

Trend Study 30-42-08

Study site name: Grapevine Spring.

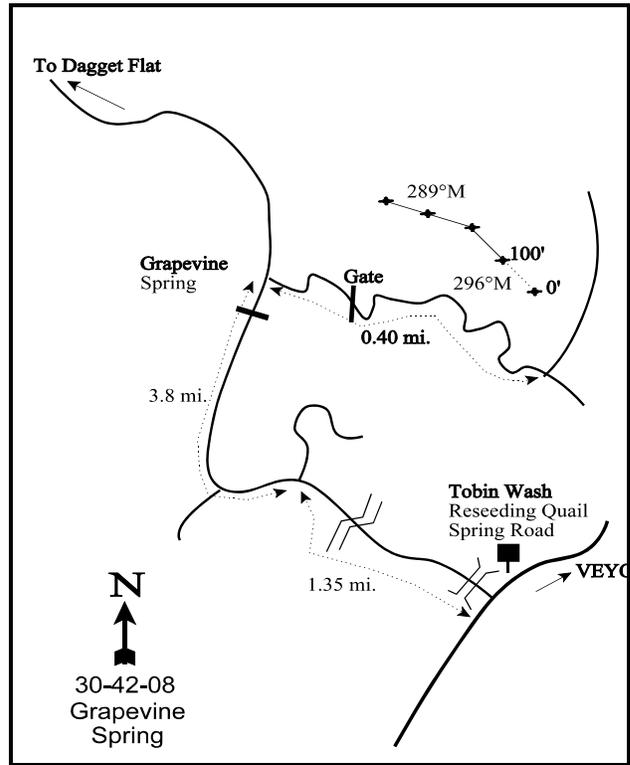
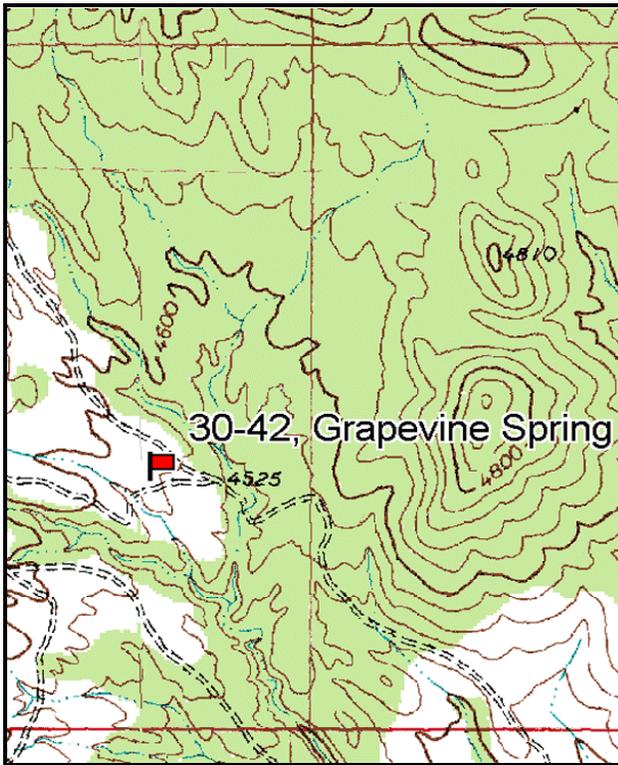
Vegetation type: Mtn. Brush Chaining.

Compass bearing: frequency baseline 296 degrees magnetic. (Lines 3 & 4, 289°M)

Frequency belt placement: line 1 (10 & 92ft), line 2 (34ft), line 3 (59ft), line 4 (71ft). No rebar.

LOCATION DESCRIPTION

From the town of Veyo, proceed west on Gunlock Road (center street) 5.7 miles until you come to a sign saying Tobin Wash and with Eagle Mountain Ranch just off the road. Turn right (west) at Eagle Mt. Ranch and travel 1.35 miles on the main road. Turn left, across a small creek, and proceed 3.8 miles to Grapevine Spring. Just past Grapevine Spring, take the fork to the right. Travel 0.40 miles till you come to another fork in the road to the left and stop. From the fork in the road, the 0-foot baseline stake is 10 paces away at a bearing of 296 degrees magnetic. The study is marked by green steel "T" fence posts approximately 12 to 18 inches in height. The baseline is marked with browse tag #7098.



Map Name: Gunlock

Diagrammatic Sketch

Township 39S, Range 17W, Section 32

GPS: NAD 83, UTM 12S 252683 E, 4137441 N

DISCUSSION

Grapevine Spring - Trend Study No. 30-42

Study Information

This trend study is located within critical deer winter range, one-half mile east of Grapevine Spring [elevation: 4,600 feet (1,402 m), slope: 5%-10%, aspect: southeast]. The study lies within an old singleleaf pinyon pine (*Pinus monophylla*) and Utah juniper (*Juniperus osteosperma*) chaining that currently supports a mixed browse stand. The Bull Complex fire burned the area in 2006 and the area was aerially seeded afterward. Pellet group data estimated deer use to be moderate in 1998 and 2003 (32 deer days use/acre:79 ddu/ha and 29 ddu/acre:73 ddu/ha, respectively), and very light in 2008 (1 ddu/acre:3 ddu/ha) probably due to the fire. There were only a few cattle pats encountered in 1998 (2 cow days use/acre:5 cdu/ha) with no sign of cattle encountered in 2003 or 2008.

Soil

Soils are shallow, moderately rocky, and generally lack effective cover. Effective rooting depth was estimated at 14 inches in 1998. Soil texture is a sandy clay loam which is neutral in reactivity (pH 6.7). Phosphorus has marginal availability for plant growth at 8.5 ppm (Tiedemann and Lopez 2004). There is a considerable amount of pavement concentrated on the ground surface in the shrub interspaces. Relative combined vegetation and litter cover was 59% in 1998 and 65% in 2003, and decreased after the fire to 31%. Litter consists largely of dead cheatgrass. Relative bare ground was 20% in 1998, decreasing to 11% in 2003, and increasing again after the fire to 29% in 2008. Some erosion is occurring, yet it is less severe than on untreated pinyon-juniper woodlands in the immediate area. The gentle, almost flat terrain helps prevent serious soil loss. The erosion condition class was rated as stable in 2003 and 2008.

Browse

The key browse species is mountain big sagebrush (*Artemisia tridentata* ssp. *vaseyana*) with lesser amounts of desert ceanothus (*Ceanothus greggii*) and Stansbury cliffrose (*Cowania mexicana* ssp. *stansburiana*). The population of big sagebrush steadily increased from 566 plants/acre in 1982 to 4,380 by 1998. In 2003, density of sagebrush declined by 51%. There were nearly as many dead as live sagebrush. No seedlings were encountered and young plants declined to only 3% of the population. Sagebrush density was just 20 plants/acre in 2008, due to the fire in 2005.

Desert ceanothus increased 53% in density between 1982 and 1992, but estimates from 1998 are similar to 1982 levels. The population follows the same trend as sagebrush in 2003 with a 50% decline in density. Half of the remaining population was decadent. Desert ceanothus survived the fire well and actually increased slightly in the 2008 reading. Stansbury cliffrose occurred in similar densities as desert ceanothus through 2003, but no cliffrose was sampled in the density strips in 2008. Utilization of cliffrose prior to the fire was light to moderate. Other preferred browse species found on the site include a few scattered green ephedra (*Ephedra viridis*), and forage kochia (*Kochia prostrata*) was encountered in 2008 after the fire, presumably due to reseeding .

The most abundant browse species in 1992 was the increaser broom snakeweed (*Gutierrezia sarothrae*) which had expanded from 8,799 plants/acre in 1982 to 11,933 by 1992. Seedlings and young were numerous, characterizing an expanding population at that time. During the 1998 reading, population density actually

declined 74% to 3,080 plants/acre. Drought conditions have caused the population to decline even further to only 760 plants/acre by 2003. After the fire, snakeweed density increased to 5,860 plants/acre in 2008. Surviving pinyon and juniper trees were increasing in size on the site prior to the fire. Point-quarter data from 2003 estimated 52 pinyon trees/acre and 70 juniper trees/acre. Average basal diameter was estimated at 3.6 inches for pinyon and 4.4 inches for juniper. Average cover for pinyon and juniper doubled between 1998 and 2003. Total line-intercept canopy cover was estimated at 2% for pinyon and 3% for juniper in 2003. Because of the reduction of pinyon and juniper from the fire, no trees were sampled within the point-quarter sample area in 2008.

Herbaceous Understory

The herbaceous understory is poor producing only 9% cover in 1998 and 4% in 2003. After the fire, the cover of herbaceous understory increased to 25% in 2008, mostly due to increases in forbs. Grass composition consists of both native and seeded species which are not very vigorous and produce little available forage. The principal species, intermediate wheatgrass (*Agropyron intermedium*) and bottlebrush squirreltail (*Sitanion hystrix*), had sustained approximately 30% utilization during the 1982 reading. The annual grasses, cheatgrass brome (*Bromus tectorum*) and foxtail brome (*Bromus rubens*), are also present and more numerous than the perennial grasses. These annual grasses provided over half of the total grass cover in 1998, 88% in 2003, and 89% in 2008. Prior to the fire, perennial forbs were sparse with relatively few species found more than occasionally. After the fire, forbs increased in both nested frequency and cover in 2008.

Seed Mix - Bull Complex Fire

Seeded Species	lbs./acre
Pubescent	3.0
Hycrest Wheatgrass	1.0
Sideoats Grama	2.0
Smooth Brome	1.0
Small Burnett	1.0
Alfalfa	1.0
Palmer Penstemon	0.1
Yellow Sweetclover	0.5
Prostrate Kochia	1.0

1992 TREND ASSESSMENT

The browse trend is up due to significant increases in the density and reproductive potentials of key shrub species. However, broom snakeweed is abundant and has also increased. Data for herbaceous species from 1982 is limited to quadrat frequency. Considering this limited data trend for grasses is slightly down. There was a large decrease in the quadrat frequency of perennial grasses, especially seeded species. Trend for forbs is stable. There was a slight decrease in the quadrat frequency of forbs.

browse - up (+2)

grass - slightly down (-1)

forb - stable (0)

1998 TREND ASSESSMENT

Trend for browse is up stable. Differences in density of browse species may be related to the larger sample area used in 1998; therefore, trend for browse was determined using other parameters. Mountain big

sagebrush had good vigor, low decadence, and contributes 60% of the browse cover. Both desert ceanothus and cliffrose appear to have stable populations. Trend for the grasses is slightly up, although total production is poor with a total grass cover value of only 3%. Sum of nested frequency for perennial grasses increased slightly, with a significant increase in the nested frequency of bottlebrush squirreltail. Trend for forbs is up. Nested frequency for perennial forbs increased eleven-fold, and several new forb species were encountered in the larger sample.

winter range condition (DCI) - fair-good (65) Mid-level potential scale
browse - stable (0) grass - slightly up (+1) forb - up (+2)

2003 TREND ASSESSMENT

Trend for browse is down. Density of the key species, mountain big sagebrush, has declined by 51% from 1998 to 2,160 plants/acre. The number of decadent shrubs has increased to 33%, young recruitment is down, and no seedlings were encountered. Dead sagebrush increased from only 180 plants/acre in 1998 to 2,040 plants/acre. It appears that the drought has caused a significant die-off of sagebrush on this site. Drought may have also caused an increase in decadent and dead desert ceanothus plants. Cliffrose has declined slightly in density, but maintained good vigor. Juniper and pinyon trees are slowly increasing in size and provide additional competition for resources. Tree density was estimated at 122 pinyon and juniper trees/acre with a line-intercept cover value of 5%. Many of the juniper trees in the area displayed brown leaves due to drought. The trend for both grasses and forbs is down. The herbaceous understory is poor and produces little cover (4%). The sum of nested frequency of perennial grasses declined by 95% from 1998, and cover of perennial forbs declined to less than 0.05%. Only one perennial grass, bottlebrush squirreltail, was encountered on the site in 2003. Annual grasses, foxtail and cheatgrass brome, have also declined in frequency and cover. However, they along with sixweeks fescue (*Vulpia octoflora*), remain the most abundant grasses. The sum of nested frequency of perennial forbs has declined by 36% from 1998, and cover of perennial forbs declined to 3%. The forb composition is diverse but the most common species in 2003 were annuals which provided 72% of the total forb cover.

winter range condition (DCI) - very poor (26) Mid-level potential scale
browse - down (-2) grass - down (-2) forb - down (-2)

2008 TREND ASSESSMENT

A fire burned the site in 2005 and removed many of the preferred browse species. Trend for browse is down. The primary browse species, mountain big sagebrush, was reduced in density to only 20 plants/acre. The density of desert ceanothus increased slightly to 180 plants/acre, with improved vigor and decreased decadence. Stansbury cliffrose was not encountered in the density strip. The seeded species, forage kochia, was encountered for the first time in 2008. Trend for grasses is stable. Sum of nested frequency of perennial grasses is up, but perennial grasses are rare and provide only 7% of the total grass cover. The nested frequency of cheatgrass increased significantly and cheatgrass comprised 82% of the total grass cover. Trend for forbs is up. Sum of nested frequency of perennial forbs increased markedly, and cover of perennial forbs increased to 12%. There were eleven perennial species sampled in 2008 that had not been encountered on the site in previous readings.

winter range condition (DCI) - very poor (9) Mid-level potential scale
browse - down (-2) grass - stable (0) forb - up (+2)

HERBACEOUS TRENDS --

Management unit 30 , Study no: 42

T y p e	Species					Average Cover %		
		'92	'98	'03	'08	'98	'03	'08
G	<i>Agropyron cristatum</i>	-	5	-	3	.15	-	.00
G	<i>Agropyron intermedium</i>	8	10	-	-	.07	-	-
G	<i>Bouteloua curtipendula</i>	-	-	-	6	-	-	.09
G	<i>Bromus rubens</i> (a)	-	11	7	17	.37	.20	.13
G	<i>Bromus tectorum</i> (a)	-	_b 121	_a 34	_b 111	1.02	.72	1.62
G	<i>Sitanion hystrix</i>	_b 32	_c 50	_a 3	_a 11	.96	.03	.05
G	<i>Vulpia octoflora</i> (a)	-	_a 12	_{ab} 25	_b 25	.02	.11	.07
Total for Annual Grasses		0	144	66	153	1.42	1.03	1.83
Total for Perennial Grasses		40	65	3	20	1.19	0.02	0.14
Total for Grasses		40	209	69	173	2.62	1.06	1.97
F	<i>Agoseris glauca</i>	-	-	1	-	-	.00	-
F	<i>Calochortus flexuosus</i>	-	_b 15	_a 3	_b 26	.04	.01	.08
F	<i>Castilleja linariaefolia</i>	-	2	6	-	.00	.01	-
F	<i>Cirsium</i> sp.	-	1	3	-	.00	.00	-
F	<i>Cordylanthus parviflorus</i>	9	-	-	-	-	-	-
F	<i>Dalea searlsiae</i>	_a -	_c 33	_{bc} 18	_b 8	3.84	.12	.75
F	<i>Descurainia pinnata</i> (a)	-	_a -	_a 1	_b 19	-	.00	1.87
F	<i>Draba</i> sp. (a)	-	_b 66	_b 78	_a 31	.48	1.33	.10
F	<i>Erodium cicutarium</i> (a)	-	_a -	_a 1	_b 73	-	.15	7.43
F	<i>Eriogonum</i> sp.	_a -	_a -	_a 4	_b 80	-	.04	.45
F	<i>Euphorbia</i> sp.	_a -	_b 28	_b 31	_c 96	.28	.20	1.12
F	<i>Frasera albomarginata</i>	-	13	-	4	.25	-	.24
F	<i>Gilia</i> sp. (a)	-	_a -	_b 12	_b 16	-	.12	.07
F	<i>Lactuca serriola</i>	_a -	_a -	_a -	_b 33	-	-	.14
F	<i>Lomatium</i> sp.	-	1	-	-	.00	-	-
F	<i>Lotus plebeius</i>	_a 6	_b 34	_a 8	_a 11	.57	.01	.37
F	<i>Medicago sativa</i>	-	-	-	1	-	-	.03
F	<i>Microsteris gracilis</i> (a)	-	3	-	-	.00	-	-
F	<i>Navarretia intertexta</i> (a)	-	_a -	_b 31	_c 88	-	.39	.54
F	<i>Nicotiana attenuata</i> (a)	-	_a -	_a -	_b 11	-	-	.03
F	<i>Oenothera albicaulis</i> (a)	-	_a -	_a -	_b 13	-	-	.03
F	<i>Penstemon humilis</i>	-	-	-	1	-	-	.00
F	<i>Penstemon</i> sp.	_a -	_{ab} 6	_b 11	_c 32	.06	.05	.07
F	<i>Penstemon palmeri</i>	-	-	-	2	-	-	.71

T y p e	Species					Average Cover %		
		'92	'98	'03	'08	'98	'03	'08
F	Phacelia fremontii	a-	a-	a-	b ³⁷	-	-	.35
F	Phlox hoodii	4	9	-	-	.33	-	-
F	Salsola iberica (a)	-	a-	a-	b ²⁰	-	-	.05
F	Sanguisorba minor	-	-	-	1	-	-	.00
F	Senecio multilobatus	-	-	-	3	-	-	.15
F	Sisymbrium altissimum (a)	-	-	-	6	-	-	.53
F	Sphaeralcea grossulariifolia	-	a-	a ³	b ²⁵	-	.16	5.68
F	Trifolium sp.	-	-	-	2	-	-	.00
F	Unknown forb-annual (a)	-	-	11	-	-	.04	-
F	Unknown forb-perennial	-	3	5	-	.00	.12	-
F	Verbena gooddingii	a-	a-	a-	b ¹⁹	-	-	1.04
F	Viguiera multiflora	-	5	3	6	.04	.03	.67
Total for Annual Forbs		0	69	134	277	0.49	2.04	10.66
Total for Perennial Forbs		19	150	96	387	5.45	0.78	11.90
Total for Forbs		19	219	230	664	5.94	2.83	22.57

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

BROWSE TRENDS --

Management unit 30 , Study no: 42

Type	Species	Strip Frequency			Average Cover %		
		'98	'03	'08	'98	'03	'08
B	<i>Artemisia tridentata vaseyana</i>	82	63	1	20.35	10.23	.00
B	<i>Ceanothus greggii</i>	9	4	7	.00	1.28	.01
B	<i>Cowania mexicana stansburiana</i>	12	5	0	3.59	2.09	-
B	<i>Ephedra viridis</i>	0	0	0	.15	-	-
B	<i>Eriodictyon angustifolium</i>	6	7	5	.00	.83	.36
B	<i>Garrya flavescens</i>	2	3	0	1.00	1.23	-
B	<i>Gutierrezia sarothrae</i>	45	11	43	2.53	.23	3.27
B	<i>Juniperus osteosperma</i>	3	4	0	1.75	2.74	-
B	<i>Kochia prostrata</i>	0	0	4	-	-	.03
B	<i>Opuntia sp.</i>	0	1	0	-	.00	-
B	<i>Pinus edulis</i>	0	0	0	-	.15	-
B	<i>Pinus monophylla</i>	1	3	0	.53	1.69	.00
B	<i>Quercus turbinella</i>	9	5	5	3.96	7.51	.58
B	<i>Ribes sp.</i>	0	0	0	-	-	.00
Total for Browse		169	106	65	33.90	28.02	4.28

CANOPY COVER, LINE INTERCEPT --

Management unit 30 , Study no: 42

Species	Percent Cover		
	'98	'03	'08
<i>Artemisia tridentata vaseyana</i>	-	8.48	-
<i>Ceanothus greggii</i>	-	.83	-
<i>Cowania mexicana stansburiana</i>	-	3.29	-
<i>Eriodictyon angustifolium</i>	-	.60	1.63
<i>Gutierrezia sarothrae</i>	-	.08	7.56
<i>Juniperus osteosperma</i>	2.20	2.76	-
<i>Pinus monophylla</i>	1.20	2.29	-
<i>Quercus turbinella</i>	-	8.80	1.11

KEY BROWSE ANNUAL LEADER GROWTH --

Management unit 30 , Study no: 42

Species	Average leader growth (in)	
	'03	'08
Artemisia tridentata vaseyana	1.2	-
Cowania mexicana stansburiana	1.4	-

POINT-QUARTER TREE DATA --

Management unit 30 , Study no: 42

Species	Trees per Acre		
	'98	'03	'08
Juniperus osteosperma	54	70	<18
Pinus monophylla	47	52	<18

Average diameter (in)		
'98	'03	'08
3.1	4.4	-
2.6	3.6	-

BASIC COVER --

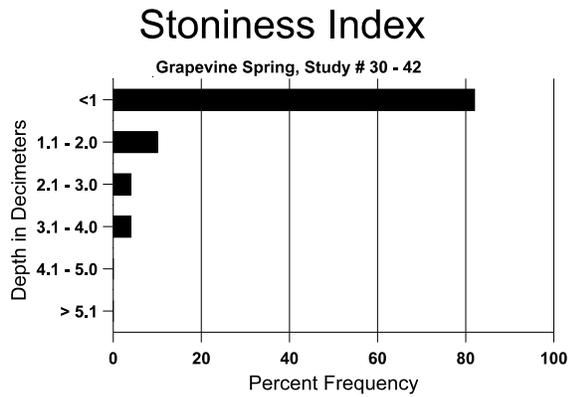
Management unit 30 , Study no: 42

Cover Type	Average Cover %				
	'82	'92	'98	'03	'08
Vegetation	1.00	0	39.41	31.20	29.64
Rock	1.50	0	7.40	10.19	15.32
Pavement	19.75	0	22.61	18.88	30.04
Litter	60.00	0	45.50	46.26	5.44
Cryptogams	0	0	.05	.18	0
Bare Ground	17.75	0	28.76	12.70	32.65

SOIL ANALYSIS DATA --

Management unit 30, Study no: 42, Study Name: Grapevine Spring

Effective rooting depth (in)	Temp °F (depth)	pH	sandy clay loam			%OM	PPM P	PPM K	ds/m
			%sand	%silt	%clay				
14.3	55.2 (14.2)	6.7	48.0	25.4	26.6	1.8	8.5	108.8	0.6



PELLET GROUP DATA --

Management unit 30 , Study no: 42

Type	Quadrat Frequency		
	'98	'03	'08
Rabbit	17	7	47
Deer	22	18	11
Cattle	1	-	-

Days use per acre (ha)		
'98	'03	'08
-	-	-
32 (79)	29 (73)	1 (3)
2 (5)	-	-

BROWSE CHARACTERISTICS --

Management unit 30 , Study no: 42

		Age class distribution (plants per acre)					Utilization					
Y	Plants per Acre (excluding seedlings)	Seedling	Young	Mature	Decadent	Dead	% moderate	% heavy	% decadent	% dying	% poor vigor	Average Height Crown (in)
Artemisia tridentata vaseyana												
82	565	166	266	299	-	-	0	0	0	-	0	15/20
92	2431	199	766	1599	66	-	27	1	3	-	0	26/32
98	4380	1740	760	3520	100	180	27	0	2	1	2	22/33
03	2160	-	60	1380	720	2040	2	0	33	15	16	22/29
08	20	-	20	-	-	-	0	0	0	-	0	15/16
Ceanothus greggii												
82	233	-	-	233	-	-	0	14	0	-	0	31/29
92	498	299	166	299	33	-	13	27	7	-	0	26/40
98	240	20	20	180	40	40	17	0	17	8	8	27/42
03	120	-	-	60	60	140	17	0	50	33	33	27/41
08	180	320	180	-	-	-	0	0	0	-	0	5/9

		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)
<i>Chrysothamnus viscidiflorus viscidiflorus</i>												
82	533	-	-	533	-	-	0	0	-	-	0	11/16
92	0	-	-	-	-	-	0	0	-	-	0	-/-
98	0	-	-	-	-	20	0	0	-	-	0	-/-
03	0	-	-	-	-	20	0	0	-	-	0	-/-
08	0	-	-	-	-	-	0	0	-	-	0	-/-
<i>Cowania mexicana stansburiana</i>												
82	99	-	33	66	-	-	0	0	0	-	0	31/44
92	532	66	333	166	33	-	38	6	6	-	0	61/66
98	260	60	80	180	-	-	38	0	0	-	0	58/71
03	120	-	20	100	-	-	50	0	0	-	0	64/74
08	0	-	-	-	-	-	0	0	0	-	0	15/37
<i>Ephedra viridis</i>												
82	0	-	-	-	-	-	0	0	-	-	0	-/-
92	0	-	-	-	-	-	0	0	-	-	0	-/-
98	0	-	-	-	-	-	0	0	-	-	0	29/42
03	0	-	-	-	-	-	0	0	-	-	0	27/31
08	0	-	-	-	-	-	0	0	-	-	0	29/39
<i>Eriodictyon angustifolium</i>												
82	0	-	-	-	-	-	0	0	0	-	0	-/-
92	66	-	-	66	-	-	0	0	0	-	0	20/22
98	640	-	20	520	100	-	0	0	16	3	3	24/16
03	320	-	20	140	160	120	44	13	50	25	25	17/15
08	220	20	-	220	-	-	0	0	0	-	73	13/21
<i>Garrya flavescens</i>												
82	33	-	-	33	-	-	0	0	0	-	0	24/30
92	33	-	-	33	-	-	0	0	0	-	0	20/24
98	40	-	-	40	-	-	0	50	0	-	0	22/31
03	60	-	20	-	40	-	0	0	67	67	67	-/-
08	0	-	-	-	-	-	0	0	0	-	0	-/-
<i>Gutierrezia sarothrae</i>												
82	8799	-	533	8266	-	-	0	0	0	-	0	12/12
92	11931	2333	899	9999	1033	-	.27	0	9	-	.55	10/12
98	3080	880	580	2200	300	500	0	1	10	7	7	8/10
03	760	360	400	360	-	260	0	0	0	-	0	9/10
08	5860	980	-	5860	-	20	0	0	0	-	0	12/16

		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												
82	132	-	33	99	-	-	0	0	-	-	0	53/43
92	199	33	66	133	-	-	33	0	-	-	0	73/58
98	60	-	-	60	-	-	0	0	-	-	0	-/-
03	100	-	40	60	-	20	0	0	-	-	0	-/-
08	0	-	-	-	-	-	0	0	-	-	0	-/-
Kochia prostrata												
82	0	-	-	-	-	-	0	0	-	-	0	-/-
92	0	-	-	-	-	-	0	0	-	-	0	-/-
98	0	-	-	-	-	-	0	0	-	-	0	-/-
03	0	-	-	-	-	-	0	0	-	-	0	-/-
08	80	-	60	20	-	-	0	25	-	-	0	2/6
Opuntia sp.												
82	0	-	-	-	-	-	0	0	-	-	0	-/-
92	0	-	-	-	-	-	0	0	-	-	0	-/-
98	0	-	-	-	-	-	0	0	-	-	0	6/13
03	20	-	-	20	-	-	0	0	-	-	0	9/19
08	0	-	-	-	-	-	0	0	-	-	0	-/-
Pinus monophylla												
82	0	-	-	-	-	-	0	0	-	-	0	-/-
92	33	-	33	-	-	-	0	0	-	-	0	-/-
98	20	-	-	20	-	-	0	0	-	-	0	-/-
03	60	-	-	60	-	-	0	0	-	-	0	-/-
08	0	20	-	-	-	-	0	0	-	-	0	-/-
Quercus gambelii												
82	0	-	-	-	-	-	0	0	-	-	0	-/-
92	0	-	-	-	-	-	0	0	-	-	0	-/-
98	0	-	-	-	-	-	0	0	-	-	0	-/-
03	0	-	-	-	-	-	0	0	-	-	0	-/-
08	0	-	-	-	-	-	0	0	-	-	0	37/75
Quercus turbinella												
82	33	-	-	33	-	-	0	0	0	-	0	44/59
92	66	266	-	66	-	-	100	0	0	-	0	51/49
98	460	60	20	440	-	40	0	0	0	-	0	55/68
03	100	20	-	80	20	-	0	0	20	-	0	65/101
08	780	-	80	700	-	-	0	0	0	-	100	31/35

		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)
Ribes sp.												
82	0	-	-	-	-	-	0	0	-	-	0	-/-
92	0	-	-	-	-	-	0	0	-	-	0	-/-
98	0	-	-	-	-	-	0	0	-	-	0	-/-
03	0	-	-	-	-	-	0	0	-	-	0	-/-
08	0	20	-	-	-	-	0	0	-	-	0	-/-