397 N

DISCUSSION

Joe Spring - Trend Study No. 30-41

Study Information

This study is located on deer transitional/summer range on the south end of Ox Valley [elevation: 6,400 feet (1,950 m), slope: 15%-24%, aspect: east]. The vegetation type is mixed mountain brush. The entire area surrounding Ox Valley receives heavy deer and cattle use. During study site establishment in 1982, cattle were in the area and several does with fawns were also observed. Pellet group transect data estimated deer use to be moderately heavy in 1998 and 2008 (58 deer days use/acre:143 ddu/ha and 44 ddu/acre:107 ddu/ha, respectively), with more moderate use in 2003 (32 ddu/acre:79 ddu/ha). Cattle use was estimated to be light in 1998 and 2003 (10 cow days use/acre:25 cdu/ha and 5 cdu/acre:12 cdu/ha, respectively), with slightly more moderate use in 2008 (18 cdu/acre:45 cdu/ha). There is a water source and salt lick within a half mile of the site. A grouse and deer were seen on the site in 2008. Mormon crickets were abundant in 2003 and 2008.

Soil

Soils are coarse textured and rocky, but deep. Parent material is granite. Effective rooting depth is estimated at 18 inches. Texture is a sandy loam which is moderately acidic (pH 5.7). Relative combined vegetation and litter cover has been high at a range of 72%-76% from 1998 to 2008. Relative bare ground cover has ranged from 15%-17% from 1998 to 2003. Bare ground is largely the result of livestock trailing and some deer trails which terrace the slope. There is some limited erosion occurring and the erosion condition rating was classified as slight in 2003 primarily due to pedestaling of plants, but was stable in 2008.

Browse

Browse composition is diverse and overall productivity is high. The principal species include mountain big sagebrush (*Artemisia tridentata* ssp. *vaseyana*), Gambel oak (*Quercus gambelii*), Utah serviceberry (*Amelanchier utahensis*), mountain snowberry (*Symphoricarpos oreophilus*), and a few less desirable shrubs. Utah serviceberry decreased in density between 1982 and 1992. Decadence increased and the proportion of individuals heavily hedged went up (33% to 43%). In 1998, a larger sample area was used that better estimates shrub densities which are very clumped on the Joe Spring site. As a result, density of many of the shrub species changed. The estimates of serviceberry density has also fluctuated over the sample years, mostly due to sample techniques. In 1998 and 2003, individual stems were counted as individual plants, but in previous years (1982 and 1992) and in 2008 clumps of stems were counted as individual plants. Because of this, cover is probably a better estimate of population growth. The average cover of serviceberry ranged from 24%-30% from 1998 to 2008. Utilization has been moderate to heavy where available, vigor was good, and decadence has been low in all sample years.

Mountain big sagebrush has a moderate density which has declined steadily since 1998 from 2,220 plants/acre to 1,700 plants/acre in 2008. It has displayed mostly light to moderate use during all readings and normal vigor on most plants. The number of decadent plants in the population remained low between 1982 and 1998, although it has risen to a moderate level of 30% in 2003 and 33% in 2008. Reproduction was good in previous years, but no seedlings or young were encountered in 2003. Reproduction and recruitment of sagebrush improved again in 2008

True mountain mahogany (*Cercocarpus montanus*) was very clumped in its distribution and it appears that past samples overestimated mahogany density. Density was estimated at 1,732 plants/acre in 1982 and 1,132 in 1992. These plants displayed heavy use with reduced vigor. Density counts from 1998 estimate only 20 mature plants/acre, all of which displayed heavy use. There were no dead plants sampled, so it appears that the change in sample size is the reason for the decline in density. No mahogany was sampled within the shrub density strips in 2003, but some plants were measured for height and crown. No true mountain mahogany were sampled in 2008.

A relatively stable population of Gambel oak provides about one-third of the total browse cover. Vigor was reduced in 29% of the plants sampled in 1998. This was due to the late frosts from the spring of that year but average vigor was normal in 2003 and 2008. Utilization of oak was moderate to heavy in 1982 and 1992, but has been light since 1998.

Herbaceous Understory

Grasses, although fairly diverse, are not very abundant. Eight perennial grass species were encountered in 1998 and seven species in 2003 and 2008. Mutton bluegrass (*Poa fendleriana*), bottlebrush squirreltail (*Sitanion hystrix*), mountain brome (*Bromus carinatus*), and intermediate wheatgrass (*Agropyron intermedium*) are the most common perennial grasses. Cheatgrass brome (*Bromus tectorum*) was present in 1992 and it appeared to have increased significantly since the first reading in 1982. It was reported to dominate the understory in 1992, however annuals were not included in the previous surveys. Cheatgrass has dominated the herbaceous understory by providing an average of 73% of the total grass cover and an average of 41% of the total herbaceous cover since 1998.

Forbs are fairly diverse and abundant, yet probably still below optimum for this type of site. The more important forbs include silvery lupine (*Lupinus argenteus*), arrowleaf balsamroot (*Balsamorhiza sagittata*), and redroot eriogonum (*Eriogonum racemosum*). Overall, utilization of forbs is moderate with slightly heavier use on silvery lupine, redroot eriogonum, and American vetch (*Vicia americana*). The annual forb, littleflower collinsia (*Collinsia parviflora*), is very abundant and was growing in thick patches in 1998. It provided 28% of the forb cover in 1998, but only 9% in 2003, and was negligible in 2008. The native perennial forbs, desert phlox (*Phlox austromontana*) and arrowleaf balsamroot, are the most abundant species, producing 28% of the forb cover in 1998, 62% in 2003, and 77% in 2008.

1992 TREND ASSESSMENT

The browse trend is slightly down due to decreases in density and increases in decadence of the two preferred browse species, Utah serviceberry and mountain mahogany. Utah serviceberry decreased in density by 71% from 1,599 plants/acre in 1982 to 466 plants/acre, while the proportion of decadent plants increased slightly. Mountain mahogany saw a 35% decrease in its density from 1,732 plants/acre in 1982 to 1,132 plants/acre, and an increase in decadence from 15% to 41%. Data for the herbaceous understory from 1982 is limited to quadrat frequency for species. Considering the limited data, trend for both the grasses and forbs is stable. Quadrat frequency of perennial grasses remained basically unchanged. Quadrat frequency of forbs increased slightly.

browse - slightly down (-1)

grass - stable (0)

forb - stable (0)

1998 TREND ASSESSMENT

Trend for the key browse species, serviceberry and mountain big sagebrush, is slightly up. Differences in density of browse species may be related to the larger sample area used in 1998; therefore, trend for browse was determined using other parameters. Decadence of serviceberry has declined from 14% in 1992 to 6%, however, reproduction is poor. Sagebrush displays improved vigor, lower decadence, and good reproduction. Only one mountain mahogany plant was encountered with the larger sampling design. It appears that there are only a few isolated clumps on the site. They are heavily utilized, but do not occur in high enough numbers to be considered a key browse species. Gambel oak appears to be increasing. It was reportedly heavily hedged in 1992, but current use is light. A continued increase in oak will come at the expense of more desirable shrubs and herbaceous plants. Trend for the grasses is stable. Sum of nested frequency for perennial grasses has remained similar to 1992 levels. Trend for forbs is up. The sum of nested frequency of forbs has doubled, with significant increases in the nested frequency of American vetch, arrowleaf balsamroot, false dandelion (*Agoseris glauca*), spring parsley (*Cymopterus sp.*), desert phlox, and spotted stickseed (*Hackelia patens*).

winter range condition (DCI) - fair (63) Mid-level potential scale

browse - slightly up (+1)

grass - stable (0)

forb - up (+2)

2003 TREND ASSESSMENT

Trend for the key browse species, serviceberry and mountain big sagebrush, is stable. The population density of serviceberry increased slightly. Individual rooted stems were counted in 1998 and 2003. However, due to the large numbers of stems and difficulty counting within thick clones, it is better to concentrate on other factors to determine trend. Average cover of serviceberry declined slightly from 8.6% in 1998 to 7% in 2003. Strip frequency remained similar. Vigor remained good and the number of decadent stems is low. Mountain big sagebrush declined slightly in density (11%) and remained at nearly 2,000 plants/acre. Recruitment of young sagebrush declined with no seedlings or young plants encountered. Sagebrush vigor was normal on most plants, though the number of decadent plants did increase to 30% . It appears that drought combined with the thick competitive cheatgrass understory contributed to these trends. Annual leader growth of sagebrush was good in 2003 averaging nearly 2 inches. This area is considered transitional/summer range so the herbaceous component is the most important aspect. The trend for grasses is stable, but poor. Perennial grasses are not abundant and confined mostly to growing within shrub canopies. Cheatgrass still dominates the herbaceous understory by providing 82% of the grass cover and 49% of the total herbaceous cover. The only somewhat common perennial grasses are mutton bluegrass, prairie junegrass (*Koeleria cristata*), and bottlebrush squirreltail. There was a significant increases in the nested frequency of intermediate wheatgrass and bottlebrush squirreltail, with a significant decrease in mutton bluegrass. The trend for forbs is down. Sum of nested frequency of perennial forbs declined by 55% from 1998. Forbs are very diverse with 22 species sampled in 2003, but few species are abundant. They include arrowleaf balsamroot, silky lupine, desert phlox and American vetch. Drought conditions combined with Mormon cricket use may have contributed to the decline in the nested frequency of perennial forbs. Eleven perennial species declined significantly in nested frequency since 1998.

winter range condition (DCI) - poor-fair (52) Mid-level potential scale

browse - stable (0)

grass - stable (0)

forb - down (-2)

2008 TREND ASSESSMENT

Trend for browse is slightly down. The density of the primary browse species, mountain big sagebrush, has declined by 14% from 2003 to 1,700 plants/acre. The proportion of sagebrush plants displaying poor vigor has increased from 9% in 2003 to 15%, which is still low. Recruitment has improved with young plants comprising 11% of the population. Due to differences in sampling techniques and difficulties in counting, density has declined drastically in the preferred browse species Utah serviceberry. Other factors may be better to determine trends in serviceberry. The line-intercept cover for serviceberry increased from 8% in 2003 to 10%. Vigor in serviceberry has remained good, but decadence increased from 6% in 2003 to 20%. True mountain mahogany, which had already declined in density and was only sampled for height and crown data in 2003, was not sampled in any measurement on the site. Trend for grasses is up. The sum of nested frequency of perennial grasses increased by 31% since 2003 mostly due to significant increases in the nested frequency of intermediate wheatgrass and mutton bluegrass. The nested frequency of cheatgrass remained similar to 2003 levels, but cheatgrass cover declined from 82% of the total grass cover in 2003 to 70% of the grass cover. Trend for forbs is stable. Sum of nested frequency of perennial forbs has increased by 17% since 2003, but cover of perennial forbs has declined slightly from 11% in 2003 to 9%.

winter range condition (DCI) - fair (56) Mid-level potential scale

browse - slightly down (-1)

grass - up (+2)

forb - stable (0)

HERBACEOUS TRENDS --

Management unit 30 , Study no: 41

T y p e	Species	Average Cover %						
		'92	'98	'03	'08	'98	'03	'08
G	Agropyron intermedium	ab ₁₂	a ₁	b ₂₂	c ₄₆	.00	.32	.63
G	Agropyron smithii	b ₁₆	ab ₆	a ₋	b ₁₂	.02	-	.07
G	Agropyron spicatum	b ₅₆	a ₁₁	a ₁	a ₋	.19	.03	-
G	Bouteloua gracilis	10	-	3	3	-	.06	.15
G	Bromus carinatus	13	22	3	20	.37	.03	.40
G	Bromus tectorum (a)	-	285	273	269	12.32	15.36	10.94
G	Koeleria cristata	a ₋	a ₋	b ₄₇	a ₋	-	.68	-
G	Oryzopsis hymenoides	2	-	-	6	-	-	.06
G	Poa fendleriana	a ₃	c ₈₅	b ₄₈	c ₁₀₈	4.46	1.70	3.33
G	Poa pratensis	-	8	-	-	.18	-	-
G	Sitanion hystrix	bc ₃₀	ab ₁₅	c ₃₀	a ₆	.63	.64	.07
G	Stipa comata	9	2	-	-	.03	-	-
Total for Annual Grasses		0	285	273	269	12.32	15.36	10.94
Total for Perennial Grasses		151	150	154	201	5.89	3.47	4.72
Total for Grasses		151	435	427	470	18.22	18.84	15.67
F	Agoseris glauca	a ₋	c ₃₄	a ₉	b ₁₇	.29	.02	.15
F	Allium sp.	a ₋	b ₅₇	a ₋	a ₋	.48	-	-

Type	Species					Average Cover %		
		'92	'98	'03	'08	'98	'03	'08
F	Arabis sp.	-	5	-	4	.16	.00	.03
F	Artemisia ludoviciana	b30	a3	a5	a5	.00	.06	.06
F	Aster chilensis	a-	b28	a-	a-	.09	-	-
F	Astragalus sp.	a2	b13	a-	ab5	.11	-	.01
F	Balsamorhiza sagittata	a3	b33	b27	b32	2.40	5.38	3.90
F	Brodiaea pulchella	a-	a-	a-	b35	-	-	.12
F	Calochortus nuttallii	a-	b8	a-	ab3	.03	-	.01
F	Chaenactis douglasii	-	-	-	2	-	-	.03
F	Collomia linearis (a)	-	-	1	-	-	.00	-
F	Comandra pallida	17	18	13	8	.16	.10	.10
F	Collinsia parviflora (a)	-	b283	a102	a70	6.48	1.16	.26
F	Crepis acuminata	a-	b11	a-	a1	.27	-	.00
F	Cryptantha sp.	-	-	-	2	-	-	.00
F	Cymopterus sp.	a-	c36	a-	b15	.32	-	.09
F	Epilobium brachycarpum (a)	-	-	2	-	-	.03	-
F	Erigeron eatonii	11	15	24	14	.35	.26	.29
F	Erigeron sp.	a-	b17	a2	a3	.17	.00	.03
F	Eriogonum racemosum	2	6	3	2	.21	.00	.03
F	Eriogonum umbellatum	-	-	2	-	-	.00	-
F	Galium sp.	a-	ab7	ab12	b14	.01	.71	.12
F	Gayophytum ramosissimum(a)	-	-	-	7	-	-	.02
F	Hackelia patens	a-	b22	a-	a3	.30	-	.01
F	Hydrophyllum occidentale	-	-	3	-	-	.03	-
F	Lappula occidentalis (a)	-	a-	a4	b28	-	.16	.15
F	Linum lewisii	-	2	-	-	.15	-	-
F	Lomatium sp.	-	1	-	-	.03	-	-
F	Lupinus argenteus	b84	a30	a15	a8	1.29	1.52	.18
F	Machaeranthera canescens	b18	a3	a-	ab4	.00	-	.03
F	Microsteris gracilis (a)	-	b25	ab11	a9	.16	.13	.02
F	Penstemon sp.	-	4	-	5	.04	-	.09
F	Phlox austromontana	a85	b124	ab112	ab102	6.40	2.80	3.67
F	Phacelia heterophylla	1	6	-	1	.79	-	.00
F	Polygonum douglasii (a)	-	a-	a2	b21	-	.00	.07
F	Senecio multilobatus	a-	a-	b14	a-	-	.07	-
F	Sphaeralcea grossulariifolia	-	1	2	4	.03	.03	.04
F	Stephanomeria tenuifolia	a-	b11	a-	a-	.12	-	-

T y p e	Species					Average Cover %		
		'92	'98	'03	'08	'98	'03	'08
F	Unknown forb-annual (a)	-	4	-	-	.09	-	-
F	Unknown forb-perennial	-	5	-	-	.03	-	-
F	Vicia americana	_b 54	_c 101	_a 29	_a 24	2.21	.19	.17
F	Viguiera multiflora	-	-	-	5	-	-	.06
Total for Annual Forbs		0	312	122	135	6.73	1.49	0.53
Total for Perennial Forbs		307	601	272	318	16.52	11.22	9.29
Total for Forbs		307	913	394	453	23.25	12.72	9.82

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

BROWSE TRENDS --

Management unit 30 , Study no: 41

T y p e	Species	Strip Frequency			Average Cover %		
		'98	'03	'08	'98	'03	'08
B	Amelanchier utahensis	26	25	23	8.55	7.09	8.37
B	Artemisia tridentata vaseyana	61	53	48	10.19	8.72	7.01
B	Cercocarpus ledifolius	1	0	0	.00	-	-
B	Cercocarpus montanus	1	0	0	.00	-	-
B	Chrysothamnus depressus	3	0	1	.03	-	.00
B	Chrysothamnus viscidiflorus viscidiflorus	26	25	27	1.43	1.46	2.20
B	Eriogonum microthecum	0	6	3	-	.57	.06
B	Gutierrezia sarothrae	0	0	1	-	-	.00
B	Opuntia sp.	1	1	0	.03	.15	.03
B	Quercus gambelii	34	34	30	10.28	10.94	8.88
B	Ribes sp.	1	1	1	.38	.00	.38
B	Symphoricarpos oreophilus	3	2	2	.33	.18	.15
B	Tetradymia canescens	0	2	0	.03	.03	.38
Total for Browse		157	149	136	31.28	29.14	27.48

CANOPY COVER, LINE INTERCEPT --

Management unit 30 , Study no: 41

Species	Percent Cover		
	'98	'03	'08
Amelanchier utahensis	-	7.59	9.66
Artemisia tridentata vaseyana	-	9.23	13.85
Chrysothamnus viscidiflorus viscidiflorus	-	1.85	3.00
Eriogonum microthecum	-	.16	.13
Quercus gambelii	10.80	13.93	13.66
Ribes sp.	-	-	2.45
Symphoricarpos oreophilus	-	.28	.45

KEY BROWSE ANNUAL LEADER GROWTH --

Management unit 30 , Study no: 41

Species	Average leader growth (in)	
	'03	'08
Amelanchier utahensis	2.4	1.2
Artemisia tridentata vaseyana	1.8	1.0

BASIC COVER --

Management unit 30 , Study no: 41

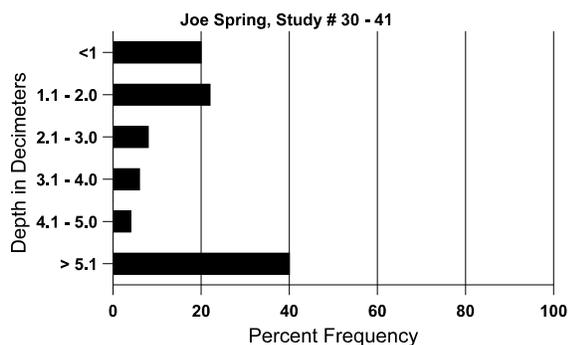
Cover Type	Average Cover %				
	'82	'92	'98	'03	'08
Vegetation	2.75	0	59.19	56.87	48.65
Rock	1.25	0	7.60	7.53	6.96
Pavement	.50	0	4.94	6.17	6.16
Litter	67.25	0	46.79	35.79	40.06
Cryptogams	0	0	0	0	0
Bare Ground	28.25	0	20.56	18.29	21.29

SOIL ANALYSIS DATA --

Management unit 30, Study no: 41, Study Name: Joe Spring

Effective rooting depth (in)	Temp °F (depth)	pH	sandy loam			%OM	PPM P	PPM K	ds/m
			% sand	% silt	% clay				
18.0	41.8 (16.7)	5.7	68.0	17.4	14.6	1.8	15.0	150.4	0.4

Stoniness Index



PELLET GROUP DATA --

Management unit 30 , Study no: 41

Type	Quadrat Frequency		
	'98	'03	'08
Rabbit	3	3	29
Deer	29	11	37
Cattle	2	3	6

Days use per acre (ha)		
'98	'03	'08
-	-	-
39 (96)	32 (79)	44 (107)
10 (25)	5 (13)	18 (45)

BROWSE CHARACTERISTICS --

Management unit 30 , Study no: 41

		Age class distribution (plants per acre)					Utilization					
Y	Plants per Acre (excluding seedlings)	Seedling	Young	Mature	Decadent	Dead	% moderate	% heavy	% decadent	% dying	% poor vigor	Average Height Crown (in)
Amelanchier utahensis												
82	1598	66	199	1333	66	-	0	33	4	-	0	46/11
92	464	-	199	199	66	-	0	43	14	-	0	20/36
98	4640	-	60	4300	280	220	51	13	6	-	0	45/33
03	5480	60	300	4860	320	420	.72	36	6	3	3	47/47
08	700	200	60	500	140	40	26	60	20	6	6	47/50
Artemisia tridentata vaseyana												
82	1265	-	133	999	133	-	5	0	11	-	0	24/32
92	1331	66	266	799	266	-	15	5	20	2	15	22/27
98	2220	500	460	1480	280	420	29	5	13	3	3	22/33
03	1980	-	-	1380	600	220	20	9	30	9	9	24/29
08	1700	60	180	980	540	280	27	18	32	11	15	21/33

		Age class distribution (plants per acre)					Utilization					
Year	Plants per Acre (excluding seedlings)	Seedling	Young	Mature	Decadent	Dead	% moderate	% heavy	% decadent	% dying	% poor vigor	Average Height Crown (in)
Cercocarpus ledifolius												
82	0	-	-	-	-	-	0	0	-	-	0	-/-
92	66	-	66	-	-	-	0	0	-	-	0	-/-
98	40	-	40	-	-	-	0	0	-	-	0	-/-
03	0	-	-	-	-	-	0	0	-	-	0	-/-
08	0	-	-	-	-	-	0	0	-	-	0	17/36
Cercocarpus montanus												
82	1731	-	1066	399	266	-	0	100	15	-	15	8/6
92	1132	199	533	133	466	-	35	53	41	5	18	6/7
98	20	-	-	20	-	-	0	100	0	-	0	14/20
03	0	-	-	-	-	-	0	0	0	-	0	22/29
08	0	-	-	-	-	-	0	0	0	-	0	-/-
Chrysothamnus depressus												
82	0	-	-	-	-	-	0	0	-	-	0	-/-
92	0	-	-	-	-	-	0	0	-	-	0	-/-
98	80	-	-	80	-	-	25	0	-	-	0	8/15
03	0	-	-	-	-	-	0	0	-	-	0	-/-
08	80	-	-	80	-	-	0	100	-	-	0	6/3
Chrysothamnus viscidiflorus viscidiflorus												
82	1066	-	-	1066	-	-	0	0	0	-	0	15/29
92	0	-	-	-	-	-	0	0	0	-	0	-/-
98	960	40	140	780	40	60	0	4	4	-	0	14/24
03	700	-	20	660	20	-	0	0	3	-	0	14/18
08	880	-	60	700	120	-	7	20	14	-	2	10/20
Eriogonum microthecum												
82	266	-	-	266	-	-	0	0	0	-	0	5/15
92	66	-	-	66	-	-	0	0	0	-	0	6/9
98	0	-	-	-	-	-	0	0	0	-	0	-/-
03	180	-	20	160	-	-	11	0	0	-	0	7/16
08	60	-	-	40	20	-	33	33	33	-	0	9/20
Gutierrezia sarothrae												
82	0	-	-	-	-	-	0	0	-	-	0	-/-
92	0	-	-	-	-	-	0	0	-	-	0	-/-
98	0	-	-	-	-	-	0	0	-	-	0	-/-
03	0	-	-	-	-	-	0	0	-	-	0	-/-
08	100	-	-	100	-	-	0	0	-	-	0	5/8

		Age class distribution (plants per acre)					Utilization					
Year	Plants per Acre (excluding seedlings)	Seedling	Young	Mature	Decadent	Dead	% moderate	% heavy	% decadent	% dying	% poor vigor	Average Height Crown (in)
Opuntia sp.												
82	0	-	-	-	-	-	0	0	-	-	0	-/-
92	0	-	-	-	-	-	0	0	-	-	0	-/-
98	20	-	-	20	-	-	0	0	-	-	0	-/-
03	20	-	-	20	-	-	0	0	-	-	0	3/20
08	0	20	-	-	-	-	0	0	-	-	0	8/20
Quercus gambelii												
82	1066	-	333	733	-	-	13	31	0	-	0	47/23
92	1865	799	733	466	666	-	7	79	36	-	0	71/47
98	4920	340	1180	3360	380	240	6	0	8	3	29	35/31
03	8720	20	1900	6320	500	540	18	1	6	.91	.91	37/22
08	7680	80	1480	4380	1640	720	3	7	22	4	4	33/19
Quercus turbinella												
82	0	-	-	-	-	-	0	0	-	-	0	-/-
92	0	-	-	-	-	-	0	0	-	-	0	-/-
98	0	-	-	-	-	-	0	0	-	-	0	35/20
03	0	-	-	-	-	-	0	0	-	-	0	-/-
08	0	-	-	-	-	-	0	0	-	-	0	-/-
Ribes sp.												
82	0	-	-	-	-	-	0	0	-	-	0	-/-
92	0	-	-	-	-	-	0	0	-	-	0	-/-
98	20	-	-	20	-	-	0	0	-	-	0	57/58
03	20	-	-	20	-	-	0	0	-	-	0	54/40
08	20	-	-	20	-	-	0	0	-	-	0	45/51
Symphoricarpos oreophilus												
82	666	-	-	666	-	-	0	0	0	-	0	25/22
92	598	-	333	199	66	-	22	0	11	-	0	19/29
98	560	120	300	260	-	-	14	0	0	-	0	12/17
03	80	-	-	80	-	-	0	0	0	-	0	20/41
08	100	-	20	80	-	-	0	0	0	-	0	17/31
Tetradymia canescens												
82	66	-	-	66	-	-	0	0	-	-	0	12/15
92	199	-	133	66	-	-	33	0	-	-	0	11/14
98	0	-	-	-	-	-	0	0	-	-	0	-/-
03	80	-	60	20	-	-	0	0	-	-	0	31/36
08	0	-	-	-	-	-	0	0	-	-	0	-/-