

SKITZY CANYON - TREND STUDY NO. 17-57-10

Vegetation Type: Chained, Seeded Pinyon-Juniper  
Range Type: Crucial Deer Winter, Crucial Elk Winter  
NRCS Ecological Site Description: Not Available

Land Ownership: UDWR  
Elevation: 7338 ft. (2237 m)

Aspect: North  
Slope: 6%

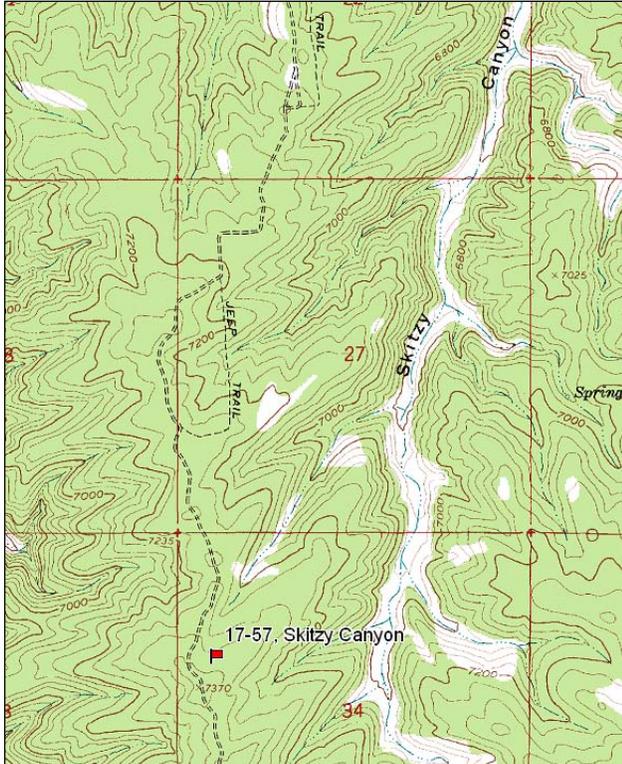
Transect bearing: 188° magnetic

Belt placement: line 1 (11 & 95ft), line 2 (34ft), line 3 (59ft), line 4 (71ft). Belt 2 rebar @ 5ft.

Directions:

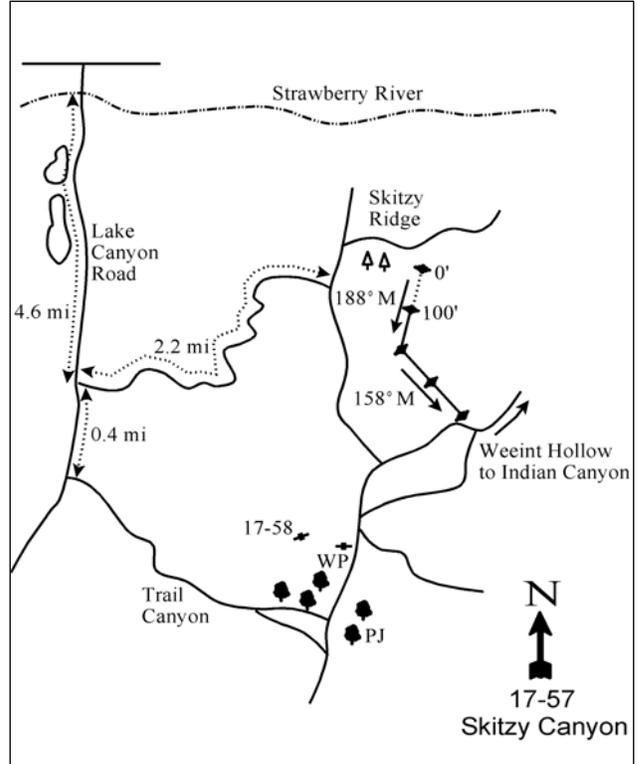
From the Strawberry River, take the Lake Canyon Road (3239 West) south for 4.6 miles to a road which goes up the canyon to the east. Turn left and drive approximately 2.2 miles up to a “T” intersection at the top of the ridge. [Skitzy Ridge can also be reached via Trail Canyon the next (south) side canyon of Lake Canyon, or from Indian Canyon along the Weeint Hollow road.] At the top, look east into the chaining for two large conifers (Douglas firs). The 0-foot baseline stake is located to the east of the two trees.

Map Name: Buck Knoll



Township: 4S Range: 6W Section: 34

Diagrammatic Sketch:



GPS: NAD 83, UTM 12T 537786 E 4438017 N

## SKITZY CANYON - TREND STUDY NO. 17-57

### Site Information

Site Description: This study is located on a pinyon pine (*Pinus edulis*) and Utah juniper (*Juniperus osteosperma*) chaining in Skitzzy Canyon. The area is managed by the Utah Division of Wildlife Resources (UDWR) as part of the Skitzzy Canyon Wildlife Management Area (WMA). Prior to the chaining and seeding in 1977-78, the site was dominated by juniper and pinyon. There is a large amount of energy development in the area surrounding the WMA, with many new roads and heavy traffic. Limited spring cattle grazing has occurred in the area since 2009. Pellet group transect data estimated very heavy use by elk in 2000 and 2005, but more moderate use in 2010. Estimated use by deer was light in 2000 and 2010, but was heavy in 2005. Estimated cattle use has been light since 2000 (Table - Pellet Group Data).

Browse: Browse is a minor component of this chaining. No shrubs were encountered during the 1982 reading. Since 1988, black sagebrush (*Artemisia nova*) has been the dominant shrub species. Utilization of black sagebrush has been mostly moderate with heavy use in 2005 (Table - Browse Characteristics). Other preferred browse species occur, but did not fall within the shrub density strips. These include true mountain mahogany (*Cercocarpus montanus*) and antelope bitterbrush (*Purshia tridentata*). Some pinyon and juniper trees were released after the chaining and have been slowly increasing in size and density, though neither species is overly abundant on the site (Table - Point-Quarter Tree Data).

Herbaceous Understory: Grasses are diverse and abundant on the site, though crested wheatgrass (*Agropyron cristatum*) provides the majority of the grass cover on the site. Other common grass species include intermediate wheatgrass (*A. intermedium*), smooth brome (*Bromus inermis*) and Russian wildrye (*Elymus junceus*). Bottlebrush squirreltail (*Sitanion hystrix*) and Letterman's needlegrass (*Stipa lettermani*) were prevalent in 1988, but decreased significantly in 1995 and are now rare on the site. Forbs comprise only a small part of the vegetation. Prior to 2010, the only common forb was looseflower milkvetch (*Astragalus tenellus*), but it decreased substantially in cover and was rare in 2010. Seeded alfalfa (*Medicago sativa*) was sampled in 1995 and 2000, but not after 2005, which indicates that it persisted on the treatment for over 20 years (Table - Herbaceous Trends).

Soil: The soil texture is a sandy loam with a slightly alkaline soil reaction (pH of 7.8). Percent organic matter is very high at 8.4% (Table - Soil Analysis Data). Bare ground cover is low with a large amount of litter cover remaining from the chaining. However, bare ground cover has steadily increased since 2000 (Table - Basic Cover). Erosion and soil loss prior to treatment was heavy, which resulted in patchy areas of pavement and bare ground. Much of this has since filled in with herbaceous vegetation and the rate of erosion is being controlled. The soil erosion condition was classified as stable in 2005 and 2010.

### Trend Assessments

#### Browse:

- **1982 to 1988 - slightly up (+1):** The chaining had removed nearly all of the browse from the site in 1982. Several browse species including black sagebrush, were sampled for the first time in 1988.
- **1988 to 1995 - stable (0):** Differences in density may be related to the larger sample area used in 1995; therefore, trend was determined using other parameters. There was little change in the decadence or vigor of black sagebrush. Recruitment of young black sagebrush plants improved to over half of the population.
- **1995 to 2000 - slightly up (+1):** The density of black sagebrush increased 52% from 540 plants/acre to 820 plants/acre, but density is still considered low. Cover of black sagebrush increased from less than 1% to just over 1%. Decadence of black sagebrush increased from 0% to 29% and recruitment of young plants decreased from 52% to 12%, though recruitment is still considered good.

- **2000 to 2005 - slightly down (-1):** Black sagebrush density decreased by 20% to 660 plants/acre, but cover remained similar. Most of the decrease was in the recruitment of young black sagebrush plants, which decreased to 9%.
- **2005 to 2010 - stable (0):** There was little change in the density or cover of black sagebrush, though there was no new recruitment of young plants.

Grass:

- **1982 to 1988 - no trend (NT):** Only quadrat frequency data for grasses are available from 1982, so no trend was given.
- **1988 to 1995 - stable (0):** There was no change in the sum of nested frequency of perennial grasses. However, composition changed with a significant increase in the nested frequency of crested wheatgrass and a significant decrease in the nested frequency of bottlebrush squirreltail and Letterman's needlegrass.
- **1995 to 2000 - stable (0):** The sum of nested frequency of perennial grasses decreased by 8%, but cover increased from 18% to 21%.
- **2000 to 2005 - down (-2):** The perennial grass sum of nested frequency decreased by 24%, though cover remained similar.
- **2005 to 2010 - stable (0):** There was little change in the sum of nested frequency of perennial grasses, but cover decreased slightly to 18%.

Forb:

- **1982 to 1988 - no trend (NT):** Only quadrat frequency data for forbs are available from 1982, so no trend was given.
- **1988 to 1995 - stable (0):** Perennial forbs are rare and cover is provided almost exclusively by looseflower milkvetch.
- **1995 to 2000 - slightly down (-1):** There was a slight decrease in the sum of nested frequency of perennial forbs and cover decreased from 5% to 3%.
- **2000 to 2005 - stable (0):** The sum of nested frequency of perennial forbs continued to decrease and perennial forbs are very rare on the site, but cover remained similar.
- **2005 to 2010 - slightly down (-1):** The perennial forb sum of nested frequency decreased and cover decreased to less than 1%. Forbs were very rare on the site.

DEER DESIRABLE COMPONENTS INDEX - LOW POTENTIAL SCALE --

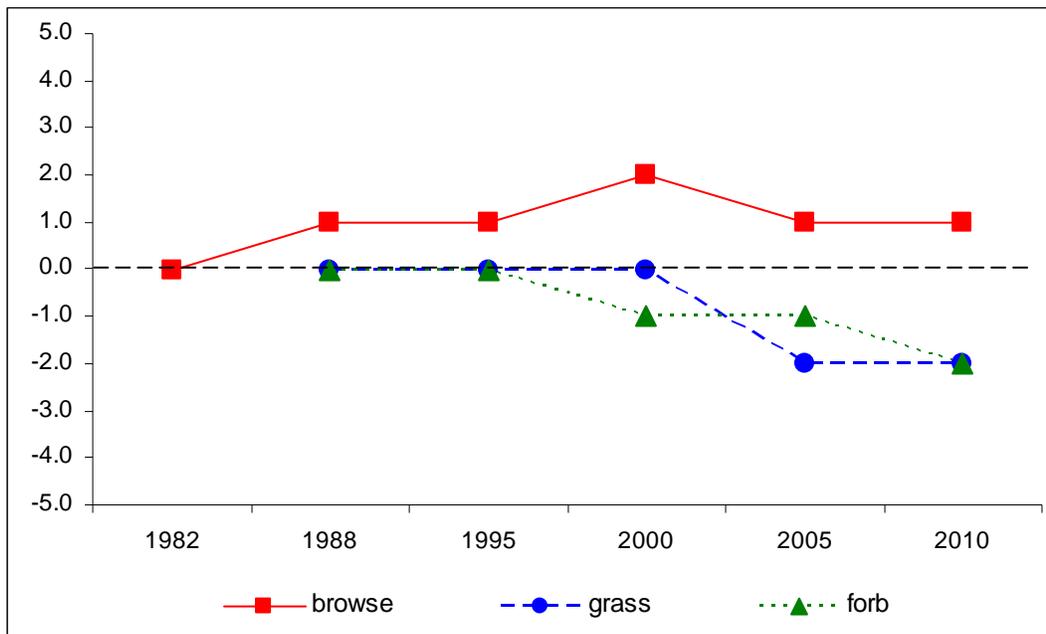
Management unit 17, study no: 57

Year	Preferred Browse Cover	Preferred Browse Decadence	Preferred Browse Young	Perennial Grass Cover	Annual Grass Cover	Perennial Forb Cover	Noxious Weeds	Total Score	Ranking
95	1.1	0.0	0.0	30.0	0.0	10.0	0.0	<b>41.1</b>	Fair
00	2.5	0.0	0.0	30.0	0.0	6.1	0.0	<b>38.7</b>	Fair
05	1.3	0.0	0.0	30.0	0.0	5.2	0.0	<b>36.4</b>	Fair
10	1.1	0.0	0.0	30.0	0.0	1.9	0.0	<b>33.0</b>	Fair

### Trend Summary

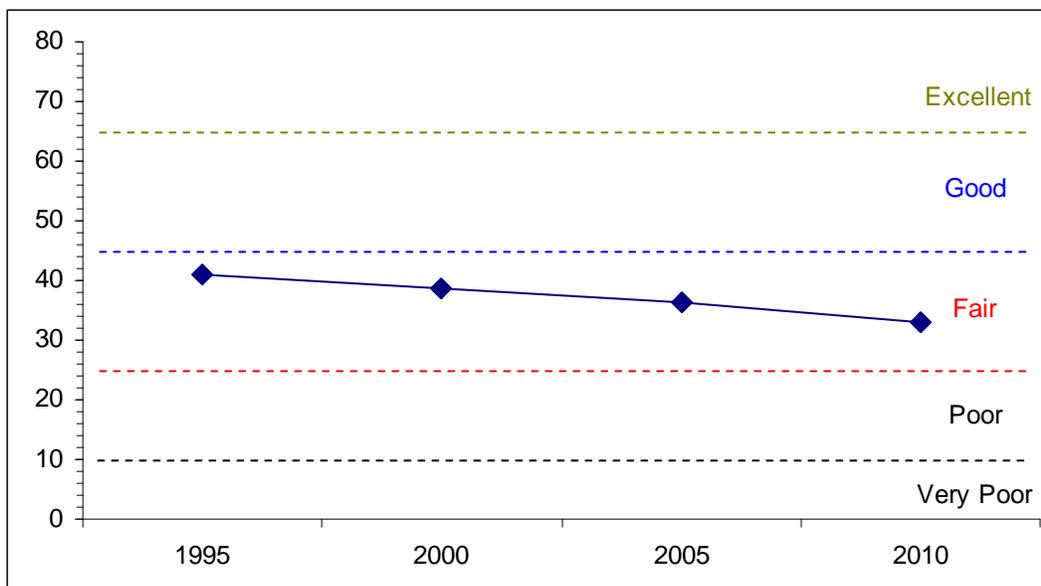
CUMULATIVE RANGE TREND ASSESSMENT--

Management unit 17, Study no: 57



DEER DESIRABLE COMPONENTS INDEX TREND, LOW POTENTIAL SCALE--

Management unit 17, Study no: 57



HERBACEOUS TRENDS--

Management unit 17, Study no: 57

Type	Species	Nested Frequency					Average Cover %			
		'88	'95	'00	'05	'10	'95	'00	'05	'10
G	Agropyron cristatum	<sub>a</sub> 159	<sub>b</sub> 259	<sub>b</sub> 261	<sub>b</sub> 257	<sub>b</sub> 240	11.42	13.32	15.62	12.67
G	Agropyron intermedium	<sub>abc</sub> 48	<sub>bc</sub> 56	<sub>c</sub> 61	<sub>ab</sub> 28	<sub>a</sub> 26	.61	1.12	2.25	.92

Type	Species	Nested Frequency					Average Cover %			
		'88	'95	'00	'05	'10	'95	'00	'05	'10
G	Agropyron trachycaulum	7	16	4	11	5	.64	.00	.49	.06
G	Bouteloua gracilis	1	-	-	4	-	-	-	.01	-
G	Bromus inermis	b60	b74	b72	a11	a16	1.89	2.04	.23	.39
G	Bromus tectorum (a)	-	-	-	2	-	-	-	.00	-
G	Carex sp.	c40	b20	b8	ab2	a-	.13	.06	.03	-
G	Dactylis glomerata	-	1	-	-	-	.00	-	-	-
G	Elymus cinereus	4	17	9	8	9	.62	.74	.39	.09
G	Elymus junceus	23	19	38	25	43	1.10	1.44	1.47	3.24
G	Elymus salina	-	-	6	-	-	-	1.23	-	-
G	Festuca ovina	a-	a1	b20	ab8	a3	.03	.21	.10	.00
G	Oryzopsis hymenoides	-	4	-	4	-	.18	-	.02	-
G	Poa fendleriana	a-	ab3	ab2	b9	ab2	.03	.03	.13	.00
G	Poa secunda	a-	b36	a4	ab17	b40	.25	.04	.10	.25
G	Sitanion hystrix	c101	b12	a-	ab4	a1	.04	-	.06	.03
G	Stipa lettermani	d122	c47	bc34	ab8	a4	.58	.45	.07	.18
Total for Annual Grasses		0	0	0	2	0	0	0	0.00	0
Total for Perennial Grasses		565	565	519	396	389	17.56	20.72	21.01	17.85
Total for Grasses		565	565	519	398	389	17.56	20.72	21.01	17.85
F	Androsace septentrionalis (a)	-	b40	a2	a-	a-	.12	.00	-	-
F	Arabis sp.	a3	ab12	b19	a-	a-	.03	.04	-	-
F	Astragalus convallarius	b12	ab4	a-	ab3	ab4	.04	-	.01	.03
F	Astragalus miser	a-	b15	b17	b18	ab8	.57	.48	.80	.22
F	Astragalus tenellus	b45	a17	a16	a7	a3	3.78	2.28	1.16	.15
F	Chaenactis douglasii	-	5	3	2	-	.01	.00	.01	-
F	Descurainia pinnata (a)	-	ab8	a-	b8	a-	.02	-	.02	-
F	Erigeron eatonii	3	2	-	-	-	.00	-	-	-
F	Eriogonum alatum	b15	ab12	a3	a3	a3	.14	.03	.03	.03
F	Eriogonum umbellatum	-	-	4	2	3	-	.00	.00	.00
F	Gayophytum ramosissimum(a)	-	3	-	-	-	.01	-	-	-
F	Grindelia squarrosa	-	3	-	-	1	.00	-	-	.00
F	Hedysarum boreale	a-	ab1	a-	ab3	b9	.15	-	.53	.51
F	Ipomopsis aggregata	1	6	-	-	-	.01	-	-	-
F	Lappula occidentalis (a)	-	-	-	5	3	-	-	.01	.00
F	Linum lewisii	-	3	-	-	-	.00	-	-	-
F	Medicago sativa	-	7	3	-	-	.56	.21	-	-
F	Penstemon caespitosus	1	-	-	-	-	-	-	-	-
F	Penstemon pachyphyllus	-	5	-	3	-	.01	-	.03	-
F	Sisymbrium altissimum (a)	-	a3	a-	b13	a1	.00	-	.35	.00
Total for Annual Forbs		0	54	2	26	4	0.15	0.00	0.39	0.00
Total for Perennial Forbs		80	92	65	41	31	5.34	3.07	2.58	0.95
Total for Forbs		80	146	67	67	35	5.50	3.07	2.97	0.96

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

BROWSE TRENDS--

Management unit 17, Study no: 57

Type	Species	Strip Frequency				Average Cover %			
		'95	'00	'05	'10	'95	'00	'05	'10
B	Amelanchier utahensis	0	0	1	1	-	-	-	-
B	Artemisia nova	12	15	14	14	.64	1.18	1.03	.86
B	Artemisia tridentata vaseyana	5	4	1	1	.21	.84	.00	-
B	Chrysothamnus nauseosus	1	0	1	1	-	-	.00	-
B	Chrysothamnus viscidiflorus lanceolatus	0	1	0	0	-	-	-	-
B	Juniperus osteosperma	0	2	2	2	.03	.78	1.23	1.16
B	Pinus edulis	0	3	3	2	.03	.81	.66	1.00
Total for Browse		18	25	22	21	0.91	3.61	2.94	3.02

CANOPY COVER, LINE INTERCEPT--

Management unit 17, Study no: 57

Species	Percent Cover		
	'00	'05	'10
Artemisia nova	-	1.33	1.45
Artemisia tridentata vaseyana	-	.08	.03
Juniperus osteosperma	-	.85	.96
Pinus edulis	.60	1.16	1.39

KEY BROWSE ANNUAL LEADER GROWTH--

Management unit 17, Study no: 57

Species	Average leader growth (in)	
	'05	'10
Artemisia nova	1.7	.7
Artemisia tridentata vaseyana	3.0	1.2
Cercocarpus montanus	2.1	2.7
Cowania mexicana	2.0	2.3

POINT-QUARTER TREE DATA--

Management unit 17, Study no: 57

Species	Trees per Acre			
	'95	'00	'05	'10
Juniperus osteosperma	9	23	32	34
Pinus edulis	11	21	35	42

Average diameter (in)			
'95	'00	'05	'10
4.4	2.6	4.2	2.4
2.9	2.8	3.6	2.3

**BASIC COVER--**

Management unit 17, Study no: 57

Cover Type	Average Cover %					
	'82	'88	'95	'00	'05	'10
Vegetation	7.50	4.75	26.94	29.00	26.73	21.53
Rock	3.25	4.50	12.60	5.57	6.23	5.36
Pavement	18.25	10.50	6.38	13.64	9.48	14.28
Litter	63.50	68.00	54.15	54.83	46.57	44.01
Cryptogams	.75	0	.05	.78	.01	.03
Bare Ground	6.75	12.25	6.84	7.07	18.72	25.20

**SOIL ANALYSIS DATA --**

Management unit 17, Study no: 57, Study Name: Skitzy Canyon

Effective rooting depth (in)	pH	sandy loam			%OM	PPM P	PPM K	ds/m
		%sand	%silt	%clay				
10.5	7.8	61.3	20.2	18.6	8.4	62.0	252.8	1.6

**PELLET GROUP DATA--**

Management unit 17, Study no: 57

Type	Quadrat Frequency				Days use per acre (ha)		
	'95	'00	'05	'10	'00	'05	'10
Rabbit	7	6	27	13	-	-	-
Horse	3	1	-	-	-	-	-
Elk	42	57	68	58	90 (223)	195 (481)	32 (79)
Deer/Antelope	6	6	14	19	7 (17)	80 (198)	11 (26)
Cattle	1	2	-	5	9 (23)	2 (5)	4 (9)

**BROWSE CHARACTERISTICS--**

Management unit 17, Study no: 57

		Age class distribution					Utilization			
Year	Plants per Acre (excluding seedlings)	% Young	% Mature	% Decadent	Seedling (plants/acre)	% moderate	% heavy	% poor vigor	Average Height Crown (in)	
<b>Amelanchier utahensis</b>										
82	0	0	0	-	-	0	0	0	-/-	
88	0	0	0	-	-	0	0	0	-/-	
95	0	0	0	-	-	0	0	0	-/-	
00	0	0	0	-	-	0	0	0	-/-	
05	20	100	0	-	-	0	100	0	12/12	
10	20	0	100	-	-	0	100	0	40/44	
<b>Artemisia nova</b>										
82	0	0	0	0	-	0	0	0	-/-	
88	133	0	100	0	-	0	0	0	8/11	
95	540	52	48	0	300	48	0	0	17/32	
00	820	12	59	29	40	12	0	0	14/27	
05	660	9	64	27	440	33	42	3	16/29	
10	580	0	86	14	-	62	0	14	12/23	

Year	Plants per Acre (excluding seedlings)	Age class distribution			Seedling (plants/acre)	Utilization			Average Height Crown (in)
		% Young	% Mature	% Decadent		% moderate	% heavy	% poor vigor	
<i>Artemisia tridentata vaseyana</i>									
82	0	0	0	0	-	0	0	0	-/-
88	66	0	100	0	-	0	0	0	15/10
95	100	40	60	0	-	20	0	0	27/42
00	80	25	50	25	-	25	25	0	23/38
05	20	0	100	0	-	0	100	0	29/52
10	20	0	0	100	-	100	0	100	25/30
<i>Atriplex canescens</i>									
82	0	0	0	-	-	0	0	0	-/-
88	0	0	0	-	-	0	0	0	-/-
95	0	0	0	-	-	0	0	0	-/-
00	0	0	0	-	-	0	0	0	-/-
05	0	0	0	-	-	0	0	0	31/46
10	0	0	0	-	20	0	0	0	17/21
<i>Ceratoides lanata</i>									
82	0	0	0	-	-	0	0	0	-/-
88	0	0	0	-	-	0	0	0	-/-
95	0	0	0	-	-	0	0	0	-/-
00	0	0	0	-	-	0	0	0	-/-
05	0	0	0	-	-	0	0	0	16/35
10	0	0	0	-	-	0	0	0	-/-
<i>Cercocarpus montanus</i>									
82	0	0	0	-	-	0	0	0	-/-
88	0	0	0	-	-	0	0	0	-/-
95	0	0	0	-	-	0	0	0	22/39
00	0	0	0	-	-	0	0	0	-/-
05	0	0	0	-	-	0	0	0	37/29
10	0	0	0	-	-	0	0	0	35/35
<i>Chrysothamnus nauseosus</i>									
82	0	0	0	0	-	0	0	0	-/-
88	0	0	0	0	-	0	0	0	-/-
95	20	0	100	0	-	0	0	0	31/33
00	0	0	0	0	-	0	0	0	34/45
05	20	0	0	100	40	0	0	0	32/44
10	20	0	100	0	-	0	0	0	35/41
<i>Chrysothamnus viscidiflorus lanceolatus</i>									
82	0	0	0	0	-	0	0	0	-/-
88	0	0	0	0	-	0	0	0	-/-
95	0	0	0	0	-	0	0	0	28/41
00	20	0	0	100	-	0	0	0	36/58
05	0	0	0	0	-	0	0	0	15/35
10	0	0	0	0	-	0	0	0	22/30

		Age class distribution					Utilization			
Year	Plants per Acre (excluding seedlings)	% Young	% Mature	% Decadent	Seedling (plants/acre)	% moderate	% heavy	% poor vigor	Average Height Crown (in)	
<i>Cowania mexicana stansburiana</i>										
82	0	0	0	-	-	0	0	0	-/-	
88	0	0	0	-	-	0	0	0	-/-	
95	0	0	0	-	-	0	0	0	-/-	
00	0	0	0	-	-	0	0	0	-/-	
05	0	0	0	-	-	0	0	0	23/37	
10	0	0	0	-	-	0	0	0	31/31	
<i>Ephedra viridis</i>										
82	0	0	0	-	-	0	0	0	-/-	
88	0	0	0	-	-	0	0	0	-/-	
95	0	0	0	-	-	0	0	0	-/-	
00	0	0	0	-	-	0	0	0	-/-	
05	0	0	0	-	-	0	0	0	-/-	
10	0	0	0	-	-	0	0	0	25/20	
<i>Juniperus osteosperma</i>										
82	0	0	0	-	-	0	0	0	-/-	
88	0	0	0	-	-	0	0	0	-/-	
95	0	0	0	-	40	0	0	0	-/-	
00	40	100	0	-	-	0	0	0	-/-	
05	40	50	50	-	-	0	0	0	-/-	
10	60	33	67	-	-	0	0	0	-/-	
<i>Opuntia sp.</i>										
82	0	0	0	-	-	0	0	0	-/-	
88	0	0	0	-	-	0	0	0	-/-	
95	0	0	0	-	-	0	0	0	-/-	
00	0	0	0	-	-	0	0	0	-/-	
05	0	0	0	-	-	0	0	0	5/15	
10	0	0	0	-	-	0	0	0	3/13	
<i>Pinus edulis</i>										
82	66	0	100	-	-	0	0	0	41/24	
88	66	100	0	-	66	0	0	0	-/-	
95	0	0	0	-	-	0	0	0	-/-	
00	60	67	33	-	-	0	0	0	-/-	
05	60	67	33	-	-	0	0	0	-/-	
10	40	50	50	-	-	0	0	0	-/-	
<i>Purshia tridentata</i>										
82	0	0	0	-	-	0	0	0	-/-	
88	0	0	0	-	-	0	0	0	-/-	
95	0	0	0	-	-	0	0	0	17/30	
00	0	0	0	-	-	0	0	0	39/36	
05	0	0	0	-	-	0	0	0	43/38	
10	0	0	0	-	-	0	0	0	-/-	

		Age class distribution					Utilization			
Year	Plants per Acre (excluding seedlings)	% Young	% Mature	% Decadent	Seedling (plants/acre)	% moderate	% heavy	% poor vigor	Average Height Crown (in)	
Sambucus sp.										
82	0	0	0	-	-	0	0	0	-/-	
88	0	0	0	-	-	0	0	0	-/-	
95	0	0	0	-	-	0	0	0	-/-	
00	0	0	0	-	-	0	0	0	-/-	
05	0	0	0	-	-	0	0	0	35/45	
10	0	0	0	-	-	0	0	0	50/69	