

Trend Study 20-2-08

Study site name: Lower Indian Peak .

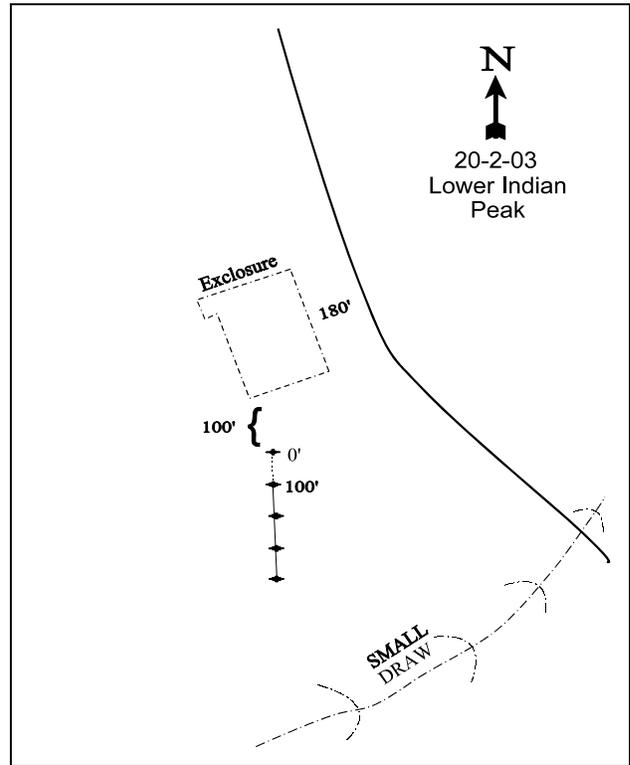
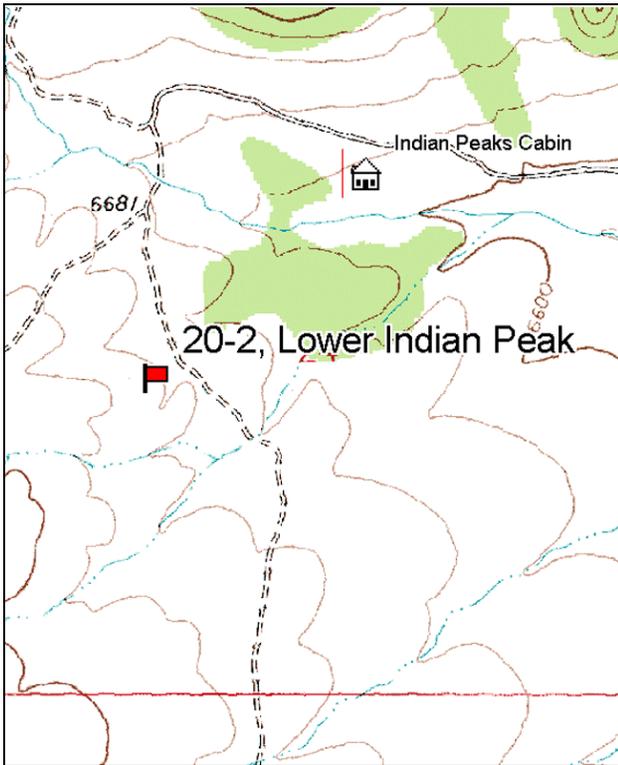
Vegetation type: Chained, Seeded P-J .

Compass bearing: frequency baseline 180 degrees magnetic.

Frequency belt placement: line 1 (11 & 95ft), line 2 (71ft), line 3 (34ft), line 4 (59ft). Rebar: belt 1 on 6ft, belt 5 on 1ft, belt 3 on 8ft.

LOCATION DESCRIPTION

From the Indian Peaks state cabin, travel 0.4 miles west to a fork. Turn left and cross the stream. Continue 0.1 miles and turn left at the fork. Go 0.30 miles to an exclosure which is about 180 feet off the right side of the road. The frequency baseline starts 100 feet south (in line with the fence) of the southwest corner of the exclosure. The 0-foot baseline stake is a rebar with browse tag #7076 attached.



Map Name: Buckhorn Spring

Diagrammatic Sketch

Township 29S, Range 18W, Section 24

GPS: NAD 83, UTM 12S 253679 E, 4239629 N

DISCUSSION

Lower Indian Peak - Trend Study No. 20-2

Study Information

This study is located on a chained and seeded section of DWR land [elevation: 6,740 feet (2,054 m), slope: 8%-10%, aspect: east]. One hundred acres (41 ha) were treated in 1959 by chaining and drill seeding with a mixture of grass, forb, and browse species. The area is now dominated by perennial grasses with scattered mountain big sagebrush (*Artemisia tridentata* ssp. *vaseyana*), singleleaf pinyon pine (*Pinus monophylla*), and Utah juniper (*Juniperus osteosperma*). Pinyon and juniper dominate the surrounding area, making the treated areas very valuable to wintering big game. There is an ephemeral stream approximately 0.25 miles (0.4 km) from the study. Deer use in this open area appears light. Pellet group transect data estimated 2 deer days use/acre (5 ddu/ha) in 1991, 7 deer days use/acre (17 ddu/ha) in 1998, and 11 deer days use/acre (27 ddu/ha) in 2003 and 2008. Elk use was estimated at 3 days use/acre (7 edu/ha) in 1991, 16 days use/acre (40 edu/ha) in 1998, 44 days use/acre (109 edu/ha) in 2003, and 27 days use/acre (66 edu/ha) in 2008. Cattle use was estimated at 6 days use/acre (15 cdu/ha) in 1998. Rabbit pellet quadrat frequency increased from 25% in 1998 to 57% in 2003 and 87% in 2008.

Soil

The soil is a sandy loam with a slightly acidic reaction (pH 6.4). Relative combined vegetation and litter cover was 60% in 1998 and 2008 and 49% in 2003. Buildup of litter is limited to mostly remnants of old pinyon-juniper chaining slash. Relative combined rock and pavement cover has been 20%-26% since 1998, and relative bare ground cover has been 14%-25%. There are many large rocks on the soil surface. The erosion condition was classified as stable in 2003 and 2008.

Browse

Preferred browse species on the study include black sagebrush (*Artemisia nova*), mountain big sagebrush, antelope bitterbrush (*Purshia tridentata*), Mormon tea (*Ephedra viridis*), and skunkbush sumac (*Rhus trilobata*). Black sagebrush is the most abundant browse species, providing 2% quadrat cover in 1998 and 5% cover in 2003 and 2008. Density has increased slightly from 1,320 plants/acre to 1,420 plants/acre since 1998 when the sample area increased. Decadence increased from 0% of the population in 1985 and 1991 to 5% in 1998 and 42% in 2003, then decreased to 17% in 2008. Young recruitment decreased steadily from 45% of the population in 1985 to 7% in 2003, then increased to 11% in 2008. All of the sampled plants were vigorous from 1985 to 1998, and 7%-8% of the plants showed poor vigor in 2003 and 2008. Browse use was light-moderate in all sample years, with some heavy use every sample year since 1991.

Mountain big sagebrush was first sampled in 1998 when the sampling area was increased. Quadrat cover decreased from 4% in 1998 to 2% in 2003 and 1% in 2008. Density has fluctuated between 240 plants/acre and 500 plants/acre since 1998. Decadence has ranged between 17% and 24% of the population, while young recruitment has ranged from 4% to 25%. Plants showing poor vigor increased from 4% of the population in 1998 to 14% in 2008. Browse use has been mostly light-moderate since 1998, with 23% of the population showing heavy use in 2008. Annual leader growth averaged 1.9 inches (4.8 cm) in 2003 and 1.2 inches (3.1 cm) in 2008.

Antelope bitterbrush was first sampled in 1998 with a density of 40 plants/acre, which increased slightly to 60 plants/acre in 2003 and 2008. Quadrat cover has been 1% or less since 1998. The sampled plants have been mostly decadent, with no young recruitment. Half of the sampled plants showed poor vigor in 1998, but all of the sampled plants were vigorous in 2003 and 2008. Browse use was heavy in 1998 and 2003, and moderate in 2008. Average annual leader growth was 2.8 inches (7.1 cm) in 2003 and 0.7 inches (1.8 cm) in 2008.

Singleleaf pinyon pine and Utah juniper are scattered throughout the study. Pinyon density was 78 trees/acre

in 1998 and 2003 and 50 trees/acre in 2008. It provided less than 1% quadrat cover in 1998 and 2003 and 2% cover in 2008. Average trunk diameter has increased from 4.2 inches (10.7 cm) in 1998 to 6.5 inches (16.5 cm) in 2008, and average tree height has also increased from 25% of the trees being over 8 feet (2.4 m) in height in 1991 to 61% in 2008. Juniper density increased from 22 trees/acre in 1998 to 34 trees/acre in 2008. It provided 4% quadrat cover in 1998 and 2003 and 5% cover in 2008. Average trunk diameter increased from 4.8 inches (12.2 cm) in 1998 to 7.1 inches (18 cm) in 2003 and 6.3 inches (16 cm) in 2008 and 69% of the sampled trees were greater than 8 feet (2.4 m) in height in 2008.

Herbaceous Understory

The herbaceous understory is diverse and dominated by perennial grasses. Total grass cover decreased from 20% in 1998 to 6% in 2003, then increased to 13% in 2008. Crested wheatgrass (*Agropyron cristatum*) is the most abundant grass, providing 65%-73% of the total grass cover since 1998. Intermediate wheatgrass (*Agropyron intermedium*), smooth brome (*Bromus inermis*), Russian wildrye (*Elymus junceus*), purple threeawn (*Aristida purpurea*), Sandberg bluegrass (*Poa secunda*), and bulbous bluegrass (*Poa bulbosa*) have been sampled consistently since 1998, but provided little cover. Bulbous bluegrass is a short-lived perennial that has a life cycle similar to that of cheatgrass (Stewart and Hull 1949). Crested wheatgrass and smooth brome showed heavy use in 2008. Cheatgrass (*Bromus tectorum*) provided 3% cover in 1998, less than 1% in 2003, and 1% in 2008.

Total forb cover has been less than 1% since 1998. Fifteen forb species have been sampled since 1985, four of which are annuals. Desert phlox (*Phlox austromontana*), gilia (*Gilia sp.*), and scarlet globemallow (*Sphaeralcea coccinea*) are the most commonly sampled forb species.

1991 Trend Assessment

The browse trend is stable. Black sagebrush density increased 15%, and young recruitment decreased from 45% of the population to 39%. Decadence remained stable at 0% of the population, and vigor remained excellent. The trend for grass is stable. The sum of nested frequency for perennial grasses decreased slightly. The nested frequency of intermediate wheatgrass increased significantly, while the nested frequency of Russian wildrye decreased significantly. The trend for forbs is stable. The sum of nested frequency for forbs increased slightly.

browse - stable (0)

grass - stable (0)

forb - stable (0)

1998 Trend Assessment

The browse trend is stable. Density and composition changes may have been related to the larger sample area in 1998; therefore the trend was determined using other parameters. Black sagebrush decadence increased slightly from 0% of the population to 5%. Young recruitment decreased, but remained high at 21% of the population. All of the sampled plants were vigorous. Mountain big sagebrush was sampled for the first time at a density of 500 plants/acre. Twenty-four percent of the population was decadent, and young recruitment was low at 4% of the population. All of the sampled plants were vigorous. Mormon tea and antelope bitterbrush were also sampled for the first time at low densities. Half of the sampled plants for both species displayed poor vigor. The trend for grass is slightly down. The sum of nested frequency for perennial grasses, excluding bulbous bluegrass, decreased 15%. Intermediate wheatgrass, purple threeawn, and blue grama (*Bouteloua gracilis*) decreased significantly in nested frequency. Cheatgrass was sampled in 70% of the quadrats. The trend for forbs is stable. The sum of nested frequency for perennial forbs changed little. Heath aster (*Leucelene ericoides*) decreased significantly in nested frequency. The winter range condition, determined by the Desirable Components Index (DCI), was rated as poor-fair due to low preferred browse and perennial forb cover, despite high perennial grass cover.

winter range condition (DCI) - poor-fair (51) Mid-level potential scale

browse - stable (0)

grass - slightly down (-1)

forb - stable (0)

2003 Trend Assessment

The browse trend is slightly down. Black sagebrush density increased slightly, but decadence increased substantially from 5% of the population to 42%. Young recruitment decreased from 21% of the population to 7%, and vigor declined from all of the plants being vigorous to 7% of the population showing poor vigor. Mountain big sagebrush density decreased 52%. However, decadence decreased slightly from 24% of the population to 17%, and young recruitment increased from 4% of the population to 25%. Vigor declined slightly from 4% of the population showing poor vigor to 8%. The Mormon tea and antelope bitterbrush populations, both of which remained at low densities, increased in decadence and had no young recruitment. All of the sampled Mormon tea plants displayed poor vigor, while bitterbrush vigor was excellent. The trend for grass is slightly down. The sum of nested frequency for perennial grasses, excluding bulbous bluegrass, decreased 42%. Crested wheatgrass and smooth brome decreased significantly in nested frequency. However, the nested frequency of cheatgrass also decreased significantly. Cheatgrass quadrat frequency decreased from 70% to 18%. The trend for forbs is stable. The sum of nested frequency for perennial forbs changed little. Gilia increased significantly in nested frequency. The DCI declined to very poor due to increased decadence of preferred browse and decreased perennial grass cover, despite a slight increase in preferred browse cover and a decrease in cheatgrass cover.

winter range condition (DCI) - very poor (26) Mid-level potential scale
browse - slightly down (-1) grass - slightly down (-1) forb - stable (0)

2008 Trend Assessment

The browse trend is slightly up. Black sagebrush density remained stable at 1,420 plants/acre, but decadence decreased substantially from 42% of the population to 17%. Young recruitment increased from 7% of the population to 11%, and vigor remained stable, with 8% of the population showing poor vigor. Mountain big sagebrush density increased from 240 plants/acre to 440 plants/acre. Decadence increased slightly from 17% of the population to 23%, while young recruitment decreased slightly from 25% of the population to 23%. Plants displaying poor vigor increased from 8% of the population to 14%. The Mormon tea and antelope bitterbrush populations remained small. Decadence in both these populations decreased slightly, but no young plants were sampled. The trend for grass is stable. The sum of nested frequency for perennial grasses, excluding bulbous bluegrass, increased 32%, but the nested frequency of cheatgrass increased almost five-fold. Quadrat frequency of cheatgrass increased from 18% to 62%. Bulbous bluegrass (*Poa bulbosa*) decreased significantly in nested frequency. The trend for forbs is stable. The sum of nested frequency of perennial forbs remained unchanged. Gilia decreased significantly in nested frequency. The DCI rating improved to poor due to a decrease in preferred browse decadence and a slight increase in young recruitment, as well as an increase in perennial grass cover.

winter range condition (DCI) - poor (45) Mid-level potential scale
browse - slightly up (+1) grass - stable (0) forb - stable (0)

HERBACEOUS TRENDS --
Management unit 20 , Study no: 2

T y p e	Species	Nested Frequency					Average Cover %		
		'85	'91	'98	'03	'08	'98	'03	'08
G	Agropyron cristatum	c256	c241	bc230	a156	ab192	12.79	3.93	9.47
G	Agropyron dasystachyum	b16	a2	a1	a1	a-	.00	.00	-
G	Agropyron intermedium	a32	b86	a28	a18	a17	1.25	.26	.41
G	Aristida purpurea	ab18	b37	a7	a14	a9	.06	.10	.33
G	Bouteloua gracilis	a-	b19	a1	a-	a-	.00	-	-
G	Bromus inermis	ab25	ab19	b46	a6	ab14	1.26	.04	.18
G	Bromus tectorum (a)	-	-	b184	a34	b168	2.86	.34	1.29
G	Elymus junceus	b87	a18	a9	a5	a11	.05	.03	.81
G	Oryzopsis hymenoides	-	-	-	1	1	-	.00	.00
G	Poa bulbosa	a-	a-	bc23	c36	b12	.29	.99	.19
G	Poa fendleriana	a-	a-	a7	a-	b16	.21	-	.09
G	Poa secunda	a-	a-	b20	a4	b8	.25	.01	.05
G	Sitanion hystrix	b19	a6	b11	a-	b10	.72	-	.05
G	Sporobolus cryptandrus	-	-	-	-	1	-	-	.03
G	Stipa comata	-	-	3	6	-	.04	.21	-
Total for Annual Grasses		0	0	184	34	168	2.86	0.34	1.29
Total for Perennial Grasses		453	428	386	247	291	16.96	5.60	11.65
Total for Grasses		453	428	570	281	459	19.83	5.94	12.95
F	Astragalus cibarius	2	3	-	2	-	-	.15	-
F	Astragalus sp.	-	-	-	-	3	-	-	.01
F	Cymopterus sp.	-	-	2	-	-	.00	-	-
F	Draba sp. (a)	-	-	b36	a-	a1	.13	-	.00
F	Erigeron pumilus	b8	a-	a3	a-	a-	.03	-	-
F	Gilia sp. (a)	-	-	b19	c48	a3	.05	.19	.01
F	Lappula occidentalis (a)	-	-	1	-	7	.00	-	.01
F	Leucelene ericoides	a-	b15	a2	a-	a-	.00	-	-
F	Navarretia intertexta (a)	-	-	-	2	-	-	.00	-
F	Penstemon palmeri	-	3	-	-	-	-	-	-
F	Phlox austromontana	4	7	10	4	5	.37	.04	.18
F	Senecio multilobatus	-	-	1	-	-	.00	-	-
F	Sphaeralcea coccinea	3	-	2	1	2	.01	.00	.01
F	Streptanthus cordatus	-	-	-	3	-	-	.00	-
F	Unknown forb-perennial	2	1	-	-	-	-	-	-
Total for Annual Forbs		0	0	56	50	11	0.18	0.19	0.03

Type	Species	Nested Frequency					Average Cover %		
		'85	'91	'98	'03	'08	'98	'03	'08
	Total for Perennial Forbs	19	29	20	10	10	0.42	0.19	0.20
	Total for Forbs	19	29	76	60	21	0.60	0.39	0.23

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

BROWSE TRENDS --

Management unit 20 , Study no: 2

Type	Species	Strip Frequency			Average Cover %		
		'98	'03	'08	'98	'03	'08
B	<i>Artemisia nova</i>	30	33	34	1.95	4.79	4.99
B	<i>Artemisia tridentata vaseyana</i>	21	12	19	3.90	1.91	1.11
B	<i>Chrysothamnus nauseosus hololeucus</i>	4	1	4	.15	.00	.03
B	<i>Chrysothamnus parryi</i>	0	1	0	-	.00	-
B	<i>Chrysothamnus viscidiflorus viscidiflorus</i>	2	3	6	.38	.03	.03
B	<i>Echinocereus sp.</i>	1	3	0	.00	.00	-
B	<i>Ephedra viridis</i>	2	1	2	.15	.66	.41
B	<i>Gutierrezia sarothrae</i>	7	12	19	.03	.15	.37
B	<i>Juniperus osteosperma</i>	4	4	2	3.90	4.23	4.50
B	<i>Opuntia sp.</i>	1	0	0	.00	-	-
B	<i>Opuntia whipplei</i>	1	0	0	.00	-	-
B	<i>Pediocactus simpsonii</i>	0	3	1	-	.03	.03
B	<i>Pinus monophylla</i>	0	0	1	.00	.56	2.44
B	<i>Purshia tridentata</i>	2	2	2	.53	1.00	.38
B	<i>Sclerocactus sp.</i>	1	0	3	.03	-	.03
	Total for Browse	76	75	93	11.03	13.39	14.34

CANOPY COVER, LINE INTERCEPT --

Management unit 20 , Study no: 2

Species	Percent Cover		
	'98	'03	'08
Artemisia nova	-	3.46	4.18
Artemisia tridentata vaseyana	-	1.01	1.50
Chrysothamnus nauseosus hololeucus	-	-	.36
Chrysothamnus viscidiflorus viscidiflorus	-	.16	-
Ephedra viridis	-	.40	.41
Gutierrezia sarothrae	-	.18	.46
Juniperus osteosperma	3.00	5.88	6.86
Pinus monophylla	-	.36	3.46
Purshia tridentata	-	.46	.33
Sclerocactus sp.	-	-	.03

KEY BROWSE ANNUAL LEADER GROWTH --

Management unit 20 , Study no: 2

Species	Average leader growth (in)	
	'03	'08
Artemisia tridentata vaseyana	1.9	1.2
Purshia tridentata	2.8	0.7

POINT-QUARTER TREE DATA --

Management unit 20 , Study no: 2

Species	Trees per Acre		
	'98	'03	'08
Juniperus osteosperma	22	29	34
Pinus monophylla	78	78	50

Average diameter (in)		
'98	'03	'08
4.8	7.1	6.3
4.2	5.5	6.5

BASIC COVER --

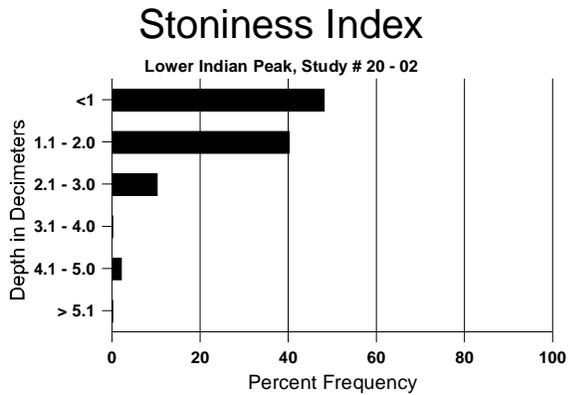
Management unit 20 , Study no: 2

Cover Type	Average Cover %				
	'85	'91	'98	'03	'08
Vegetation	8.75	4.00	34.35	19.46	28.01
Rock	14.25	22.00	13.17	13.34	13.81
Pavement	23.25	16.25	10.75	14.92	14.71
Litter	36.00	32.50	37.12	34.44	38.41
Cryptogams	0	.25	1.24	.58	.22
Bare Ground	17.75	25.00	21.53	27.68	15.89

SOIL ANALYSIS DATA --

Management unit 20, Study no: 2, Study Name: Lower Indian Peak

Effective rooting depth (in)	Temp °F (depth)	pH	Sandy Loam			%OM	PPM P	PPM K	ds/m
			%sand	%silt	%clay				
13.9	68.7 (6.2)	6.4	64.0	17.4	18.6	2.1	12.7	99.2	0.6



PELLET GROUP DATA --

Management unit 20 , Study no: 2

Type	Quadrat Frequency		
	'98	'03	'08
Rabbit	25	57	87
Elk	8	36	16
Deer	3	4	8
Cattle	-	-	-

Days use per acre (ha)		
'98	'03	'08
-	-	-
16 (40)	44 (109)	17 (66)
7 (17)	11 (26)	11 (26)
6 (15)	-	-

BROWSE CHARACTERISTICS --
Management unit 20 , Study no: 2

		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)
Artemisia frigida												
85	0	-	-	-	-	-	0	0	-	-	0	-/-
91	0	-	-	-	-	-	0	0	-	-	0	-/-
98	0	-	-	-	-	-	0	0	-	-	0	-/-
03	0	-	-	-	-	-	0	0	-	-	0	5/11
08	0	-	-	-	-	-	0	0	-	-	0	-/-
Artemisia nova												
85	1332	133	599	733	-	-	15	0	0	-	0	11/13
91	1532	-	599	933	-	-	43	13	0	-	0	9/16
98	1320	220	280	980	60	40	20	2	5	-	0	9/22
03	1420	-	100	720	600	240	32	1	42	7	7	10/20
08	1420	20	160	1020	240	180	28	17	17	8	8	13/26
Artemisia tridentata vaseyana												
85	0	-	-	-	-	-	0	0	0	-	0	-/-
91	0	-	-	-	-	-	0	0	0	-	0	-/-
98	500	40	20	360	120	20	16	4	24	4	4	21/34
03	240	-	60	140	40	60	50	0	17	8	8	20/35
08	440	80	100	240	100	120	14	23	23	14	14	14/20
Chrysothamnus nauseosus												
85	0	-	-	-	-	-	0	0	-	-	0	-/-
91	0	-	-	-	-	-	0	0	-	-	0	-/-
98	0	-	-	-	-	-	0	0	-	-	0	-/-
03	0	-	-	-	-	-	0	0	-	-	0	16/35
08	0	-	-	-	-	-	0	0	-	-	0	-/-
Chrysothamnus nauseosus hololeucus												
85	265	-	-	66	199	-	0	0	75	-	0	8/9
91	265	-	-	66	199	-	25	0	75	23	75	20/22
98	100	-	-	60	40	-	40	0	40	40	40	19/23
03	20	-	-	-	20	-	0	0	100	-	0	21/30
08	120	-	-	100	20	20	0	50	17	17	17	14/19

		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)
Chrysothamnus parryi												
85	0	-	-	-	-	-	0	0	-	-	0	-/-
91	0	-	-	-	-	-	0	0	-	-	0	-/-
98	0	-	-	-	-	-	0	0	-	-	0	-/-
03	20	-	20	-	-	-	0	0	-	-	0	-/-
08	0	-	-	-	-	-	0	0	-	-	0	5/13
Chrysothamnus viscidiflorus viscidiflorus												
85	0	-	-	-	-	-	0	0	0	-	0	-/-
91	132	-	66	66	-	-	50	50	0	-	0	7/22
98	40	-	-	40	-	-	0	0	0	-	0	13/23
03	60	-	-	40	20	-	0	0	33	33	33	13/24
08	120	-	20	60	40	-	33	17	33	17	33	6/9
Echinocereus sp.												
85	0	-	-	-	-	-	0	0	-	-	0	-/-
91	0	-	-	-	-	-	0	0	-	-	0	-/-
98	20	-	-	20	-	-	0	0	-	-	0	4/12
03	60	-	-	60	-	-	0	0	-	-	0	3/7
08	0	-	-	-	-	-	0	0	-	-	0	-/-
Ephedra viridis												
85	0	-	-	-	-	-	0	0	0	-	0	-/-
91	0	-	-	-	-	-	0	0	0	-	0	-/-
98	40	-	20	20	-	-	50	0	0	-	50	27/39
03	20	-	-	-	20	-	100	0	100	100	100	25/38
08	40	-	-	20	20	-	100	0	50	50	50	23/31
Eriogonum sp.												
85	0	-	-	-	-	-	0	0	-	-	0	-/-
91	0	-	-	-	-	-	0	0	-	-	0	-/-
98	0	-	-	-	-	-	0	0	-	-	0	-/-
03	0	-	-	-	-	-	0	0	-	-	0	-/-
08	0	-	-	-	-	-	0	0	-	-	0	2/4
Gutierrezia sarothrae												
85	3731	2266	1266	2066	399	-	5	0	11	-	0	6/7
91	1731	3066	1399	266	66	-	0	0	4	-	0	5/6
98	180	40	-	100	80	40	0	0	44	44	44	5/7
03	420	-	-	300	120	20	0	0	29	-	0	8/9
08	980	40	40	820	120	200	2	2	12	8	8	7/8

		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)
Juniperus osteosperma												
85	66	-	-	66	-	-	0	0	-	-	0	69/83
91	66	-	-	66	-	-	0	0	-	-	0	138/91
98	80	-	-	80	-	60	0	0	-	-	0	-/-
03	80	-	20	60	-	-	0	0	-	-	0	-/-
08	40	-	-	40	-	40	0	0	-	-	0	-/-
Opuntia sp.												
85	66	-	-	66	-	-	0	0	0	-	0	2/4
91	66	-	-	-	66	-	0	0	100	-	0	-/-
98	20	-	-	20	-	-	0	0	0	-	0	-/-
03	0	-	-	-	-	-	0	0	0	-	0	-/-
08	0	-	-	-	-	-	0	0	0	-	0	5/7
Opuntia whipplei												
85	0	-	-	-	-	-	0	0	-	-	0	-/-
91	0	-	-	-	-	-	0	0	-	-	0	-/-
98	20	-	-	20	-	-	0	0	-	-	0	4/11
03	0	-	-	-	-	-	0	0	-	-	0	4/11
08	0	-	-	-	-	-	0	0	-	-	0	3/5
Pediocactus simpsonii												
85	0	-	-	-	-	-	0	0	-	-	0	-/-
91	0	-	-	-	-	-	0	0	-	-	0	-/-
98	0	-	-	-	-	-	0	0	-	-	0	-/-
03	60	-	-	60	-	-	0	0	-	-	0	2/2
08	20	-	-	20	-	-	0	0	-	-	0	2/3
Pinus monophylla												
85	66	-	66	-	-	-	0	0	-	-	0	-/-
91	0	-	-	-	-	-	0	0	-	-	0	-/-
98	0	-	-	-	-	-	0	0	-	-	0	-/-
03	0	-	-	-	-	20	0	0	-	-	0	-/-
08	20	-	20	-	-	-	0	0	-	-	0	-/-
Purshia tridentata												
85	0	-	-	-	-	-	0	0	0	-	0	-/-
91	0	-	-	-	-	-	0	0	0	-	0	-/-
98	40	-	-	20	20	-	0	100	50	-	50	21/60
03	60	-	-	-	60	-	0	100	100	-	0	21/68
08	60	-	-	20	40	-	100	0	67	-	0	18/49

		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)
Rhus trilobata												
85	0	-	-	-	-	-	0	0	-	-	0	-/-
91	0	-	-	-	-	-	0	0	-	-	0	-/-
98	0	-	-	-	-	-	0	0	-	-	0	-/-
03	0	-	-	-	-	-	0	0	-	-	0	25/70
08	0	-	-	-	-	-	0	0	-	-	0	25/78
Sclerocactus sp.												
85	0	-	-	-	-	-	0	0	-	-	0	-/-
91	0	-	-	-	-	-	0	0	-	-	0	-/-
98	20	-	-	20	-	-	0	0	-	-	0	2/3
03	0	-	-	-	-	-	0	0	-	-	0	-/-
08	60	-	-	60	-	-	0	0	-	-	0	5/11