

DRY FORK MOUNTAIN - TREND STUDY NO. 9-3-10

Vegetation Type: Basin Big Sagebrush

Range Type: Crucial Deer Winter, Crucial Elk Winter

NRCS Ecological Site Description: [Mountain Loam \(Mountain Big Sagebrush\), R047XC430UT](#)

Land Ownership: BLM

Elevation: 7870 ft. (2399 m)

Aspect: Southeast

Slope: 13%

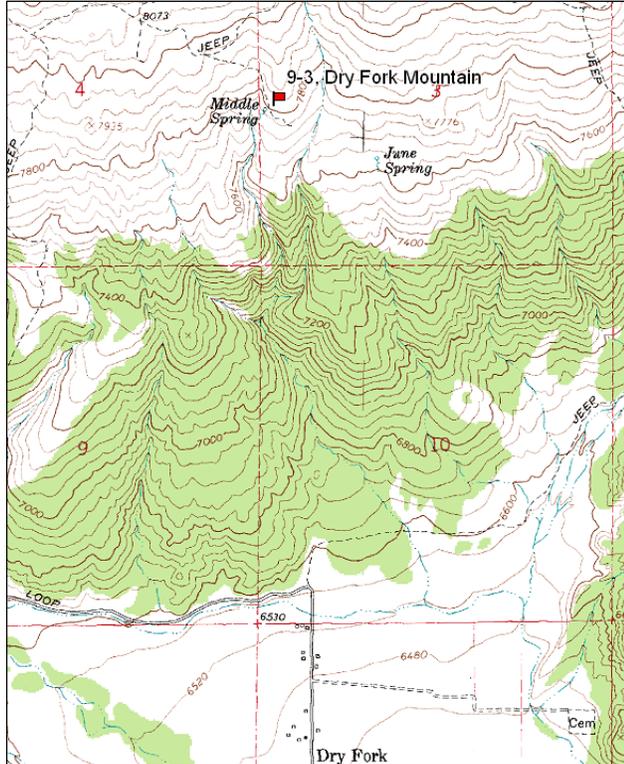
Transect bearing: 0'-100': 2° magnetic, 100'-400': 107° magnetic

Belt placement: line 1 (18 & 81ft), line 2 (33ft), line 3 (66ft), line 4 (79ft.).

Directions:

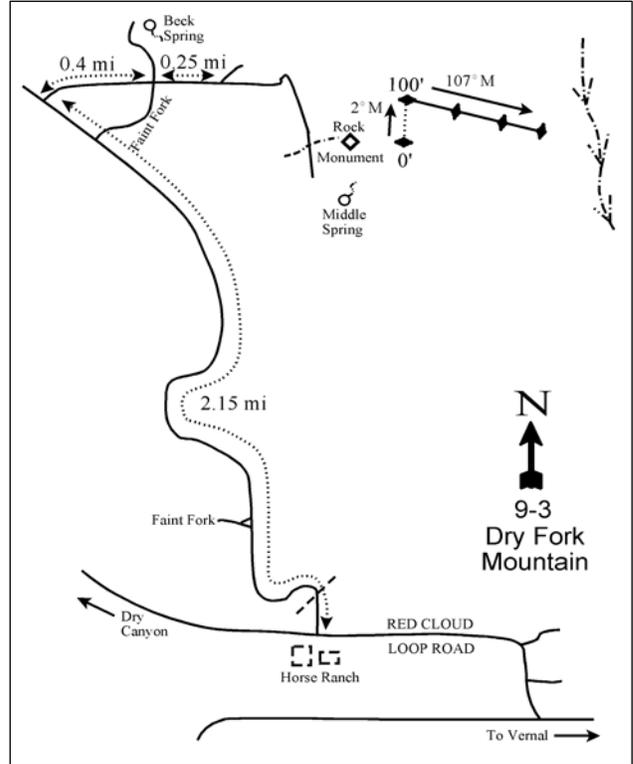
From Vernal, proceed west on 500 North to 3500 West. Turn right and go up Dry Fork 8.5 miles to the Red Cloud Loop Road. Bear right onto this road and continue up Dry Fork Canyon 1.7 miles to a horse ranch on the left. North across the road from the ranch is a dirt road. Turn right onto this road, go through the gate and go 2.15 miles to a fork. Bear right and proceed 0.4 miles to an intersection. Continue straight for 0.25 miles to a faint turnoff on the right. Turn right and drive across the meadow toward Middle Spring. Go 0.2 miles to the base of the hill just before Middle Spring. Walk to the highest point on the hill. There is a rock monument on top. From the monument, the 0-foot baseline stake is 12paces away bearing 90°M.

Map Name: Dry Fork



Township: 3S Range: 20E Section: 3

Diagrammatic Sketch:



GPS: NAD 83, UTM 12T 612408 E 4493597 N

DRY FORK MOUNTAIN - TREND STUDY NO. 9-3

Site Information

Site Description: The study is located in a mountain big sagebrush (*Artemisia tridentata* ssp. *vaseyana*) and grass community near Middle Spring. Much of the browse was removed in the Dry Fork fire that burned 517 acres of the area in July of 2005, so no sampling occurred in that year. The area is administered by the Bureau of Land Management and is grazed as part of the Dry Fork allotment. Pellet group transect data indicated heavy use by deer in 2000, but use was much lighter in 2010. Estimated use by elk and cattle has been light since 2000 (Table - Pellet Group Data).

Browse: Mountain big sagebrush is the primary browse species on the site and provides the majority of the browse cover. Prior to the fire in 2005, the cover of sagebrush was over 20%, but cover decreased to 7% five years after the fire (Table - Browse Trends). Prior to the fire, mountain big sagebrush was comprised of a moderately dense stand of mostly mature plants with moderate to high decadence. In 2010, the population was comprised of a much less dense stand of mostly mature sagebrush plants with low decadence and good vigor. Recruitment of young sagebrush plants has been low throughout the study, and utilization has been light to moderate. Antelope bitterbrush (*Purshia tridentata*) was also prevalent prior to the fire, but was much less common in 2010. Utilization of bitterbrush was historically heavy, but was light to moderate in 2010. Other browse species encountered on the site include brittle pricklypear cactus (*Opuntia fragilis*), mountain low rabbitbrush (*Chrysothamnus viscidiflorus* ssp. *lanceolatus*), broom snakeweed (*Gutierrezia sarothrae*), Oregon grape (*Mahonia repens*), wax current (*Ribes cereum* ssp. *cereum*) and snowberry (*Symphoricarpos oreophilus*). Pricklypear cactus had a dense population and appeared to be increasing in density prior to the fire, but was extremely rare in 2010 (Table - Browse Characteristics).

Herbaceous Understory: Grasses were fairly diverse and abundant, prior to the fire, but diversity decreased in 2010. Perennial grasses were dominated by just two species in 2010, needle-and-thread (*Stipa comata*) and thickspike wheatgrass (*Agropyron dasystachyum*), with needle-and-thread providing the majority of the cover. Cheatgrass (*Bromus tectorum*) was also prevalent in 2010 and was co-dominant to the two perennial grass species. Forbs were diverse, but were rare prior to the fire. However, forbs increased substantially in 2010, primarily due to a large increase in the nested frequency and cover of hairy goldaster (*Heterotheca villosa*) and scarlet globemallow (*Sphaeralcea coccinea*) (Table - Herbaceous Trends).

Soil: The soil is a course sandy loam with a slightly acidic soil reaction (pH 6.1) (Table - Soil Analysis Data). Bare ground cover increased slightly following the fire, but remained very low with many large rocks dispersed over the site providing good protective ground cover (Table - Basic Cover). The soil erosion condition was classified as stable in 2010.

Trend Assessments

Browse:

- **1982 to 1988 - slightly up (+1):** The density of mountain big sagebrush and bitterbrush increased substantially, though decadence of sagebrush also increased from 15% to 42%.
- **1988 to 1995 - slightly up (+1):** Differences in density may be related to the larger sample area used in 1995; therefore, trend was determined using other parameters. Decadence of mountain big sagebrush decreased to 11%. The bitterbrush population remained similar.
- **1995 to 2000 - stable (0):** Density and cover of mountain big sagebrush and bitterbrush remained similar. Decadence of sagebrush increased to 18% and decadence of bitterbrush increased from 4% to 14%, but was still considered moderately low for both species.
- **2000 to 2010 - down (-2):** Fire removed much of the browse from the site. Mountain big sagebrush density decreased by 52% from 2,720 plants/acre to 1,300 plants/acre and cover decreased from 22% to 7%. Bitterbrush density decreased by 85% from 1,880 plants/acre to 280 plants/acre, and cover decreased from 12% to just 1%.

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 - slightly up (+1):** The perennial grass sum of nested frequency increased by 14%.
- **1995 to 2000 - stable (0):** There was no change in the sum of nested frequency of perennial grasses, though cover increased from 17% to 26%. There was a significant decrease in the nested frequency of cheatgrass and cover decreased from 3% to no notable cover.
- **2000 to 2010 - down (-2):** The sum of nested frequency of perennial grasses decreased by 25% and cover decreased to 17%. Only two perennial species provided notable cover. Cheatgrass increased significantly in nested frequency and cover increased to 6%.

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 - slightly up (+1):** The sum of nested frequency of perennial forbs increased substantially, though perennial forbs remain rare on the site.
- **1995 to 2000 - stable (0):** There was a decrease in the sum of nested frequency of perennial grasses, but cover remained similar and forbs remained rare on the site.
- **2000 to 2010 - up (+2):** The sum of nested frequency increased four-fold and cover increased from 1% to 8%. There was a significant increase in the nested frequency of hairy goldaster and scarlet globemallow.

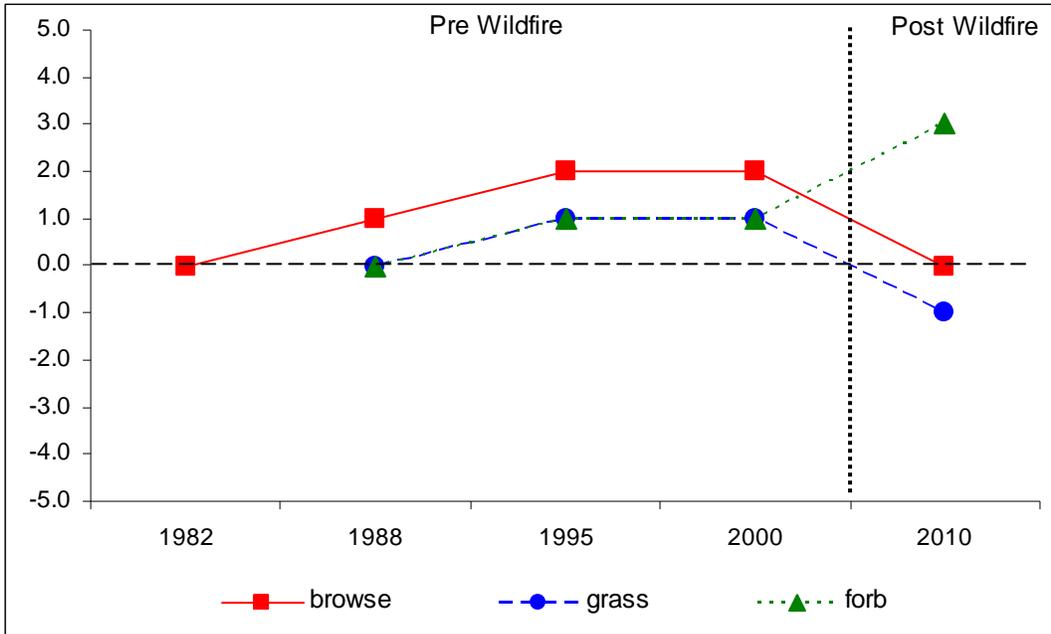
DEER DESIRABLE COMPONENTS INDEX - MID-LEVEL POTENTIAL SCALE --

Management unit 9, study no: 3

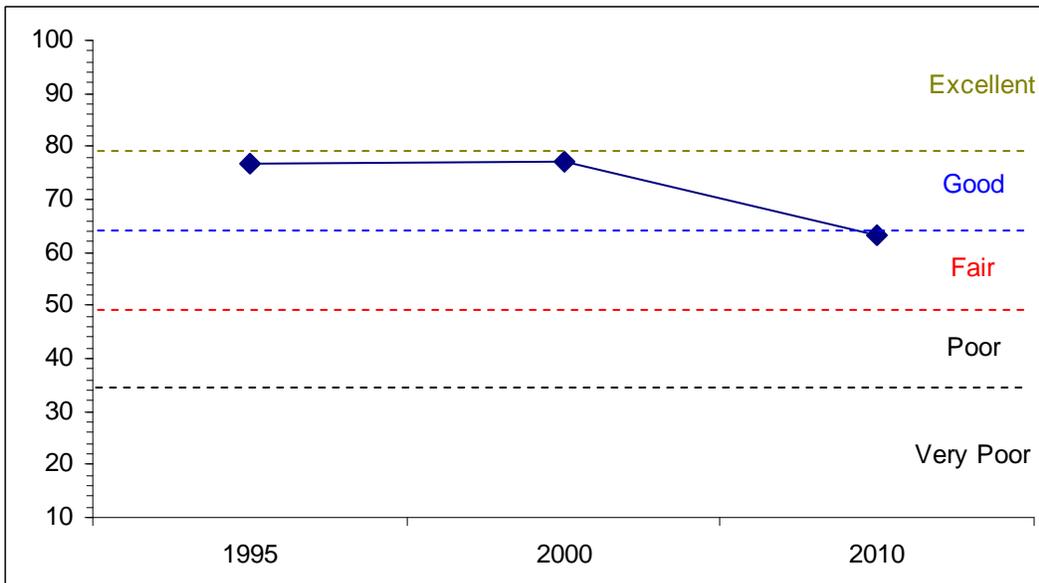
Year	Preferred Browse Cover	Preferred Browse Decadence	Preferred Browse Young	Perennial Grass Cover	Annual Grass Cover	Perennial Forb Cover	Noxious Weeds	Total Score	Ranking
95	30.0	12.4	4.5	30.0	-2.2	2.0	0.0	76.7	Good
00	30.0	10.0	4.7	30.0	0.0	2.4	0.0	77.1	Good
10	10.5	15.0	2.2	30.0	-4.5	10.0	0.0	63.2	Fair-Good

Trend Summary

CUMULATIVE RANGE TREND ASSESSMENT--
Management unit 9, Study no: 3



DEER DESIRABLE COMPONENTS INDEX TREND, MID-LEVEL POTENTIAL--
Management unit 9, Study no: 3



HERBACEOUS TRENDS--
Management unit 09, Study no: 3

Type	Species	Nested Frequency				Average Cover %		
		'88	'95	'00	'10	'95	'00	'10
G	Agropyron dasystachyum	a-	b73	abc97	c113	1.35	2.73	4.29
G	Agropyron spicatum	d212	c86	b36	a-	3.33	1.73	-
G	Bromus tectorum (a)	-	b138	a1	c207	2.91	.00	6.03
G	Carex sp.	ab6	b17	b16	a-	.37	.48	-
G	Oryzopsis hymenoides	1	5	-	-	.06	-	-
G	Poa fendleriana	ab9	a8	b30	a1	.16	.43	.00
G	Poa pratensis	a-	a7	c60	b28	.31	5.63	.17
G	Sitanion hystrix	c55	bc36	b22	a-	.21	.34	-
G	Stipa comata	a121	b234	b207	b207	11.03	14.64	12.46
G	Stipa lettermani	-	6	4	6	.06	.15	.06
G	Unknown grass - perennial	10	-	-	-	-	-	-
Total for Annual Grasses		0	138	1	207	2.91	0.00	6.03
Total for Perennial Grasses		414	472	472	355	16.90	26.15	17.00
Total for Grasses		414	610	473	562	19.81	26.15	23.03
F	Agoseris glauca	-	-	-	2	-	-	.00
F	Arabis sp.	-	3	-	-	.01	-	-
F	Astragalus convallarius	a-	ab9	ab7	b14	.02	.06	.65
F	Calochortus nuttallii	8	9	-	2	.02	-	.00
F	Collinsia parviflora (a)	-	b58	a6	b-	.33	.01	-
F	Collomia linearis (a)	-	b152	a5	a-	1.64	.01	-
F	Comandra pallida	-	-	-	5	-	-	.06
F	Cryptantha sp.	3	9	2	4	.07	.03	.06
F	Cymopterus longipes	a-	ab7	b11	a-	.01	.12	-
F	Cymopterus sp.	-	-	-	5	-	-	.01
F	Descurainia pinnata (a)	-	1	-	7	.00	-	.01
F	Eriogonum racemosum	2	13	12	4	.10	.15	.03
F	Heterotheca villosa	a1	a-	a5	b45	-	.01	1.81
F	Hymenoxys acaulis	-	1	3	-	.00	.15	-
F	Lactuca serriola	a-	a3	a-	b64	.00	-	.83
F	Lappula occidentalis (a)	-	-	-	4	-	-	.01
F	Lepidium densiflorum (a)	-	ab2	a-	b11	.01	-	.07
F	Lithospermum ruderales	-	6	-	3	.16	-	.15
F	Lithospermum sp.	-	-	-	-	-	.03	-
F	Lupinus argenteus	-	7	6	1	.12	.24	.15
F	Machaeranthera canescens	-	3	-	-	.01	-	-
F	Orobancha fasciculata	a-	ab2	ab5	b8	.00	.07	.08
F	Penstemon humilis	2	3	3	-	.03	.03	-
F	Phlox longifolia	-	-	1	5	-	.00	.15
F	Polygonum douglasii (a)	-	b28	a2	a6	.06	.00	.01
F	Sphaeralcea coccinea	a6	a31	a15	b146	.36	.13	3.87
F	Taraxacum officinale	-	-	-	2	-	-	.00
F	Tragopogon dubius	a-	ab6	ab7	b15	.04	.04	.14
F	Zigadenus elegans	a-	b14	ab6	b12	.03	.09	.13

Type	Species	Nested Frequency				Average Cover %		
		'88	'95	'00	'10	'95	'00	'10
	Total for Annual Forbs	0	241	13	28	2.05	0.03	0.11
	Total for Perennial Forbs	22	126	83	337	1.02	1.18	8.16
	Total for Forbs	22	367	96	365	3.08	1.21	8.27

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

BROWSE TRENDS--

Management unit 09, Study no: 3

Type	Species	Strip Frequency			Average Cover %		
		'95	'00	'10	'95	'00	'10
B	<i>Artemisia tridentata vaseyana</i>	76	70	33	22.85	21.93	7.27
B	<i>Ceanothus fendleri</i>	0	0	7	-	-	.81
B	<i>Chrysothamnus nauseosus</i>	0	0	3	-	-	.18
B	<i>Chrysothamnus viscidiflorus lanceolatus</i>	4	2	3	.06	.15	.78
B	<i>Gutierrezia sarothrae</i>	4	1	11	.00	-	.42
B	<i>Mahonia repens</i>	1	2	0	-	-	-
B	<i>Opuntia fragilis</i>	77	82	0	2.83	4.13	-
B	<i>Pediocactus simpsonii</i>	1	0	0	-	-	-
B	<i>Purshia tridentata</i>	65	71	11	10.91	12.03	.97
B	<i>Symphoricarpos oreophilus</i>	3	3	0	.56	.91	-
	Total for Browse	231	231	68	37.22	39.16	10.43

CANOPY COVER, LINE INTERCEPT--

Management unit 09, Study no: 3

Species	Percent Cover '10
<i>Artemisia tridentata vaseyana</i>	11.46
<i>Ceanothus fendleri</i>	1.13
<i>Chrysothamnus nauseosus</i>	.65
<i>Chrysothamnus viscidiflorus lanceolatus</i>	.15
<i>Gutierrezia sarothrae</i>	.83
<i>Purshia tridentata</i>	2.56

KEY BROWSE ANNUAL LEADER GROWTH--

Management unit 09, Study no: 3

Species	Average leader growth (in) '10
<i>Artemisia tridentata vaseyana</i>	2.3
<i>Purshia tridentata</i>	3.6

BASIC COVER--

Management unit 09, Study no: 3

Cover Type	Average Cover %				
	'82	'88	'95	'00	'10
Vegetation	4.00	6.50	58.21	64.25	45.79
Rock	9.50	17.00	9.85	13.81	22.67
Pavement	1.25	.50	.33	1.34	1.95
Litter	68.75	69.75	67.73	66.24	35.87
Cryptogams	4.25	0	.04	.22	0
Bare Ground	12.25	6.25	2.08	4.22	12.30

SOIL ANALYSIS DATA --

Management unit 9, Study no: 3, Study Name: Dry Fork Mountain

Effective rooting depth (in)	pH	sandy loam			%OM	PPM P	PPM K	ds/m
		%sand	%silt	%clay				
7.2	6.1	64.6	15.8	16.6	5.3	29.9	124.8	0.5

PELLET GROUP DATA--

Management unit 09, Study no: 3

Type	Quadrat Frequency			Days use per acre (ha)	
	'95	'00	'10	'00	'10
Rabbit	9	5	1	-	-
Elk	6	-	15	3 (8)	8 (20)
Deer	30	17	6	68 (167)	22 (55)
Cattle	2	-	2	7 (16)	6 (14)

BROWSE CHARACTERISTICS--

Management unit 09, Study no: 3

		Age class distribution					Utilization			
Year	Plants per Acre (excluding seedlings)	% Young	% Mature	% Decadent	Seedling (plants/acre)	% moderate	% heavy	% poor vigor	Average Height Crown (in)	
Amelanchier utahensis										
82	0	0	0	-	-	0	0	0	-/-	
88	0	0	0	-	-	0	0	0	-/-	
95	0	0	0	-	-	0	0	0	14/59	
00	0	0	0	-	-	0	0	0	15/29	
10	0	0	0	-	-	0	0	0	13/24	
Artemisia tridentata vaseyana										
82	1731	4	81	15	-	0	0	0	27/40	
88	2531	8	50	42	-	26	0	0	26/31	
95	2880	7	82	11	-	39	11	7	30/48	
00	2720	7	74	18	160	11	0	3	31/44	
10	1300	5	95	0	20	40	3	0	19/35	

		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>Ceanothus fendleri</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	-/-	
10	220	0	100	-	-	55	0	0	10/28	
<i>Chrysothamnus nauseosus</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	-/-	
10	60	0	100	-	-	0	0	0	28/46	
<i>Chrysothamnus viscidiflorus lanceolatus</i>										
82	66	0	100	0	-	0	0	0	16/20	
88	133	0	0	100	-	0	100	0	-/-	
95	80	25	75	0	-	0	0	0	12/24	
00	40	0	100	0	-	0	0	0	8/7	
10	60	0	100	0	-	0	0	0	14/30	
<i>Eriogonum heracleoides</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	2/6	
10	0	0	0	-	-	0	0	0	-/-	
<i>Gutierrezia sarothrae</i>										
82	0	0	0	-	-	0	0	0	-/-	
88	0	0	0	-	-	0	0	0	-/-	
95	100	0	100	-	-	0	0	0	8/7	
00	80	50	50	-	-	0	0	0	8/5	
10	360	0	100	-	-	0	0	0	9/14	
<i>Mahonia repens</i>										
82	0	0	0	-	-	0	0	0	-/-	
88	0	0	0	-	-	0	0	0	-/-	
95	40	0	100	-	-	0	0	0	4/9	
00	80	0	100	-	-	0	0	0	4/4	
10	0	0	0	-	-	0	0	0	2/3	
<i>Opuntia fragilis</i>										
82	3598	28	72	0	-	0	0	0	4/10	
88	6332	68	32	0	-	0	0	0	5/12	
95	4680	5	94	0	80	0	0	3	5/15	
00	6060	4	94	2	80	0	0	.66	4/11	
10	0	0	0	0	-	0	0	0	5/22	

		Age class distribution					Utilization			
Year	Plants per Acre (excluding seedlings)	% Young	% Mature	% Decadent	Seedling (plants/acre)	% moderate	% heavy	% poor vigor	Average Height Crown (in)	
Pediocactus simpsonii										
82	0	0	0	-	-	0	0	0	-/-	
88	0	0	0	-	-	0	0	0	-/-	
95	20	0	100	-	-	0	0	0	4/4	
00	0	0	0	-	-	0	0	0	-/-	
10	0	0	0	-	-	0	0	0	-/-	
Purshia tridentata										
82	799	0	100	0	-	0	0	0	20/36	
88	1399	0	95	5	-	0	100	0	15/25	
95	1960	13	83	4	-	32	58	1	18/46	
00	1880	14	72	14	-	14	62	2	20/50	
10	280	0	100	0	-	29	7	0	14/42	
Ribes cereum cereum										
82	0	0	0	-	-	0	0	0	-/-	
88	0	0	0	-	-	0	0	0	-/-	
95	0	0	0	-	-	0	0	0	45/67	
00	0	0	0	-	-	0	0	0	-/-	
10	0	0	0	-	-	0	0	0	-/-	
Symphoricarpos oreophilus										
82	0	0	0	-	-	0	0	0	-/-	
88	66	0	100	-	-	100	0	0	13/9	
95	60	0	100	-	-	0	0	0	14/27	
00	80	0	100	-	-	0	0	0	12/31	
10	0	0	0	-	-	0	0	0	13/46	