

Trend Study 10-8-05

Study site name: Black Horse .

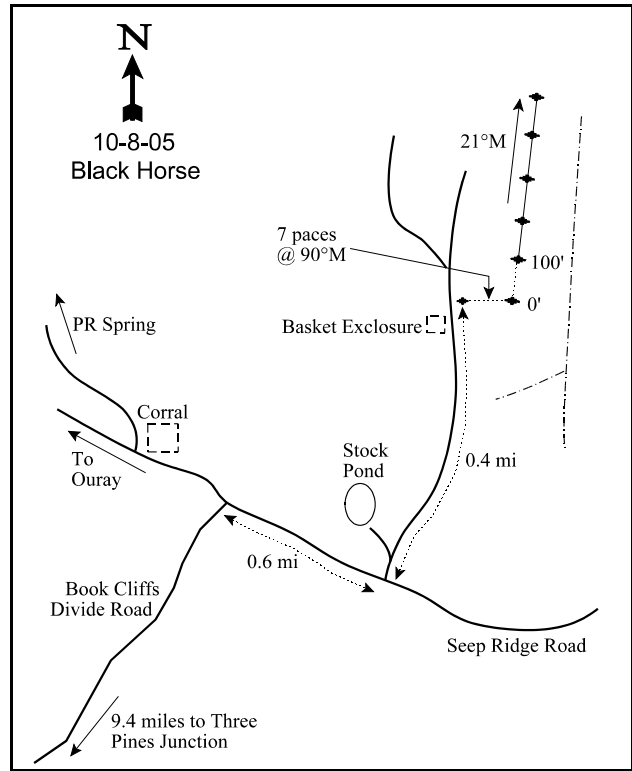
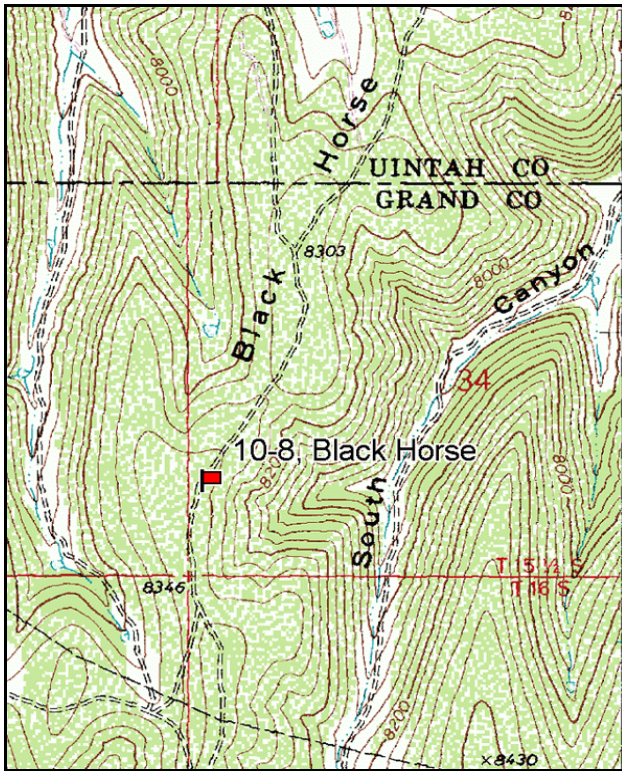
Vegetation type: Mountain Brush .

Compass bearing: frequency baseline 21 degrees magnetic.

Frequency belt placement: line 1 (11ft*), line 2 (34ft), line 3 (59ft), line 4 (71ft), line 5 (95ft). **Belt 1 centered at 40 feet.

LOCATION DESCRIPTION

At 0.6 miles southeast of the intersection of the Seep Ridge road and the Book Cliff Divide road, a road turns north off the divide road and heads up Black Horse Ridge. Go up this road 0.4 miles to a witness post on the right side of the road. The study site is on the east slope of the ridge. From the witness post, walk 7 paces bearing 90°M to the 0-foot baseline stake. The baseline stake has browse tag #9039 attached. The frequency baseline runs parallel to the road. Study markers are 18" green metal fenceposts.



Map Name: PR Spring

Diagrammatic Sketch

Township 15 1/2S, Range 24E, Section 34

GPS: NAD 27, UTM 12S 4368401 N, 649407 E

DISCUSSION

Black Horse - Trend Study No. 10-8

The Black Horse trend study is located near the Book Cliffs summit in the mountain brush type which is used by deer and elk as summer range. The study is just below the ridge, on an east-facing, 11% slope at an elevation of 8,300 feet. This is the highest elevation trend study on the unit. There are small stands of aspen and conifers in the drainages, but the dominant vegetation is scrub oak and associated mountain brush. Deer are commonly observed in the area. Cattle graze the ridge on a rotational deferred system in the Sweetwater allotment between May 1 and October 31. Pellet group transect data in 2000 estimated moderate use by deer (57 deer days use/acre, 141 ddu/ha), light use by elk (22 elk days use/acre, 54 edu/ha), and light use by cattle (4 cow days use/acre, 10 cdu/ha). Pellet group data from 2005 estimated high deer use at 86 deer days/acre (212 ddu/ha). Elk and cow use was light (5 edu/ac (13/ha), 11 cdu/ac (29/ha)). In 2005, a deer fawn carcass was found on the site.

The soils are in the Seeprid-Utso loam complex. These soils typically are moderately deep and well-drained. On the study site, there appears to be a compacted clay horizon under 4-6 inches of loose, stony surface loam. This clay layer is quite variable as it was sampled as deep as 15 inches below the surface. Run-off and pedestaling occurs in open grazed areas and on steeper areas, but overall the vegetation cover is adequate to control most excessive erosion. This soil is grouped into the Mountain Stony Loam (Browse) ecological site, indicating a potential plant community of 30% grass, 10% forbs and 60% shrubs (composition by air-dry weight). Effective rooting depth is estimated at just over 13 inches. Organic matter is moderately high at 4.4% with soil reaction being neutral (pH of 6.8). An erosion condition class assessment rated erosion as slight in 2005.

This mixed mountain brush community is composed of a variety of valuable shrubs. Large serviceberry and clones of Gambel oak are the primary overstory species. Mature serviceberry average over 4 feet in height with some individuals being over 5 feet in height. The majority of the plants showed only light to moderate hedging in all years sampled. Some plants show heavier use on the lower half of the plant. The prevalence of rust on the leaves led to a poor vigor classification for 22% of the plants in 1988. Vigor has since improved on most of the population. Density has remained fairly stable over all sampling years. Recruitment from the young age class was high in 1988 (94% of the population) and 1995 (65% of the population). Recruitment was moderately high at 26% in 2000 and even higher in 2005 at 42%. In 2000, oak density was estimated at 4,580 stems/acre. The difference in 1995 and 2000 density estimates may be that individual patches were counted in 1995, whereas individual stems were counted in 2000. Young recruitment has been high with each reading. Use is mostly light and vigor is good, with mature plants averaging nearly 5 feet in height.

Other preferred browse species include: mountain big sagebrush, bitterbrush, and true mountain mahogany. Mahogany and bitterbrush are more heavily utilized. In 1988, only one mahogany was sampled. It was classified as decadent and heavily utilized. The new, much larger sample design used in 1995 estimated an average of 1,140 plants/acre in 1995, 1,160 plants/acre in 2000, and 1,140 plants/acre in 2005. The larger sampling design gives much better estimates for species with discontinuous and/or clumped distributions. In 2000, use was mostly moderate (40%) with an additional 19% displaying heavy use. In 2005, 98% of the shrubs sampled showed heavy use. Vigor has been good for each reading, but decadence increased to 19% in 2005. Recruitment was high (45%) in 2000, but decreased to only 7% in 2005. Bitterbrush is less abundant. Half of the population showed moderate or heavy use in 2000, with good vigor and no decadence. In 2005, 83% showed signs of heavy use but no plants were classified as decadent.

Mountain big sagebrush density increased from 1,160 plants/acre in 1995 to 1,980 plants/acre in 2000. This remained fairly stable in 2005 at 2,040 plants/acre. Cover has remained at about 9%. Percent decadence was low until 2005, when it increased to 26% due to drought conditions. Utilization has been light. Snowberry

has been one of the most prominent shrubs on this site. Cover has been 10-15%. Snowberry density increased 23% in 2005 to 7,440 plants/acre. Young plants made up 15% of the population. Utilization has been light for all readings.

Since the area is primarily summer range, herbaceous forage is especially important. Herbaceous vegetation is fairly abundant with grasses providing 16-18% average cover. Forbs are also moderately abundant and contribute about 10% average cover. Most grasses were at least moderately utilized by cattle during the 1988 reading. The most numerous species are thickspike wheatgrass, a sedge, Kentucky bluegrass, Lettermen needlegrass, and mutton bluegrass. The sedge is the most abundant averaging about 8-9% cover. Sum of nested frequency for grasses increased slightly with each reading up to 2000, then declined about 8% in 2005.

Thirty-four species of forbs were encountered in 1995, 28 in 2000, and 27 in 2005. Perennial forb sum of nested frequency declined 24% in 2000 and increased 5% in 2005. Weedy milkvetch, ballhead sandwort, mat penstemon, and Eaton fleabane are the most abundant species. Several valuable forb species occur on the site including Pacific aster, arrowleaf balsamroot, penstemon, Indian paintbrush, and sulfur buckwheat.

1988 APPARENT TREND ASSESSMENT

Basal vegetation cover accounts for 12% of the basic ground cover. Litter cover (56%) was found only in association with the shrubs. Rock and pavement cover combined for about 10%. Percent bare ground was at almost 23%. Soil trend appears stable. Browse trend also appears stable. The most preferred browse species including true mountain mahogany and antelope bitterbrush occur in low numbers and are heavily utilized. Snowberry, mountain big sagebrush, and serviceberry showed light to moderate hedging and appear to have stable to expanding populations. The herbaceous trend appears stable.

1995 TREND ASSESSMENT

Percent bare ground has declined considerably since the last reading from almost 23% to 11%. Soil trend is considered slightly improving. The browse trend is slightly up with many of the preferred species displaying lighter utilization, improved vigor, and low decadency rates. Density numbers for many of the shrubs are different due to the larger sample size giving much better population estimates for the shrubs. Trend for grasses and forbs is stable. Sum of nested frequency of grasses increased slightly with significant increases for sedge and Kentucky bluegrass. Sum of nested frequency of forbs remained about the same. The Desirable Components Index (see methods) rated this site as excellent winter range due to excellent shrub cover and a excellent herbaceous understory.

TREND ASSESSMENT

soil - slightly up (+1)

browse - slightly up (+1)

herbaceous understory - stable (0)

winter range condition (DC Index) - excellent (97) Higher potential scale

2000 TREND ASSESSMENT

Trend for soil is stable. Ground cover characteristics remain relatively stable compared to 1995 estimates. The ratio of protective ground cover to bare soil is very good with minimal erosion. Trend for the key browse species, serviceberry and true mountain mahogany, is stable. Serviceberry and mahogany show stable densities, high recruitment, low decadency, and good vigor. Use on these preferred species is not as extreme as is sometimes the case. Mountain big sagebrush provides additional palatable forage, although this species is not considered the key species on summer range, and is less preferred compared to mahogany, serviceberry, and low densities of bitterbrush on the site. Trend for the herbaceous understory is stable. Sum of nested

frequency of perennial grasses slightly increased while forbs decreased. Combined, sum of nested frequency of perennial species slightly decreased, but not enough to warrant a downward trend. The Desirable Components Index (see methods) rated this site as excellent winter range due to excellent shrub cover and a excellent herbaceous understory.

TREND ASSESSMENT

soil - stable (0)

browse - stable (0)

herbaceous understory - stable (0)

winter range condition (DC Index) - excellent (95) Higher potential scale

2005 TREND ASSESSMENT

The soil trend is considered stable as there are not significant changes in percent bare soil and the ratio of protecting ground cover to bare soil are still very good. Relative litter cover decreased from 41% to 33%, while relative percent bare ground increased from 9 to 12%. An erosion condition class assessment rated erosion as slight, with signs of pedestaling, flow patterns, and soil movement. The browse trend is stable for the key species, but decadence did increase substantially for true mountain mahogany and mountain big sagebrush. Recruitment was also lower for these two species. Utah serviceberry density is stable, recruitment good, and decadence low. Use did increase to heavy for mahogany and bitterbrush, but remained moderate for serviceberry and light for sagebrush. The herbaceous understory trend is stable. There was a slight decrease of about 8% for the sum of nested frequency of grasses. Nested frequency for Kentucky bluegrass, which is an increaser species, significantly increased. Perennial forb nested frequency increased about 5%, while cover increased from 9 to nearly 12%. The DCI score decreased to good, due to higher decadence in key browse and lower recruitment.

TREND ASSESSMENT

soil - stable (0)

browse - stable (0)

herbaceous understory - stable (0)

winter range condition (DC Index) - good (81) Higher potential scale

HERBACEOUS TRENDS --

Management unit 10 , Study no: 8

T y p e	Species	Nested Frequency				Average Cover %		
		'88	'95	'00	'05	'95	'00	'05
G	Agropyron cristatum	-	-	6	-	-	.03	-
G	Agropyron dasystachyum	108	103	128	135	1.58	1.92	2.40
G	Bromus anomalus	_c 71	_c 67	_b 27	_a -	.95	.23	-
G	Bromus tectorum (a)	-	3	-	-	.00	-	-
G	Carex sp.	_b 215	_b 234	_b 235	_a 146	9.30	9.65	7.62
G	Koeleria cristata	_a -	_{ab} 3	_b 15	_b 16	.00	.27	.51
G	Phleum pratense	-	-	7	-	-	.30	-
G	Poa fendleriana	_a 35	_a 29	_a 40	_b 85	1.18	.46	2.63
G	Poa pratensis	_a 39	_a 54	_a 63	_b 123	1.74	2.42	3.65

Type	Species	Nested Frequency				Average Cover %		
		'88	'95	'00	'05	'95	'00	'05
G	<i>Sitanion hystrix</i>	a ³	b ¹³	ab ⁶	a ⁻	.28	.03	-
G	<i>Stipa columbiana</i>	-	-	-	9	-	-	.19
G	<i>Stipa comata</i>	-	-	-	5	-	-	.36
G	<i>Stipa lettermani</i>	a ⁴	a ²³	b ⁶²	a ²²	.70	1.13	.48
Total for Annual Grasses		0	3	0	0	0.00	0	0
Total for Perennial Grasses		475	526	589	541	15.76	16.47	17.85
Total for Grasses		475	529	589	541	15.76	16.47	17.85
F	<i>Achillea millefolium</i>	a ¹⁵	b ⁴⁴	ab ³⁰	ab ²⁶	.60	.19	.45
F	<i>Agoseris glauca</i>	a ⁻	a ³	b ²⁶	b ³²	.00	.19	.72
F	<i>Androsace septentrionalis</i> (a)	-	1	3	2	.00	.00	.00
F	<i>Arabis</i> sp.	-	-	6	-	-	.21	-
F	<i>Arenaria congesta</i>	b ¹⁴¹	ab ¹⁰⁴	a ⁷⁴	ab ¹⁰⁸	1.27	.65	1.93
F	<i>Artemisia ludoviciana</i>	4	-	-	-	-	-	-
F	<i>Aster chilensis</i>	b ⁸⁹	a ⁵¹	a ²⁹	a ²³	.45	.21	.36
F	<i>Astragalus miser</i>	78	95	112	96	3.54	4.46	3.11
F	<i>Balsamorhiza sagittata</i>	b ⁷⁹	a ¹⁸	a ²¹	a ¹⁴	.73	.66	.86
F	<i>Castilleja flava</i>	b ²⁷	a ⁶	ab ¹⁷	a ¹	.01	.09	.03
F	<i>Calochortus nuttallii</i>	-	7	3	-	.05	.00	-
F	<i>Chenopodium</i> sp. (a)	-	3	-	-	.00	-	-
F	<i>Cirsium</i> sp.	b ²⁸	b ²³	ab ¹¹	a ²	.41	.37	.18
F	<i>Comandra pallida</i>	b ¹²⁰	a ³⁷	a ¹⁸	a ³⁹	.17	.09	.20
F	<i>Collinsia parviflora</i> (a)	-	4	-	-	.01	-	-
F	<i>Crepis acuminata</i>	a ³	c ⁴⁸	bc ²⁹	ab ⁹	.26	.26	.10
F	<i>Cymopterus</i> sp.	-	-	8	3	-	.09	.00
F	<i>Delphinium nuttallianum</i>	a ⁻	ab ⁸	a ⁻	b ¹⁶	.03	-	.07
F	<i>Eriogonum alatum</i>	-	-	1	1	-	.00	.03
F	<i>Erigeron eatonii</i>	a ⁻	c ¹⁰¹	b ⁴⁷	bc ⁷⁹	.67	.28	.91
F	<i>Erigeron flagellaris</i>	c ⁵³	a ⁻	b ²⁵	a ⁻	-	.32	-
F	<i>Eriogonum umbellatum</i>	ab ²⁰	b ³⁶	a ⁶	a ¹⁵	.24	.03	.47
F	<i>Gayophytum ramosissimum</i> (a)	-	8	-	-	.04	-	-
F	<i>Gilia</i> sp. (a)	-	2	-	-	.00	-	-
F	<i>Hymenoxys acaulis</i>	-	8	1	-	.04	.03	-
F	<i>Ipomopsis aggregata</i>	2	-	-	-	-	-	-
F	<i>Lathyrus brachycalyx</i>	a ⁻	b ¹⁴	b ²¹	b ¹⁷	.60	.34	.31
F	<i>Linum lewisii</i>	-	3	7	7	.01	.04	.21
F	<i>Lithospermum</i> sp.	-	-	-	1	-	-	.00

Type	Species	Nested Frequency				Average Cover %		
		'88	'95	'00	'05	'95	'00	'05
F	Lomatium sp.	-	7	4	2	.02	.06	.04
F	Lupinus argenteus	_{ab} 3	_b 11	_a -	_{ab} 6	.12	-	.04
F	Oenothera sp.	2	-	-	-	-	-	-
F	Penstemon caespitosus	61	43	57	29	.21	.47	.57
F	Pedicularis centranthera	-	8	-	-	.10	-	-
F	Penstemon pachyphyllus	3	6	2	-	.04	.00	-
F	Phlox longifolia	_{ab} 37	_{ab} 41	_a 20	_b 61	.15	.04	.36
F	Polygonum douglasii (a)	-	_b 28	_a -	_b 38	.14	-	.11
F	Senecio integerrimus	_a -	_{ab} 3	_a 2	_b 10	.03	.00	.18
F	Taraxacum officinale	_a 1	_c 36	_{ab} 12	_{bc} 21	.26	.09	.19
F	Tragopogon dubius	3	-	-	-	-	-	-
F	Unknown forb-annual (a)	-	3	-	-	.00	-	-
F	Unknown forb-perennial	5	8	-	2	.04	-	.15
F	Viguiera multiflora	_{ab} 3	_b 15	_{ab} 4	_a -	.13	.01	-
Total for Annual Forbs		0	49	3	40	0.21	0.00	0.11
Total for Perennial Forbs		777	784	593	620	10.28	9.26	11.51
Total for Forbs		777	833	596	660	10.49	9.27	11.63

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

BROWSE TRENDS --
Management unit 10 , Study no: 8

T y p e	Species	Strip Frequency			Average Cover %		
		'95	'00	'05	'95	'00	'05
B	<i>Amelanchier utahensis</i>	43	55	58	3.55	4.26	3.67
B	<i>Artemisia tridentata vaseyana</i>	31	56	60	9.49	8.51	8.46
B	<i>Cercocarpus montanus</i>	27	30	30	4.30	4.50	3.99
B	<i>Chrysothamnus depressus</i>	5	4	3	.01	-	.18
B	<i>Chrysothamnus nauseosus</i>	0	1	0	-	-	-
B	<i>Chrysothamnus viscidiflorus lanceolatus</i>	68	71	67	3.51	2.12	4.13
B	<i>Gutierrezia sarothrae</i>	4	8	11	.19	.10	1.01
B	<i>Mahonia repens</i>	25	43	36	1.05	2.43	1.97
B	<i>Opuntia sp.</i>	2	2	2	-	-	-
B	<i>Prunus virginiana</i>	8	9	12	.51	.33	.62
B	<i>Purshia tridentata</i>	3	8	5	.68	1.03	.24
B	<i>Quercus gambelii</i>	10	44	33	2.83	6.07	3.07
B	<i>Rosa woodsii</i>	2	1	0	.18	.00	-
B	<i>Symphoricarpos oreophilus</i>	75	86	84	13.24	10.39	15.38
B	<i>Tetradymia canescens</i>	3	4	3	.00	.15	.03
Total for Browse		306	422	404	39.60	39.93	42.78

CANOPY COVER, LINE INTERCEPT --
 Management unit 10 , Study no: 8

Species	Percent Cover	
	'00	'05
Amelanchier utahensis	2.40	7.48
Artemisia tridentata vaseyana	-	9.46
Cercocarpus montanus	-	6.83
Chrysothamnus depressus	-	.06
Chrysothamnus viscidiflorus lanceolatus	-	4.48
Gutierrezia sarothrae	-	.20
Juniperus osteosperma	-	.01
Mahonia repens	-	1.06
Opuntia sp.	-	.06
Prunus virginiana	-	.20
Purshia tridentata	-	.15
Quercus gambelii	2.40	4.55
Symphoricarpos oreophilus	-	17.43
Tetradymia canescens	-	.18

KEY BROWSE ANNUAL LEADER GROWTH --
 Management unit 10 , Study no: 8

Species	Average leader growth (in)
	'05
Amelanchier utahensis	2.4
Artemisia tridentata vaseyana	2.0

BASIC COVER --
 Management unit 10 , Study no: 8

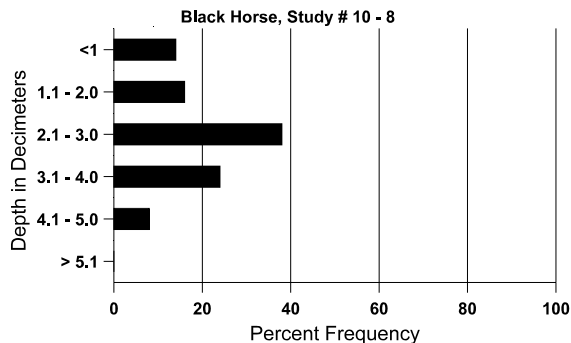
Cover Type	Average Cover %			
	'88	'95	'00	'05
Vegetation	11.75	55.30	61.88	57.64
Rock	4.25	6.09	4.62	4.90
Pavement	6.00	.51	1.54	3.79
Litter	55.50	53.79	56.37	39.45
Cryptogams	0	.07	.00	.07
Bare Ground	22.50	10.82	12.18	14.80

SOIL ANALYSIS DATA --

Herd Unit 10, Study # 8, Study Name: Black Horse

Effective rooting depth (in)	Temp °F (depth)	pH	%sand	%silt	%clay	%OM	ppm P	ppm K	dS/m
13.2	48.6 (14.8)	6.8	26.0	33.4	40.6	4.4	10.8	252.8	0.8

Stoniness Index



PELLET GROUP DATA --

Management unit 10 , Study no: 8

Type	Quadrat Frequency		
	'95	'00	'05
Rabbit	5	13	14
Elk	-	4	1
Deer	19	16	35
Cattle	6	-	4

Days use per acre (ha)	
'00	'05
-	-
22 (54)	5 (13)
57 (141)	86 (212)
4 (10)	12 (29)

BROWSE CHARACTERISTICS --

Management unit 10 , Study no: 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)
Amelanchier utahensis												
88	3599	466	3400	66	133	-	9	9	4	-	22	54/55
95	2400	-	1560	780	60	60	28	3	3	.83	.83	44/34
00	2660	160	700	1720	240	100	13	14	9	.75	4	51/36
05	2720	40	1140	1260	320	80	18	30	12	1	1	47/30
Artemisia tridentata vaseyana												
88	1332	133	133	466	733	-	0	0	55	-	0	34/31
95	1160	120	260	880	20	60	19	0	2	-	3	29/40
00	1980	240	320	1440	220	100	22	8	11	1	1	29/36
05	2040	200	140	1360	540	80	16	4	26	9	12	21/28

		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 montanus												
88	66	-	-	-	66	-	0	100	100	-	0	-/-
95	1140	-	420	720	-	20	54	11	0	-	0	44/49
00	1160	20	520	600	40	20	40	19	3	-	0	41/37
05	1140	20	80	840	220	80	2	98	19	4	4	54/46
Chrysothamnus depressus												
88	0	-	-	-	-	-	0	0	-	-	0	-/-
95	120	-	20	100	-	-	17	0	-	-	0	4/7
00	160	-	60	100	-	-	0	0	-	-	0	14/5
05	100	-	-	100	-	-	0	0	-	-	0	4/10
Chrysothamnus nauseosus												
88	0	-	-	-	-	-	0	0	-	-	0	-/-
95	0	-	-	-	-	-	0	0	-	-	0	-/-
00	20	-	-	20	-	-	100	0	-	-	0	-/-
05	0	-	-	-	-	-	0	0	-	-	0	-/-
Chrysothamnus viscidiflorus lanceolatus												
88	4133	-	1200	2933	-	-	0	0	0	-	0	14/9
95	4660	40	1320	3340	-	-	0	0	0	-	0	12/14
00	5000	40	320	4600	80	-	8	0	2	.40	.40	15/16
05	3500	-	-	3300	200	-	2	0	6	2	2	11/14
Gutierrezia sarothrae												
88	0	-	-	-	-	-	0	0	-	-	0	-/-
95	300	-	100	200	-	-	0	0	-	-	0	6/7
00	1020	-	280	740	-	-	0	0	-	-	0	6/6
05	880	-	60	820	-	-	0	0	-	-	0	5/10
Juniperus osteosperma												
88	0	-	-	-	-	-	0	0	-	-	0	-/-
95	0	-	-	-	-	-	0	0	-	-	0	-/-
00	0	20	-	-	-	-	0	0	-	-	0	-/-
05	0	-	-	-	-	-	0	0	-	-	0	-/-
Mahonia repens												
88	2199	-	1666	533	-	-	0	0	0	-	0	10/6
95	3220	-	1760	1460	-	-	2	0	0	-	0	3/5
00	6280	-	380	5900	-	-	0	0	0	-	8	3/6
05	2300	-	160	2120	20	-	0	0	1	.86	.86	4/5

		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)
<i>Opuntia sp.</i>												
88	0	-	-	-	-	-	0	0	-	-	0	-/-
95	60	-	-	60	-	-	0	0	-	-	0	5/9
00	40	-	-	40	-	-	0	0	-	-	0	4/8
05	60	-	-	60	-	-	0	0	-	-	0	4/11
<i>Prunus virginiana</i>												
88	800	-	800	-	-	-	17	0	0	-	0	-/-
95	720	-	660	60	-	-	0	0	0	-	0	10/11
00	760	260	760	-	-	-	0	0	0	-	0	18/19
05	420	-	300	100	20	-	5	0	5	5	5	9/9
<i>Purshia tridentata</i>												
88	199	-	66	133	-	-	0	67	-	-	0	7/15
95	80	-	-	80	-	-	0	0	-	-	0	8/23
00	240	-	20	220	-	-	25	25	-	-	0	10/29
05	120	-	-	120	-	-	0	83	-	-	0	8/19
<i>Quercus gambelii</i>												
88	5066	266	4400	600	66	-	17	0	1	-	1	70/56
95	480	-	200	280	-	-	38	4	0	-	0	57/64
00	4580	-	3320	1100	160	280	6	0	3	.87	1	59/41
05	3020	180	1900	820	300	120	17	1	10	9	11	55/34
<i>Rosa woodsii</i>												
88	1332	-	1066	266	-	-	0	0	-	-	10	16/10
95	40	-	20	20	-	-	0	0	-	-	0	7/5
00	20	-	20	-	-	-	0	0	-	-	0	-/-
05	0	-	-	-	-	-	0	0	-	-	0	8/6
<i>Symphoricarpos oreophilus</i>												
88	6265	333	4266	1866	133	-	0	0	2	-	49	15/12
95	5480	160	1480	4000	-	20	11	.72	0	-	0	17/27
00	5720	200	280	5420	20	-	15	0	0	-	0	14/23
05	7440	-	1140	6260	40	60	.80	0	1	-	0	14/19
<i>Tetradymia canescens</i>												
88	66	-	66	-	-	-	0	0	0	-	0	-/-
95	80	-	-	80	-	-	25	0	0	-	0	14/12
00	120	-	20	100	-	-	0	0	0	-	0	15/9
05	80	-	-	60	20	-	50	25	25	-	0	19/13