

CEDAR CORRAL - TREND STUDY NO. 11B-8-10

Vegetation Type: Pinyon-Juniper

Range Type: Crucial Deer Winter, Crucial Elk Winter

NRCS Ecological Site Description: [Upland Shallow Loam \(Pinyon-Utah Juniper\), R047XB326UT](#)

Land Ownership: Private

Elevation: 8060 ft. (2457 m)

Aspect: Northeast

Slope: 5%

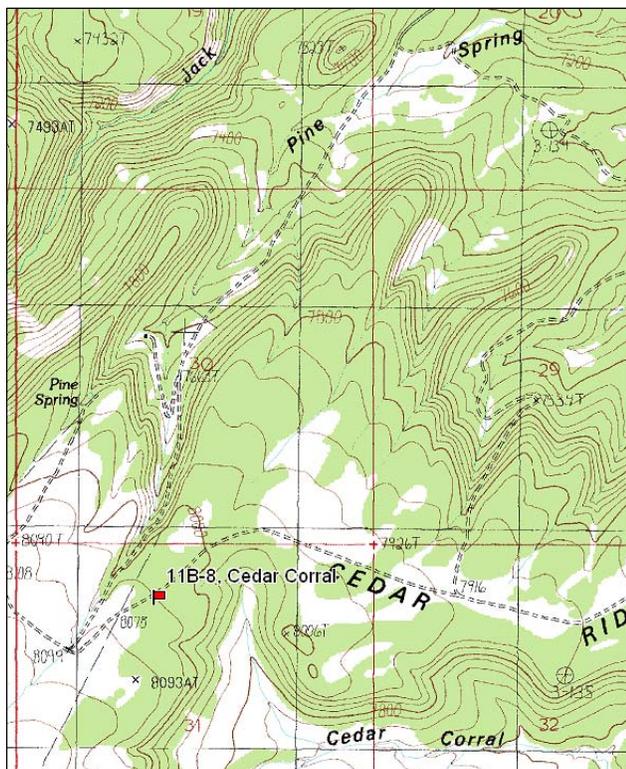
Transect bearing: 165° magnetic

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

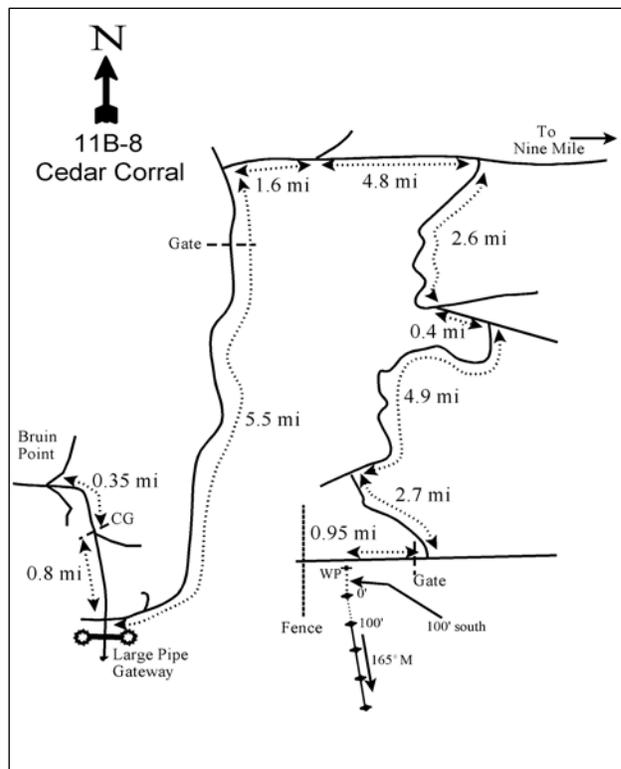
Directions:

From Bruin Point take the middle fork and go 0.35 miles. Stay right at the fork just beyond a cattle guard and go 0.9 miles. Turn left at the intersection just before the large pipe gateway and proceed 0.5 miles to a fork. Stay right and go 4.2 miles to a gate. Go 0.8 miles to a fork and remain right. Go 1.6 miles to another fork and remain right. Go 4.8 miles to another fork and turn right. Go 2.6 miles to another fork. Stay right and go 0.4 miles (passing 11B-7) to a fork. Stay right on the main road and go 4.8 miles to a junction. Turn left and go 2.7 miles to a "T" intersection. Turn right and go through the steel gate (You will need the combo to the lock). Proceed 0.95 miles to a witness post (fence post surrounded by pile of rocks) on the left side of the road. The 0-foot end of the baseline (marked by a fence post tagged #7801) is 100 feet south of the witness post. There is a fence crossing the road approximately 200 yards southwest of the witness post.

Map Name: Twin Hollow



Diagrammatic Sketch:



Township: 13S Range: 16E Section: 31

GPS: NAD 83, UTM 12S 571288 E 4389857 N

CEDAR CORRAL - TREND STUDY NO. 11B-8

Site Information

Site Description: The study is located on the southern part of the West Tavaputs Plateau. The study was originally on state land, but was sold to Nutter Ranch between the readings of 2000 and 2005. Cattle grazed the area in the past as part of the Green River allotment; however, there had been no cattle grazing on this allotment from 1994 until Nutter Ranch purchased the land. The grasses are rather depleted, with better elk forage found in the intermittent openings. Large pinyon pine (*Pinus edulis*) trees provide excellent hiding and thermal cover, but the high elevation of the site would limit its use in some winters. The Range Creek unit is used by an estimated 213 wild horses which reside in two groups. One group frequents the Cottonwood and Cold ridge area, while the other group primarily uses the Cedar ridge area. Pellet group transect data estimated light use by deer and elk since 2000. Estimated use by cattle and horses has also been light since 2000 (Table - Pellet Group Data). In addition, some sage grouse sign has also been encountered on the site.

Browse: Valuable browse species include true mountain mahogany (*Cercocarpus montanus*), mountain big sagebrush (*Artemisia tridentata* ssp. *vaseyana*), black sagebrush (*A. nova*) and Utah serviceberry (*Amelanchier utahensis*). These four key species combined have provided the majority of browse cover on the site in each sample year (Table - Browse Trends). It appears that there may be some hybridization occurring between mountain big sagebrush and black sagebrush. Most of the preferred browse has had light to moderate use, but serviceberry displayed heavier use in 2005 and 2010. Vigor was generally good and percent decadence low. Pinyon pine is the dominant overstory tree species and occurs at moderately high density (Table - Point-Quarter Tree Data) and cover (Table - Browse Trends). Utah juniper (*Juniperus osteosperma*) and Rocky Mountain juniper (*J. scopulorum*) are also found on the site, but are less common.

Herbaceous Understory: Several desirable forage grasses occur on the site, but overall abundance is limited. Common species include thickspike wheatgrass (*Agropyron dasystachyum*), bluebunch wheatgrass (*A. spicatum*), mutton bluegrass (*Poa fendleriana*) and Sandberg bluegrass (*P. secunda*). Utilization of grasses is light. Cheatgrass (*Bromus tectorum*) was sampled on the site for the first time during the 2005 reading. A variety of forbs are present with the majority being small, low-growing species. Forbs, however, do produce more cover than grasses. The most abundant species are the succulent species lanceleaved sedum or stonecrop (*Sedum lanceolatum*) and the low growing species rose pussytoes (*Antennaria rosea*). Other common species include hairy goldaster (*Heterotheca villosa*) and desert phlox (*Phlox austromontana*) (Table - Herbaceous Trends).

Soil: The soil has a sandy clay loam to sandy loam texture with a marginally neutral soil reaction (pH 6.6). Organic matter is low at 1.9 % and phosphorus may have limited availability for plant growth and development at 4.5 ppm (Tiedemann and Lopez 2004) (Table - Soil Analysis Data). Bare ground cover is moderately low with a build-up of soil, litter and cryptogams under the scattered shrubs (Table - Basic Cover). The soil erosion condition was classified as stable in 2005, but was slight in 2010 due to pedestaling, flow patterns and soil movement.

Trend Assessments

Browse:

- **1986 to 1994 - slightly up (+1):** Differences in density may be related to the larger sample area used in 1994; therefore, trend was determined using other parameters. Decadence of serviceberry decreased substantially from 100% to 6%. Decadence of black sagebrush and true mountain mahogany also decreased slightly.
- **1994 to 2000 - stable (0):** Density remained similar in serviceberry, increased slightly in mountain big sagebrush and true mountain mahogany, and decreased in black sagebrush. Combined cover of the preferred species increased from 16% to 22%. Recruitment of young plants increased in serviceberry and mahogany, but decreased in the two sagebrush species.

- **2000 to 2005 - slightly down (-1):** The density of mountain big sagebrush decreased by 23% and cover decreased from 10% to 4%. Decadence increased in mountain big sagebrush from 18% to 26% and increased from 10% to 34% in black sagebrush. There was a slight increase in the density of true mountain mahogany, and the serviceberry population remained similar.
- **2005 to 2010 - slightly up (+1):** The two sagebrush species increased in density due to a large increase in the recruitment of young plants, and decadence decreased. There was a slight decrease in the density of serviceberry and true mountain mahogany.

Grass:

- **1986 to 1994 - down (-2):** The sum of nested frequency of perennial grasses decreased by 21%.
- **1994 to 2000 - stable (0):** The perennial grass sum of nested frequency remained similar, though cover increased slightly from 4% to 6%.
- **2000 to 2005 - slightly down (-1):** There was a 16% decrease in the sum of nested frequency of perennial grasses and cover decreased to 3%. Cheatgrass was sampled for the first time at low frequency and cover.
- **2005 to 2010 - stable (0):** There was little change in the perennial grass sum of nested frequency or cover.

Forb:

- **1986 to 1994 - slightly down (-1):** The sum of nested frequency of perennial forbs decreased by 14%.
- **1994 to 2000 - down (-2):** There was a 24% decrease in the sum of nested frequency of perennial forbs, though cover remained similar. There was a significant decrease in the nested frequency of lanceleaved sedum.
- **2000 to 2005 - stable (0):** The perennial forb sum of nested frequency changed little, though cover decreased from 8% to 6%.
- **2005 to 2010 - stable (0):** There was little change in the sum of nested frequency of perennial forbs, though cover increased slightly to 7%.

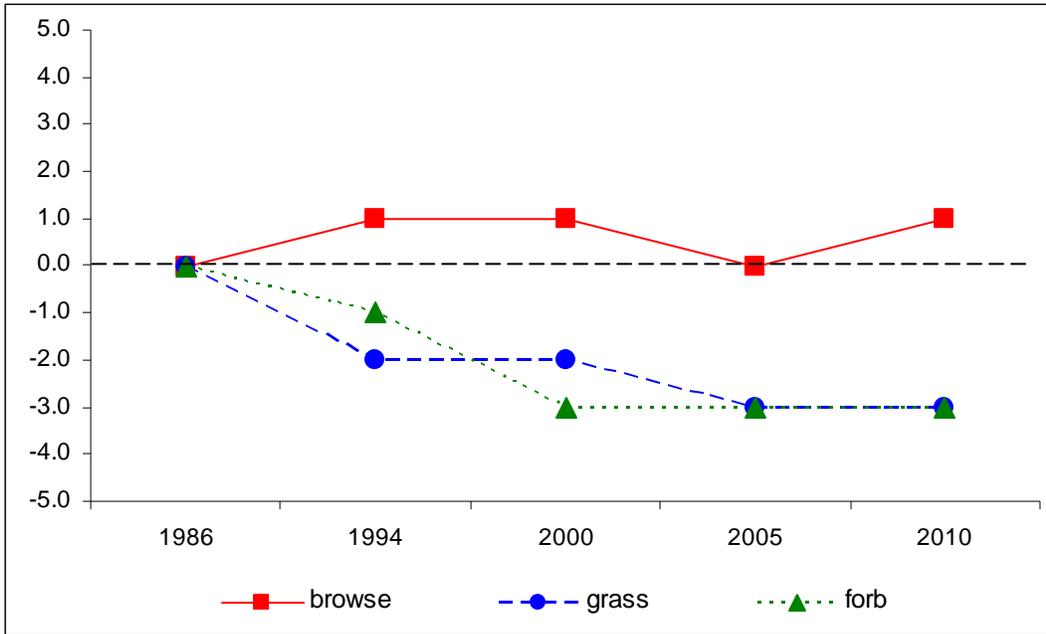
DEER DESIRABLE COMPONENTS INDEX - MID-LEVEL POTENTIAL SCALE --

Management unit 11B, study no: 8

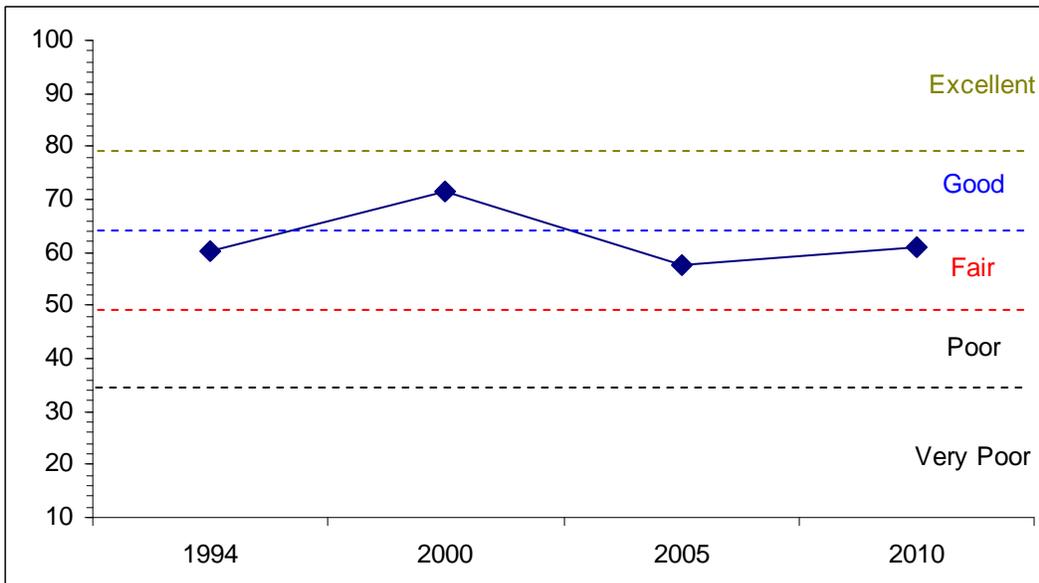
Year	Preferred Browse Cover	Preferred Browse Decadence	Preferred Browse Young	Perennial Grass Cover	Annual Grass Cover	Perennial Forb Cover	Noxious Weeds	Total Score	Ranking
94	22.2	13.3	7.6	7.1	0.0	10.0	0.0	60.2	Fair
00	30.0	11.1	8.9	11.5	0.0	10.0	0.0	71.5	Good
05	19.5	8.8	13.7	6.3	-0.5	10.0	0.0	57.7	Fair
10	18.1	12.0	15.0	6.0	0.0	10.0	0.0	61.1	Fair

Trend Summary

CUMULATIVE RANGE TREND ASSESSMENT--
Management unit 11B, Study no: 8



DEER DESIRABLE COMPONENTS INDEX TREND, MID-LEVEL POTENTIAL--
Management unit 11B, Study no: 8



HERBACEOUS TRENDS--
Management unit 11B, Study no: 8

Type	Species	Nested Frequency					Average Cover %			
		'86	'94	'00	'05	'10	'94	'00	'05	'10
G	Agropyron dasystachyum	bc43	bc59	c66	ab32	a4	.22	.42	.49	.01
G	Agropyron spicatum	c163	a41	a42	a34	b83	.41	1.81	.90	1.77
G	Bromus tectorum (a)	-	a-	a-	c53	b12	-	-	.67	.03
G	Koeleria cristata	b23	a7	a-	ab12	a3	.16	-	.13	.00
G	Oryzopsis hymenoides	ab13	a2	ab17	b22	ab3	.03	.28	.24	.21
G	Poa fendleriana	a18	c79	bc65	ab33	abc50	1.65	1.75	.36	.55
G	Poa secunda	b85	a45	a56	ab70	ab57	.50	1.25	.85	.42
G	Sitanion hystrix	a1	b21	a-	a5	a6	.39	-	.01	.04
G	Stipa comata	-	4	10	3	-	.03	.21	.15	-
G	Stipa lettermani	a-	b15	a-	ab5	a-	.12	-	.01	-
Total for Annual Grasses		0	0	0	53	12	0	0	0.67	0.03
Total for Perennial Grasses		346	273	256	216	206	3.54	5.75	3.15	3.02
Total for Grasses		346	273	256	269	218	3.54	5.75	3.83	3.05
F	Allium sp.	a-	b26	a2	ab12	b31	.06	.06	.04	.11
F	Antennaria rosea	57	60	61	50	61	2.25	2.48	1.68	2.75
F	Arabis drummondi	b41	a3	a-	a4	a7	.00	-	.04	.01
F	Arabis perennans	b21	b14	a-	a-	a-	.02	-	-	-
F	Astragalus argophyllus	8	5	1	-	3	.03	.00	-	.03
F	Calochortus nuttallii	1	2	-	3	-	.00	-	.00	-
F	Castilleja flava	2	-	-	-	1	-	-	-	.00
F	Castilleja linariaefolia	-	-	3	-	-	-	.00	-	-
F	Chaenactis douglasii	a-	ab5	a-	b14	b10	.01	-	.10	.02
F	Chenopodium album (a)	-	-	-	3	2	-	-	.00	.00
F	Chenopodium fremontii (a)	-	-	-	-	3	-	-	-	.00
F	Collinsia parviflora (a)	-	1	-	5	5	.00	-	.01	.01
F	Comandra pallida	-	-	-	-	6	-	-	-	.04
F	Crepis acuminata	b21	a-	a2	ab13	ab21	-	.01	.03	.09
F	Cryptantha sp.	-	-	1	-	6	-	.03	-	.01
F	Erigeron eatonii	b100	a27	a13	a7	a4	.12	.06	.04	.04
F	Erigeron flagellaris	a12	b37	ab21	a11	a9	.13	.18	.22	.19
F	Eriogonum alatum	b11	a-	a-	a-	ab5	-	-	-	.03
F	Eriogonum racemosum	a-	b11	a-	a-	a-	.19	-	-	-
F	Eriogonum umbellatum	b59	a21	ab43	ab31	a28	.20	.27	.27	.64
F	Euphorbia sp.	-	-	-	1	-	-	-	.03	-
F	Gayophytum ramosissimum(a)	-	a-	a-	b10	a-	-	-	.02	-
F	Heterotheca villosa	a7	bc30	c37	ab16	a9	.82	1.79	.60	.60
F	Ipomopsis aggregata	11	10	3	1	2	.02	.00	.00	.01
F	Lappula occidentalis (a)	-	-	-	3	-	-	-	.03	-
F	Linum lewisii	-	4	-	-	-	.01	-	-	-
F	Lomatium triternatum	b29	a-	a3	ab13	a3	-	.01	.04	.00
F	Machaeranthera grindelioides	4	2	-	5	3	.03	-	.01	.00
F	Penstemon sp.	-	3	4	3	1	.00	.01	.03	.00
F	Phlox austromontana	31	15	28	10	12	.43	.91	.25	.66

Type	Species	Nested Frequency					Average Cover %			
		'86	'94	'00	'05	'10	'94	'00	'05	'10
F	Phlox longifolia	-	-	3	-	-	-	.01	-	-
F	Polygonum douglasii (a)	-	_a 35	_a 4	_c 146	_b 88	.06	.00	.45	.38
F	Sedum lanceolatum	_a 135	_b 210	_a 152	_a 152	_a 120	3.44	2.44	2.52	1.24
F	Senecio multilobatus	-	1	-	1	-	.00	-	.01	-
F	Sphaeralcea coccinea	-	9	-	-	-	.04	-	-	-
F	Taraxacum officinale	-	3	-	1	-	.04	-	.00	-
F	Trifolium sp.	_b 32	_a -	_a -	_a -	_a 9	-	-	-	.04
Total for Annual Forbs		0	36	4	167	98	0.07	0.00	0.51	0.40
Total for Perennial Forbs		582	498	377	348	351	7.91	8.30	5.97	6.60
Total for Forbs		582	534	381	515	449	7.98	8.31	6.49	7.00

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

BROWSE TRENDS--

Management unit 11B, Study no: 8

Type	Species	Strip Frequency				Average Cover %			
		'94	'00	'05	'10	'94	'00	'05	'10
B	Amelanchier utahensis	25	23	26	22	4.46	6.61	4.22	4.92
B	Artemisia nova	49	40	44	45	3.44	2.45	3.55	2.59
B	Artemisia tridentata vaseyana	57	66	52	58	6.50	9.81	4.00	4.06
B	Cercocarpus montanus	12	19	14	16	1.87	3.09	2.16	1.41
B	Chrysothamnus depressus	31	23	28	25	.25	.25	.34	.22
B	Chrysothamnus nauseosus	0	0	0	1	-	.63	-	-
B	Chrysothamnus viscidiflorus viscidiflorus	34	28	19	20	.50	.13	.51	.15
B	Gutierrezia sarothrae	18	12	15	12	.03	.04	.36	.04
B	Opuntia sp.	11	7	5	9	.05	.00	.03	.07
B	Pediocactus simpsonii	0	1	1	1	-	-	-	.00
B	Pinus edulis	0	7	7	8	3.29	4.76	10.07	6.19
B	Purshia tridentata	0	0	1	0	-	-	.03	-
B	Symphoricarpos oreophilus	17	19	17	17	.18	1.66	1.22	2.67
Total for Browse		254	245	229	234	20.60	29.47	26.54	22.37

CANOPY COVER, LINE INTERCEPT--

Management unit 11B, Study no: 8

Species	Percent Cover		
	'00	'05	'10
Amelanchier utahensis	1.39	10.23	11.31
Artemisia nova	-	4.30	4.55
Artemisia tridentata vaseyana	-	6.15	11.00
Cercocarpus montanus	-	5.06	5.55
Chrysothamnus depressus	-	.36	.68
Chrysothamnus viscidiflorus viscidiflorus	-	.40	1.03
Gutierrezia sarothrae	-	.35	.21
Opuntia sp.	-	.03	.20
Pinus edulis	14.60	16.10	14.58
Symphoricarpos oreophilus	-	.70	2.31

KEY BROWSE ANNUAL LEADER GROWTH--

Management unit 11B, Study no: 8

Species	Average leader growth (in)	
	'05	'10
Amelanchier utahensis	3.0	2.2
Artemisia tridentata vaseyana	2.3	2.1
Cercocarpus montanus	4.2	2.5

POINT-QUARTER TREE DATA--

Management unit 11B, Study no: 8

Species	Trees per Acre				Average diameter (in)			
	'94	'00	'05	'10	'94	'00	'05	'10
Juniperus osteosperma	6	8	31	26	6.3	7.7	3.1	5.3
Pinus edulis	88	127	104	117	13.0	5.0	5.6	4.5

BASIC COVER--

Management unit 11B, Study no: 8

Cover Type	Average Cover %				
	'86	'94	'00	'05	'10
Vegetation	4.50	32.50	37.30	30.22	34.66
Rock	8.50	6.57	8.14	7.78	9.42
Pavement	1.00	.14	.72	.62	.43
Litter	50.75	40.25	52.41	47.20	51.89
Cryptogams	3.50	.38	1.94	2.16	.02
Bare Ground	31.75	29.77	22.95	27.28	28.00

SOIL ANALYSIS DATA --

Management unit 11B, Study no: 8, Study Name: Cedar Corral

Effective rooting depth (in)	pH	sandy clay loam			%OM	PPM P	PPM K	ds/m
		%sand	%silt	%clay				
9.5	6.6	54.0	25.4	20.6	1.9	4.5	198.4	0.8

PELLET GROUP DATA--

Management unit 11B, Study no: 8

Type	Quadrat Frequency			
	'94	'00	'05	'10
Rabbit	29	14	40	1
Horse	2	4	2	-
Elk	8	8	5	2
Deer	16	7	2	3
Cattle	-	-	-	-

Days use per acre (ha)		
'00	'05	'10
-	-	-
-	8 (19)	1 (3)
10 (25)	5 (12)	5 (12)
8 (20)	2 (5)	5 (12)
-	1 (2)	-

BROWSE CHARACTERISTICS--

Management unit 11B, Study no: 8

		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>Amelanchier utahensis</i>									
86	133	0	0	100	-	0	0	0	-/-
94	680	12	82	6	60	21	0	3	47/59
00	700	31	57	11	120	34	0	6	46/56
05	680	32	53	15	40	18	38	6	52/60
10	600	37	57	7	80	13	33	0	46/50
<i>Artemisia nova</i>									
86	2398	64	19	17	599	17	0	0	9/10
94	2540	9	81	9	-	31	8	2	11/17
00	1780	4	85	10	40	30	2	3	10/18
05	1920	6	59	34	2620	0	0	6	11/22
10	2600	23	65	12	20	24	12	10	11/20
<i>Artemisia tridentata vaseyana</i>									
86	1399	76	24	0	1733	0	0	0	13/16
94	3280	21	73	5	120	21	0	2	21/31
00	3620	8	75	18	120	13	0	10	17/26
05	2780	18	56	26	1100	22	15	14	18/27
10	3980	38	48	14	260	17	7	14	18/28
<i>Cercocarpus montanus</i>									
86	664	60	30	10	66	30	0	0	15/15
94	260	15	85	0	-	15	8	0	51/51
00	420	33	62	5	100	33	5	5	56/68
05	520	73	27	0	200	15	15	0	52/58
10	440	55	41	5	20	14	18	0	45/54
<i>Chrysothamnus depressus</i>									
86	3331	12	74	14	133	0	0	0	4/6
94	1420	6	87	7	-	6	0	3	4/8
00	1000	4	86	10	-	16	2	8	4/6
05	900	16	69	16	80	20	18	7	5/8
10	880	2	93	5	-	2	0	5	5/10

		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>Chrysothamnus nauseosus</i>										
86	0	0	0	-	-	0	0	0	-/-	
94	0	0	0	-	-	0	0	0	-/-	
00	0	0	0	-	-	0	0	0	-/-	
05	0	0	0	-	-	0	0	0	-/-	
10	20	0	100	-	-	0	0	0	-/-	
<i>Chrysothamnus viscidiflorus viscidiflorus</i>										
86	731	9	64	27	-	0	0	0	10/7	
94	1160	10	88	2	20	0	0	2	9/8	
00	760	16	76	8	-	0	0	0	10/9	
05	520	35	54	12	-	23	8	4	14/16	
10	540	0	100	0	-	0	0	0	12/15	
<i>Echinocactus sp.</i>										
86	0	0	0	-	-	0	0	0	-/-	
94	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	5/6	
<i>Gutierrezia sarothrae</i>										
86	532	25	75	0	-	0	0	0	5/6	
94	480	13	83	4	20	4	0	0	5/6	
00	400	10	90	0	-	0	0	0	5/6	
05	800	20	78	3	-	0	0	3	7/10	
10	360	0	100	0	-	0	0	0	6/7	
<i>Opuntia sp.</i>										
86	0	0	0	0	-	0	0	0	-/-	
94	320	31	38	31	-	25	0	6	3/7	
00	160	25	63	13	-	0	0	0	2/4	
05	160	25	75	0	-	0	0	0	2/8	
10	280	29	71	0	-	0	0	0	2/9	
<i>Pediocactus simpsonii</i>										
86	0	0	0	-	-	0	0	0	-/-	
94	0	0	0	-	-	0	0	0	-/-	
00	20	0	100	-	-	0	0	0	3/4	
05	40	50	50	-	-	0	0	0	2/6	
10	20	0	100	-	-	0	0	0	2/4	
<i>Pinus edulis</i>										
86	0	0	0	-	133	0	0	0	-/-	
94	0	0	0	-	-	0	0	0	-/-	
00	140	29	71	-	20	0	0	0	-/-	
05	140	43	57	-	-	0	0	0	-/-	
10	160	50	50	-	20	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)	
Purshia tridentata										
86	0	0	0	0	-	0	0	0	-/-	
94	0	0	0	0	-	0	0	0	-/-	
00	0	0	0	0	-	0	0	0	-/-	
05	20	0	0	100	-	0	0	100	-/-	
10	0	0	0	0	-	0	0	0	-/-	
Rosa woodsii										
86	0	0	0	-	-	0	0	0	-/-	
94	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	18/18	
Symphoricarpos oreophilus										
86	199	0	100	0	-	33	0	0	18/25	
94	700	9	89	3	20	3	3	0	15/27	
00	980	14	73	12	-	4	0	0	8/14	
05	880	23	77	0	20	0	0	0	14/20	
10	800	25	75	0	-	0	0	0	11/20	