

Trend Study 16C-9-07

Study site name: Pole Canyon Oak.

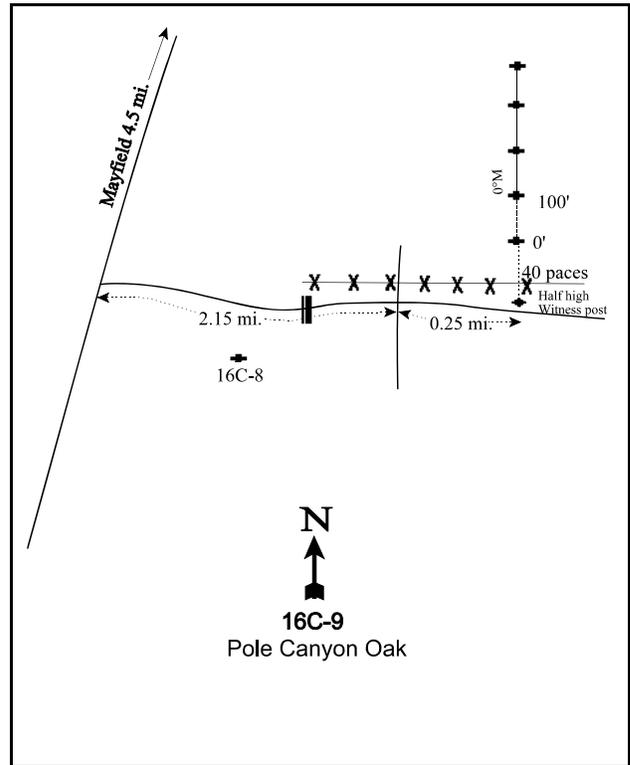
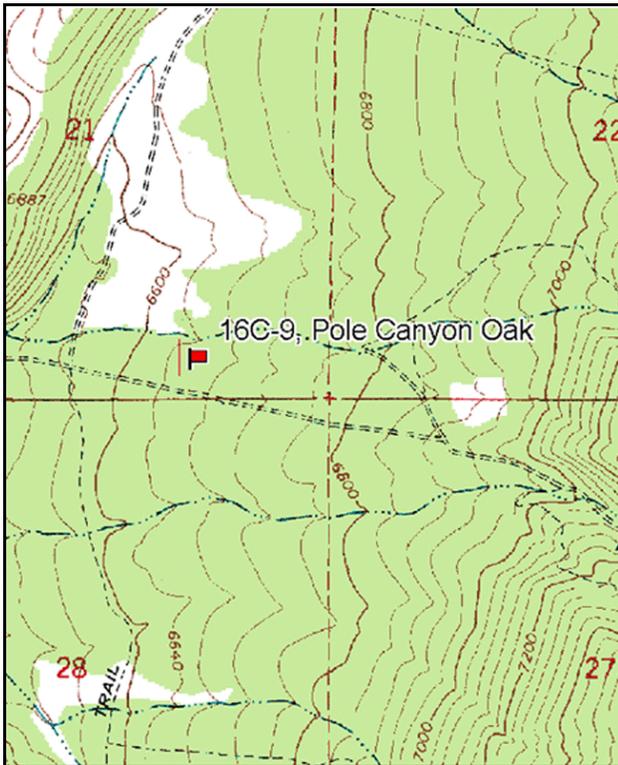
Vegetation type: Mountain Brush.

Compass bearing: frequency baseline 0 degrees magnetic.

Frequency belt placement: line 1 (11 & 95ft), line 2 (34ft), line 3 (59ft), line 4 (71ft). Rebar: belt 5 on 1ft.

LOCATION DESCRIPTION

Go south from Main street in Mayfield through Arapien Valley for 4.5 miles to the Pole Canyon Road. Turn east and go 2.15 miles, passing study number 16C-8 and crossing a cattle guard to a 4-way intersection (South Hollow Road). From the intersection, go east (straight) for another 0.25 miles to a half high witness post on the north side of the road. The 0-foot baseline stake (marked by browse tag #9042) is 40 paces due north.



Map Name: Mayfield

Diagrammatic Sketch

Township 20S, Range 2E, Section 21

GPS: NAD 83, UTM 12S 440172 E 4322328 N

## DISCUSSION

### Pole Canyon Oak - Trend Study No. 16C-9

#### Study Information

This study is located 4.5 miles (7.2 km) south of Mayfield, on the south end of South Hollow, in Pole Canyon on Utah Division of Wildlife Resources property [elevation: 6,670 feet (2,033 m), slope: 8%, aspect: west]. It samples a mixed mountain brush community dominated by Gambel oak (*Quercus gambelii*), pinyon pine (*Pinus edulis*), and Utah juniper (*Juniperus osteosperma*). Some of the surrounding area was experimentally treated with herbicide in strips to remove the dense overstory of oak. However, this study does not lie within a treated area. It receives moderate use by deer. From the pellet group transect, deer use was estimated at 88 days use/acre (217 ddu/ha) in 2002 and 85 days use/acre (210 ddu/ha) in 2007. Elk was estimated at 9 days use/acre (22 edu/ha) in 2007. Sheep was estimated at 1 day use/acre in 2002. Cattle use was estimated at 1 day use/acre (2 cdu/ha) in 2007.

#### Soil

The soil is in the Fontreen series, which consist of very deep, well-drained, moderately-rapidly permeable soils that formed in alluvium and colluvium from limestone, sandstone, chert, and shale. Fontreen soils are on alluvial fans, hillslopes and mountain slopes (USDA-NRCS 2007). The soil had a loam texture and a neutral reactivity (pH of 7.2). Since 1997, the combined relative cover of vegetation and litter was high at 79%-82%, and the relative bare ground cover was 12%-15%. Most of the areas of bare soil are in the interspaces between trees and shrubs. This is where the majority of the erosion occurs. In 2002 and 2007, the erosion condition was classified as slight due to the formation of rills, pedestalling, flow patterns, and light translocation of litter, rock, and soil.

#### Browse

The dominant overstory is oakbrush in association with a considerable stand of juniper and pinyon. The canopy cover of oak increased from 12% in 2002 to 20% in 2007. The density of oak was estimated at 3,265 stems/acre (8,065 stems/ha) in 1989, 4,980 stems/acre (12,300 stems/ha) in 1997, 6,260 stems/acre (15,462 stems/ha) in 2002, and 5,860 stems/acre (14,474 stems/ha) in 2007. Young oak plants were abundant in all sample years, and decadent plants have comprised 11% or less of the population. Browse use has been light-moderate.

The canopy cover of juniper was 17% in 2002 and 2007. The point-centered quarter data estimated juniper density at 141 trees/acre (348 trees/ha) in 1997, 179 trees/acre (442 trees/ha) in 2002, and 174 trees/acre (430 trees/ha) in 2007. The average juniper trunk diameter was estimated at 4 inches (10.2 cm) in 1997, 5 inches (12.7 cm) in 2002, and 6.2 inches (15.7 cm) in 2007. The canopy cover of pinyon increased from 9% in 2002 to 13% in 2007. Pinyon density estimates were 89 trees/acre (220 trees/ha) in 1997, 51 trees/acre (126 trees/ha) in 2002, and 77 trees/acre (190 trees/ha) in 2007. The average pinyon trunk diameter was 9.4 inches (23.9 cm) in 1997, 6.2 inches (15.7 cm) in 2002, and 6.8 inches (17.3 cm) in 2007.

Several preferred browse were sampled in lower densities. The dominant preferred browse species was mountain big sagebrush (*Artemisia tridentata* ssp. *vaseyana*). Sagebrush comprised 3% of the canopy cover in 2002 and 2% in 2007. Sagebrush density steadily declined from 1,233 plants/acre (3,046 plants/ha) in 1989, to 400 plants/acre (988 plants/ha) in 2007. Young plants were only sampled in 1997, comprising 4% of the population. Decadence has been high, ranging from 42% of the population to 97%. Plants classified as having poor vigor have ranged from 19% of the population to 73%. Browse use has been light-heavy. Drought and competition with increasing tree canopy may be negatively impacting sagebrush. Average annual leader growth on mountain big sagebrush was 1.8 inches (4.5 cm) in 2002 and 3 inches (7.7 cm) in 2007.

Canopy cover of antelope bitterbrush decreased from 2% in 2002 to 1% in 2007. Bitterbrush density was 233 plants/acre (576 plants/ha) in 1989, 540 plants/acre (1,334 plants/ha) in 1997, 520 plants/acre (1,284 plants/ha) in 2002, and 260 plants/acre (642 plants/ha) in 2007. Young plants comprised 14% of the population in 1989, 15% in 1997, and 0% in 2002 and 2007. There has been no decadence or poor vigor in the population. Browse use has been mostly moderate-heavy. Average annual leader growth on antelope bitterbrush was 1.7 inches (4.2 cm) in 2002 and 4.8 inches (12.2 cm) in 2007.

Canopy cover of true mountain mahogany (*Cercocarpus montanus*) was 2% in 2002 and 2007. Mahogany density was estimated at 66 plants/acre (163 plants/ha) in 1989, 140 plants/acre (346 plants/ha) in 1997 and 2007, and 180 plants/acre (445 plants/ha) in 2002. Young plants were only sampled in 2007, accounting for 14% of the population, and decadent plants were only sampled in 1989, comprising 50% of the population. Plant vigor has been excellent, and browse use has been mostly moderate-heavy. Average annual leader growth on true mountain mahogany was 1.6 inches (4.1 cm) in 2002 and 5.5 inches (13.9 cm) in 2007. Other browse sampled include Utah serviceberry (*Amelanchier utahensis*) and broom snakeweed (*Gutierrezia sarothrae*).

#### Herbaceous Understory

The herbaceous understory is sparse. Heavy competition with woody plants limits sunlight and moisture for understory species. Since 1997, herbaceous species provided only 7%-17% of the total vegetation cover. Although total cover was low, species diversity was moderately high with 36 species of grasses and forbs being sampled since 1989. The diversity of species indicates that with less canopy from pinyon, juniper, and oak, there may be potential for a greater productive understory. Mutton bluegrass (*Poa fendleriana*) was the dominant grass in 1997 and 2002, providing 2% of the total ground cover. In 2007, bluebunch wheatgrass (*Agropyron spicatum*) was dominant, providing 1% cover. Cheatgrass (*Bromus tectorum*) was also measured, but provided less than 1% cover in all samples.

Though forb diversity has been moderate, forbs are sparse, and no single species has been dominant. The herbaceous plants that have been present were sampled mainly under the protection of woody plants, which leaves the large shrub interspaces devoid of vegetation. A treatment to decrease woody overstory cover and the subsequent seeding of herbaceous plants may be considered to improve the vegetative community.

#### 1997 TREND ASSESSMENT

The browse trend is slightly up. Mountain big sagebrush density decreased 22%. The recruitment of young increased from 0% to 4% of the population. Decadent plants decreased from 97% to 42% of the population. Plants classified as having poor vigor decreased from 73% to 19% of the population. Browse use decreased from heavy to mostly light. Antelope bitterbrush density increased more than two-fold. The recruitment of young increased from 14% to 15% of the population. There were no decadent plants. Plant vigor remained excellent, and browse use decreased from heavy to mostly moderate. True mountain mahogany density increased more than two-fold. There was no recruitment of young, and decadence decreased to 0% of the population. Plant vigor remained excellent, and browse use decreased from heavy to moderate-heavy. Gamble oak density increased 53%. The recruitment of young decreased from 72% of the population to 37%. Decadence decreased from 11% to 5%, and vigor remained good on most plants. Individuals that were not out of reach showed light-moderate browse use. The changes in browse densities were due in part to the larger sampling area. The grass trend is down. The sum of nested frequency for perennial grass decreased 39%. Mutton bluegrass, Indian ricegrass, and Sandberg bluegrass (*Poa secunda*) decreased significantly in nested frequency. The forb trend is slightly up. The sum of nested frequency for perennial forbs increased 17%. The number of perennial forb species sampled increased from 12 to 18. There was a significant decrease in the nested frequency of desert parsley (*Lomatium* sp.). The Desirable Components Index (DCI) score was fair due to good preferred browse cover with low decadence and good recruitment, very little perennial and annual grass cover, and very little perennial forb cover.

winter range condition (DCI) - fair (59) Mid-level potential scale

browse - slightly up (+1)

grass - down (-2)

forb - slightly up (+1)

### 2002 TREND ASSESSMENT

The browse trend is slightly down. The density of mountain big sagebrush decreased 19%. There was no recruitment of young into the population, and decadence increased to 72% of the population. Plants classified as having poor vigor increased to 31% of the population. The density of dead plants increased from 380 plants/acre (939 plants/ha) to 580 plants/acre (1,433 plants/ha). Browse use was light-heavy. The density of antelope bitterbrush decreased 4%. There was no recruitment of young, and vigor remained excellent. Browse use was mostly heavy. The density of true mountain mahogany increased 29%. There were no young or decadent plants in the population, and vigor remained excellent. Browse use was mostly heavy. Gamble oak cover decreased from 16% to 8%, and density increased 26%. The recruitment of young increased to 42%, and decadence decreased to 3% of the population. Plants with poor vigor increased to 24% of the population, and browse use was light. The grass trend is slightly down. The sum of nested frequency for perennial grass decreased 17%. There was a significant decrease in the nested frequency of needle-and-thread grass (*Stipa comata*), however, the nested frequency for cheatgrass decreased 50%. The forb trend is down. The sum of nested frequency of perennial forbs decreased 61%, and the sum of nested frequency for annual forbs changed little. The number of perennial species sampled decreased from 18 to seven. The DCI score was poor due to a decrease in browse cover and the recruitment of young, an increase in browse decadence.

winter range condition (DCI) - poor (43) Mid-level potential scale

browse - slightly down (-1)

grass - slightly down (-1)

forb - down (-2)

### 2007 TREND ASSESSMENT

The browse trend is down. The density of mountain big sagebrush decreased 49%. There were no young, but decadence decreased to 65% of the population. Plants showing poor vigor increased to 65% of the population. Browse use was mostly light-moderate. The density of antelope bitterbrush decreased 50%. There were no young or decadent plants in the population. Plant vigor was excellent, and browse use was mostly heavy. The density of true mountain mahogany decreased 22%. The recruitment of young increased to 14% of the population. There was no decadence, and plant vigor was excellent. Browse use was light-heavy. Oak cover increased slightly to 10%, however, density decreased slightly 6%. The recruitment of young decreased to 23%, and decadence increased to 11% of the population. Plants with poor vigor decreased to 4% of the population and browse use remained mostly light. The grass trend is stable. The sum of nested frequency for perennial grass changed little. The nested frequency for mutton bluegrass significantly decreased, while the nested frequency for bluebunch wheatgrass significantly increased. The nested frequency for cheatgrass significantly increased, although cover remained less than 1%. The forb trend is slightly down. The sum of nested frequency for perennial forbs was stable. However, the nested frequency for bur buttercup significantly increased. This allelopathic annual may be limiting the establishment of other species (Buchanan et al. 1978). The DCI score remained poor.

winter range condition (DCI) - poor (43) Mid-level potential scale

browse - down (-2)

grass - stable (0)

forb - slightly down (-1)

HERBACEOUS TRENDS --  
Management unit 16C, Study no: 9

T y p e	Species	Nested Frequency				Average Cover %		
		'89	'97	'02	'07	'97	'02	'07
G	<i>Agropyron spicatum</i>	a <sup>9</sup>	a <sup>14</sup>	a <sup>7</sup>	b <sup>55</sup>	.08	.08	1.28
G	<i>Bromus tectorum</i> (a)	-	b <sup>40</sup>	a <sup>20</sup>	b <sup>48</sup>	.82	.03	.62
G	<i>Carex</i> sp.	-	-	-	4	-	-	.09
G	<i>Oryzopsis hymenoides</i>	b <sup>42</sup>	a <sup>15</sup>	a <sup>11</sup>	a <sup>7</sup>	.11	.18	.15
G	<i>Poa fendleriana</i>	c <sup>143</sup>	b <sup>75</sup>	b <sup>84</sup>	a <sup>33</sup>	2.24	1.56	.56
G	<i>Poa pratensis</i>	-	11	-	-	.07	-	-
G	<i>Poa secunda</i>	b <sup>21</sup>	a <sup>5</sup>	ab <sup>8</sup>	a <sup>1</sup>	.06	.02	.03
G	<i>Sitanion hystrix</i>	-	-	a <sup>1</sup>	b <sup>7</sup>	-	.00	.08
G	<i>Stipa comata</i>	ab <sup>6</sup>	b <sup>15</sup>	a <sup>1</sup>	ab <sup>4</sup>	.11	.00	.18
Total for Annual Grasses		0	40	20	48	0.81	0.03	0.62
Total for Perennial Grasses		221	135	112	111	2.69	1.86	2.39
Total for Grasses		221	175	132	159	3.51	1.89	3.01
F	<i>Agoseris glauca</i>	a <sup>1</sup>	a <sup>3</sup>	a <sup>3</sup>	-	.03	.00	-
F	<i>Arabis</i> sp.	-	5	-	-	.01	-	-
F	<i>Astragalus consobrinus</i>	2	-	-	-	-	-	-
F	<i>Astragalus</i> sp.	a <sup>2</sup>	a <sup>-</sup>	-	-	.00	-	-
F	<i>Balsamorhiza sagittata</i>	3	-	-	-	-	-	-
F	<i>Castilleja linariaefolia</i>	a <sup>1</sup>	a <sup>2</sup>	a <sup>3</sup>	-	.00	.00	-
F	<i>Chaenactis douglasii</i>	a <sup>5</sup>	a <sup>8</sup>	-	a <sup>2</sup>	.02	-	.01
F	<i>Comandra pallida</i>	-	33	-	-	.10	-	-
F	<i>Collinsia parviflora</i> (a)	-	a <sup>23</sup>	a <sup>33</sup>	b <sup>144</sup>	.05	.07	.56
F	<i>Crepis acuminata</i>	-	2	-	-	.03	-	-
F	<i>Cymopterus</i> sp.	-	a <sup>19</sup>	a <sup>26</sup>	a <sup>10</sup>	.08	.07	.10
F	<i>Descurainia pinnata</i> (a)	-	-	-	1	-	-	.00
F	<i>Erigeron divergens</i>	-	a <sup>2</sup>	a <sup>3</sup>	-	.00	.03	-
F	<i>Eriogonum umbellatum</i>	a <sup>7</sup>	a <sup>9</sup>	a <sup>1</sup>	a <sup>4</sup>	.07	.00	.18
F	<i>Lactuca serriola</i>	-	1	-	-	.00	-	-
F	<i>Lesquerella</i> sp.	-	a <sup>7</sup>	-	a <sup>6</sup>	.04	-	.01
F	<i>Lomatium</i> sp.	b <sup>66</sup>	a <sup>3</sup>	-	-	.01	-	-
F	<i>Machaeranthera</i> spp	-	3	-	-	.00	-	-
F	<i>Microsteris gracilis</i> (a)	-	a <sup>15</sup>	-	b <sup>38</sup>	.03	-	.11
F	<i>Penstemon</i> sp.	-	3	-	-	.03	-	-
F	<i>Petroradia pumila</i>	-	-	a <sup>2</sup>	a <sup>2</sup>	-	.18	.06
F	<i>Phlox longifolia</i>	a <sup>12</sup>	a <sup>14</sup>	a <sup>11</sup>	a <sup>22</sup>	.11	.02	.12
F	<i>Ranunculus testiculatus</i> (a)	-	a <sup>10</sup>	a <sup>16</sup>	b <sup>66</sup>	.02	.03	.51

T y p e	Species	Nested Frequency				Average Cover %		
		'89	'97	'02	'07	'97	'02	'07
F	Senecio multilobatus	<sub>a</sub> 5	<sub>a</sub> 7	-	<sub>a</sub> 1	.06	-	.03
F	Taraxacum officinale	-	1	-	-	.01	-	-
F	Tragopogon dubius	<sub>a</sub> 1	-	-	<sub>a</sub> 2	-	-	.03
F	Zigadenus paniculatus	<sub>a</sub> 1	<sub>a</sub> 2	-	-	.03	-	-
Total for Annual Forbs		0	48	49	249	0.11	0.10	1.19
Total for Perennial Forbs		106	124	49	49	0.67	0.31	0.54
Total for Forbs		106	172	98	298	0.78	0.43	1.74

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

#### BROWSE TRENDS --

Management unit 16C, Study no: 9

T y p e	Species	Strip Frequency			Average Cover %		
		'97	'02	'07	'97	'02	'07
B	Amelanchier utahensis	5	2	2	.21	.03	.00
B	Artemisia tridentata vaseyana	35	28	18	2.45	3.32	.93
B	Cercocarpus montanus	7	8	7	1.54	.78	1.45
B	Gutierrezia sarothrae	7	6	4	.04	.18	-
B	Juniperus osteosperma	8	6	6	6.83	6.23	3.54
B	Opuntia sp.	1	3	0	-	.03	.03
B	Pinus edulis	5	8	5	7.35	6.19	3.69
B	Purshia tridentata	11	14	10	2.77	2.57	2.45
B	Quercus gambelii	46	54	53	16.01	8.21	10.38
Total for Browse		125	129	105	37.22	27.57	22.48

CANOPY COVER, LINE INTERCEPT --  
 Management unit 16C, Study no: 9

Species	Percent Cover	
	'02	'07
Amelanchier utahensis	.18	.63
Artemisia tridentata vaseyana	3.18	2.13
Cercocarpus montanus	1.79	2.11
Gutierrezia sarothrae	.23	.15
Juniperus osteosperma	16.58	17.01
Pinus edulis	8.58	12.85
Purshia tridentata	2.03	1.48
Quercus gambelii	12.08	20.38

KEY BROWSE ANNUAL LEADER GROWTH --  
 Management unit 16C, Study no: 9

Species	Average leader growth (in)	
	'02	'07
Artemisia tridentata vaseyana	1.8	3.0
Cercocarpus montanus	1.6	5.5
Purshia tridentata	1.7	4.8

POINT-QUARTER TREE DATA --  
 Management unit 16C, Study no: 9

Species	Trees per Acre	
	'02	'07
Juniperus osteosperma	179	174
Pinus edulis	51	77

Average diameter (in)	
'02	'07
5.1	6.2
6.2	6.8

BASIC COVER --  
 Management unit 16C, Study no: 9

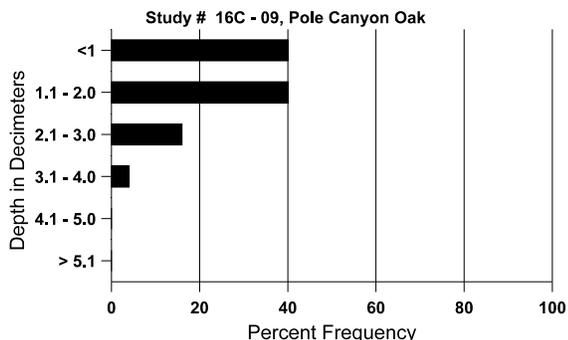
Cover Type	Average Cover %			
	'89	'97	'02	'07
Vegetation	5.00	40.13	29.32	30.44
Rock	2.75	2.16	2.30	2.01
Pavement	13.75	5.42	5.69	5.39
Litter	67.00	59.63	66.83	57.90
Cryptogams	.50	.28	.21	.10
Bare Ground	11.00	14.36	17.06	16.36

SOIL ANALYSIS DATA --

Herd Unit 16C, Study no: 09, Pole Canyon Oak

Effective rooting depth (in)	Temp °F (depth)	pH	Loam			%OM	ppm P	ppm K	dS/m
			%sand	%silt	%clay				
9.1	54.4 (11.3)	7.2	46.7	28.7	24.6	3.5	9.9	108.8	.7

Stoniness Index



PELLET GROUP DATA --

Management unit 16C, Study no: 9

Type	Quadrat Frequency		
	'97	'02	'07
Rabbit	12	10	34
Elk	3	1	10
Deer	28	26	30
Cattle	1	1	-

Days use per acre (ha)	
'02	'07
-	-
-	9 (22)
88 (217)	85 (210)
-	1 (2)

BROWSE CHARACTERISTICS --

Management unit 16C, Study no: 9

		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)
<b>Amelanchier utahensis</b>												
89	0	-	-	-	-	-	0	0	-	-	0	-/-
97	100	20	20	80	-	-	0	0	-	-	0	43/23
02	40	-	-	40	-	-	0	0	-	-	0	27/16
07	60	-	40	20	-	-	67	0	-	-	33	46/79
<b>Artemisia tridentata vaseyana</b>												
89	1233	-	-	33	1200	-	0	100	97	73	73	19/28
97	960	-	40	520	400	380	6	0	42	19	19	29/33
02	780	-	-	220	560	580	10	23	72	31	31	27/32
07	400	-	-	140	260	300	35	10	65	50	65	32/38

		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)
<b>Cercocarpus montanus</b>												
89	<b>66</b>	-	-	33	33	-	0	100	50	-	0	60/55
97	<b>140</b>	-	-	140	-	-	43	29	0	-	0	34/40
02	<b>180</b>	-	-	180	-	-	11	78	0	-	0	34/37
07	<b>140</b>	-	20	120	-	-	0	57	0	-	0	33/39
<b>Chrysothamnus depressus</b>												
89	<b>0</b>	-	-	-	-	-	0	0	-	-	0	-/-
97	<b>0</b>	-	-	-	-	-	0	0	-	-	0	9/12
02	<b>0</b>	-	-	-	-	-	0	0	-	-	0	-/-
07	<b>0</b>	-	-	-	-	-	0	0	-	-	0	-/-
<b>Chrysothamnus viscidiflorus</b>												
89	<b>233</b>	-	-	100	133	-	0	100	57	43	43	3/2
97	<b>0</b>	-	-	-	-	-	0	0	0	-	0	-/-
02	<b>0</b>	-	-	-	-	-	0	0	0	-	0	-/-
07	<b>0</b>	-	-	-	-	-	0	0	0	-	0	-/-
<b>Gutierrezia sarothrae</b>												
89	<b>1165</b>	-	33	1066	66	-	0	0	6	3	3	9/9
97	<b>240</b>	-	-	240	-	-	0	0	0	-	0	9/7
02	<b>220</b>	-	-	220	-	-	0	0	0	-	0	8/9
07	<b>140</b>	-	-	140	-	-	0	0	0	-	0	9/9
<b>Juniperus osteosperma</b>												
89	<b>133</b>	-	133	-	-	-	0	0	-	-	25	-/-
97	<b>160</b>	-	60	100	-	-	0	0	-	-	0	-/-
02	<b>120</b>	-	40	80	-	40	17	0	-	-	17	-/-
07	<b>120</b>	20	20	100	-	-	0	0	-	-	0	-/-
<b>Opuntia sp.</b>												
89	<b>0</b>	-	-	-	-	-	0	0	-	-	0	-/-
97	<b>40</b>	-	-	40	-	-	0	0	-	-	0	7/12
02	<b>100</b>	20	60	40	-	-	0	0	-	-	0	6/4
07	<b>0</b>	-	-	-	-	-	0	0	-	-	0	3/14
<b>Peraphyllum ramosissimum</b>												
89	<b>0</b>	-	-	-	-	-	0	0	-	-	0	-/-
97	<b>0</b>	-	-	-	-	-	0	0	-	-	0	-/-
02	<b>0</b>	-	-	-	-	-	0	0	-	-	0	17/12
07	<b>0</b>	-	-	-	-	-	0	0	-	-	0	-/-

		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)
<b>Pinus edulis</b>												
89	<b>66</b>	66	33	33	-	-	0	0	-	-	0	177/171
97	<b>120</b>	60	60	60	-	-	0	0	-	-	0	-/-
02	<b>180</b>	40	60	120	-	-	0	0	-	-	0	-/-
07	<b>120</b>	80	20	100	-	-	0	0	-	-	0	-/-
<b>Purshia tridentata</b>												
89	<b>233</b>	-	33	200	-	-	0	100	-	-	0	13/18
97	<b>540</b>	-	80	460	-	-	56	11	-	-	0	13/49
02	<b>520</b>	-	-	520	-	-	23	77	-	-	0	13/38
07	<b>260</b>	-	-	260	-	-	8	77	-	-	0	14/39
<b>Quercus gambelii</b>												
89	<b>3265</b>	1633	2366	533	366	-	16	0	11	-	0	39/30
97	<b>4980</b>	300	1840	2880	260	980	18	.40	5	2	2	55/44
02	<b>6260</b>	60	2600	3480	180	660	3	4	3	2	24	42/22
07	<b>5860</b>	840	1360	3860	640	1480	13	.34	11	2	4	34/26
<b>Tetradymia canescens</b>												
89	<b>33</b>	-	33	-	-	-	0	0	-	-	0	-/-
97	<b>0</b>	-	-	-	-	-	0	0	-	-	0	-/-
02	<b>0</b>	-	-	-	-	-	0	0	-	-	0	-/-
07	<b>0</b>	-	-	-	-	-	0	0	-	-	0	-/-