

PETERS POINT - TREND STUDY NO. 14-8-09

Vegetation Type: Chained, Seeded P-J

Range Type: Crucial Deer Spring/Fall, Crucial Elk Year Long

NRCS Ecological Site Description: Not Available

Land Ownership: USFS

Elevation: 7,500 ft (2,286 m)

Aspect: Southeast

Slope: 6%-8%

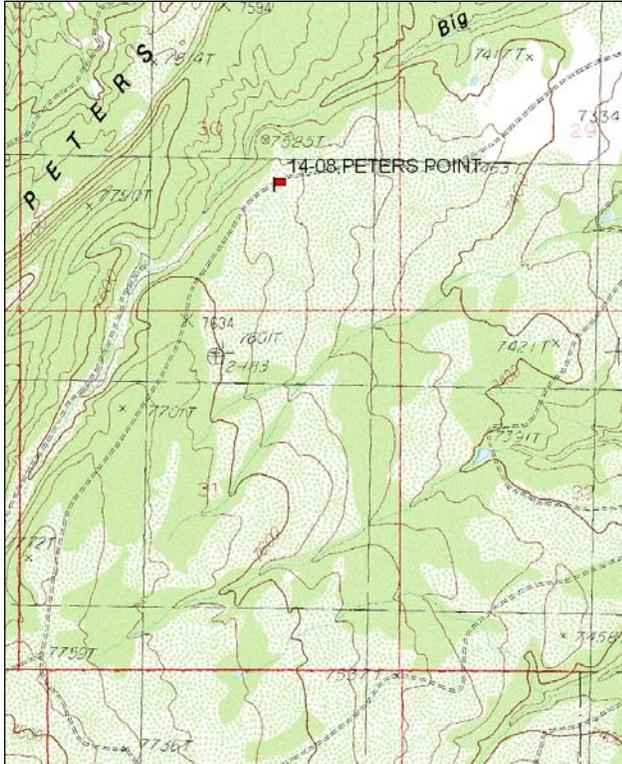
Transect bearing: 165 degrees magnetic.

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

Directions:

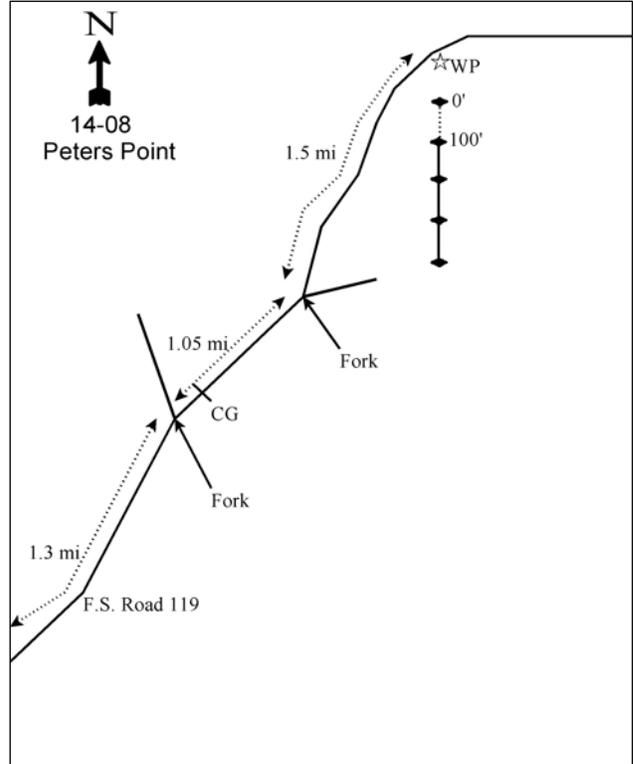
From Monticello Lake, take the dirt road (Spring Creek Road) 0.7 miles to a fork. Stay right and continue 2.2 miles to a fork. Turn left (F.S. Road 119) and go north 1.3 miles to a fork. Stay right towards an enclosure and go 0.25 miles to a cattleguard. Continue 0.8 miles to a fork. Stay left and continue 1.5 miles to a witness post on the right side of the road. The 0 foot stake is 100 feet south of the witness post, and has browse tag #1888 attached.

Map Name: Monticello Lake



Township: 32S, Range: 23E, Section: 30

Diagrammatic Sketch:



GPS: NAD 83, UTM 12S 637489 E 4203056 N

## PETERS POINT - TREND STUDY NO. 14-8

### Site Information

Site Description: The study is located on Peters Point Plateau on the northeast side of the Abajo Mountains. Fifteen hundred acres of pinyon-juniper woodland were chained and seeded in the area in 1962. The Forest Service conducted follow up treatments in 1985 which included burning the perimeter of the old chaining and a Tordon treatment of approximately 200 acres. The study site is near the road in the middle of the chaining. The availability of water is limited, although there are some seasonal sources and small stock ponds. This area is grazed by cattle in the summer as part of the Harts Draw allotment. This area is considered spring-fall range for deer as Peters Point is just above the Harts Draw winter concentration area. This plateau has the potential to become an important elk wintering area. Pellet group data has indicated light use by deer, elk, and cattle since 1999 (Table - Pellet Group Data).

Browse: The key browse species on the site is mountain big sagebrush (*Artemisia tridentata* ssp. *vaseyana*). Although some individual sagebrush had different leaf color and growth forms, they were all classified as mountain big sagebrush. Mountain big sagebrush is the dominant browse species on the site and has steadily increased in cover since 1994 (Table - Browse Trends). Density of sagebrush has also been increasing since 1999. Decadence of sagebrush has been mostly low and there has been good recruitment of young plants over the sample years. Sagebrush plants displaying poor vigor were high in 1994, but have been low in all other sample years. Utilization of sagebrush has been mostly light with some moderate use (Table - Browse Characteristics).

Encroachment by Utah juniper (*Juniperus osteosperma*) into this particular area has been rather slow. The point-quarter density of juniper has changed little since 2004, though the average mean diameter increased slightly in 2009. A few widely spaced pinyon pine (*Pinus edulis*) trees are also found on the site, but at lower size and density (Table - Point-Quarter Tree Data). Broom snakeweed (*Gutierrezia sarothrae*) is fairly abundant on the site and has increased substantially since 1994 (Table - Browse Characteristics). Shrubs not encountered on the density plots include scattered Gambel oak (*Quercus gambelii*), large and lightly browsed Utah serviceberry (*Amelanchier utahensis*), and some true mountain mahogany (*Cercocarpus montanus*).

Herbaceous Understory: The seeding treatment successfully established a dense stand of crested wheatgrass (*Agropyron cristatum*). Crested wheatgrass occurs in vigorous, large patches and has provided over 80% of the grass cover since 1994. Mutton bluegrass (*Poa fendleriana*) is the only other common grass species on the site. Forbs are lacking and do not provide much forage. The most numerous forb species is rock goldenrod (*Petradoria pumila*) which also provides the majority of the forb cover (Table - Herbaceous Trends).

Soil: The soil is a reddish sandy loam with a neutral pH and a relatively shallow effective rooting depth (Table - Soil Analysis Data). Some pavement is concentrated on the surface in some scattered exposed spots, but this still contributes little cover. Average cover of bare ground has steadily increased from 1986 to 2004 and was moderately high in 2009 (Table - Basic Cover). Much of this increase is likely due to the inevitable decomposition of chaining litter. The soil erosion condition was classified as slight in 2004 due to pedestaling of plants and flow patterns, but was classified as stable in 2009.

### Trend Assessments

#### Browse:

- **1986 to 1994 - slightly down (-1):** Differences in density may be related to the larger sample area used in 1994; therefore, trend was determined using other parameters. The number of mountain big sagebrush plants displaying poor vigor increased from 5% to 67% and decadence increased from 7% to 21%.

- **1994 to 1999 - stable (0):** The density of the primary browse species, mountain big sagebrush, decreased by 17%, but cover increased from 8% to 11%. Sagebrush plants displaying poor vigor decreased substantially to 6% and decadence decreased to 8%.
- **1999 to 2004 - slightly up (+1):** Density of mountain big sagebrush increased by 18% from 2,300 plants/acre to 2,720 plants/acre, and cover increased to 13%. Decadence and poor vigor of sagebrush increased slightly, but remained good.
- **2004 to 2009 - up (+2):** The density of mountain big sagebrush increased by 31% to 3,580 plants/acre, and cover increased to 14%. Decadence and vigor of sagebrush remained good, and the recruitment of young sagebrush plants increased slightly from 14% to 16% of the population.

Grass:

- **1986 to 1994 - slightly down (-1):** The sum of nested frequency of perennial grasses decreased by 13% with a significant decrease in the nested frequency of crested wheatgrass.
- **1994 to 1999 - stable (0):** There was little change in the sum of nested frequency or cover of perennial grasses, though there was a significant increase in the nested frequency of crested wheatgrass.
- **1999 to 2004 - slightly down (-1):** There was a 16% decrease in the sum of nested frequency of perennial grasses and cover decreased from 15% to 10%. There was a significant decrease in the nested frequency of crested wheatgrass.
- **2004 to 2009 - stable (0):** There was little change in the sum of nested frequency or cover of perennial grasses.

Forb:

- **1986 to 1994 - down (-2):** The sum of nested frequency of perennial forbs decreased by 24%.
- **1994 to 1999 - stable (0):** There was little change in the sum of nested frequency of perennial forbs, though cover decreased slightly from 6% to 4%.
- **1999 to 2004 - down (-2):** The sum of nested frequency of perennial forbs decreased by 47% and cover decreased to 2%.
- **2004 to 2009 - slightly up (+1):** There was a slight increase in the sum of nested frequency of perennial forbs and cover increased to 3%.

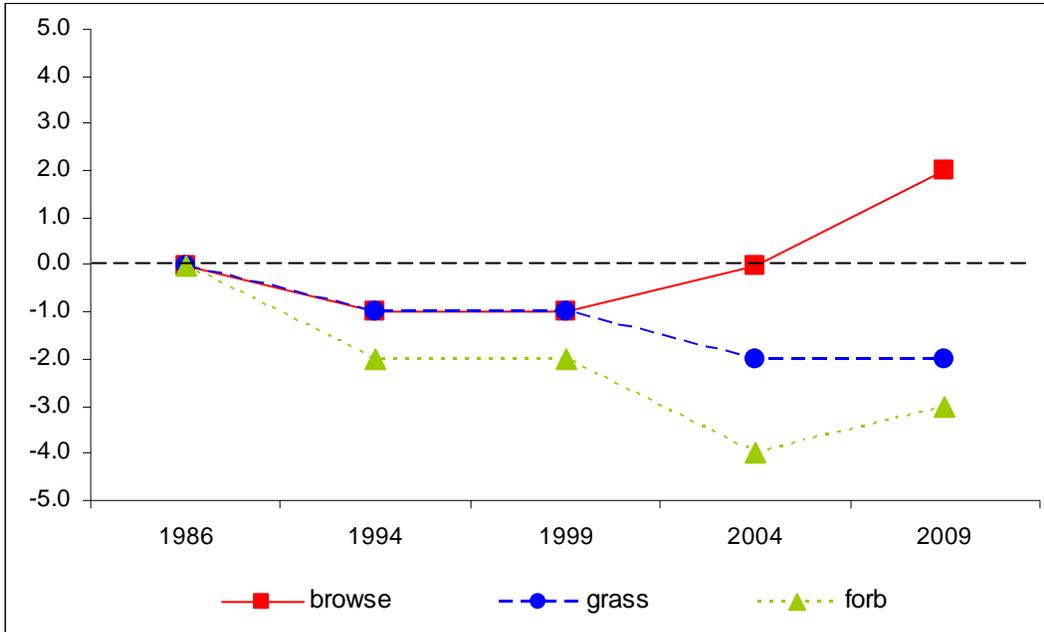
DEER DESIRABLE COMPONENTS INDEX - MID-LEVEL POTENTIAL SCALE --

Management unit 14, study no: 8

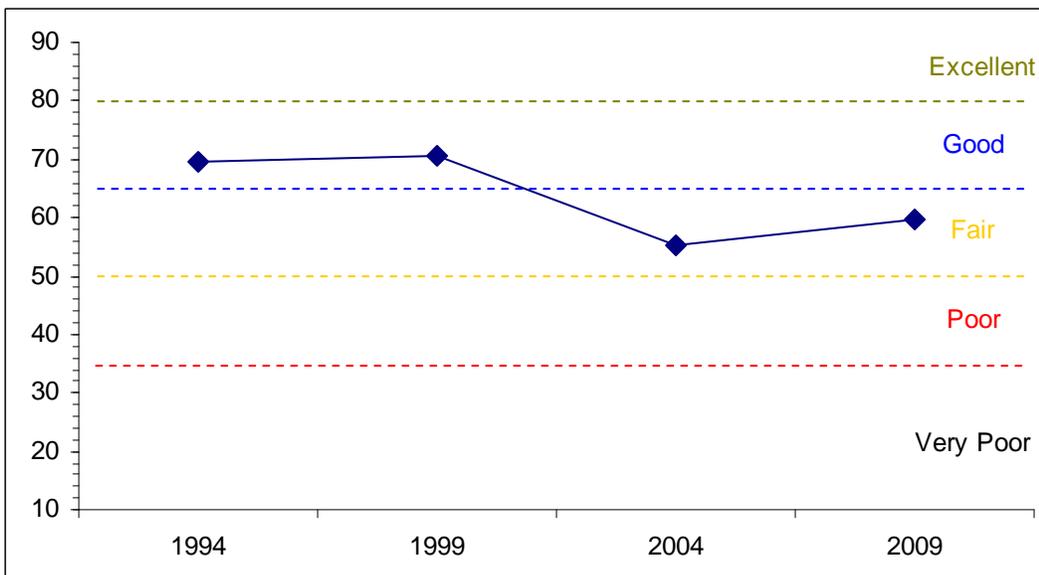
Year	Preferred Browse Cover	Preferred Browse Decadence	Preferred Browse Young	Perennial Grass Cover	Annual Grass Cover	Perennial Forb Cover	Noxious Weeds	Total Score	Ranking
94	9.9	8.7	11.5	30.0	-0.6	10.0	0.0	<b>69.5</b>	Good
99	14.2	12.6	6.5	30.0	-0.1	7.4	0.0	<b>70.7</b>	Good
04	16.1	9.6	7.0	19.2	0.0	3.5	0.0	<b>55.3</b>	Fair
09	17.9	9.9	8.0	18.8	0.0	5.2	0.0	<b>59.8</b>	Fair

## Trend Summary

CUMULATIVE RANGE TREND ASSESSMENT--  
Management unit 14, Study no: 8



DEER DESIRABLE COMPONENTS INDEX TREND, MID-LEVEL POTENTIAL  
Management unit 14, Study no: 8



HERBACEOUS TRENDS--  
Management unit 14, Study no: 8

Type	Species	Nested Frequency					Average Cover %			
		'86	'94	'99	'04	'09	'94	'99	'04	'09
G	Agropyron cristatum	b324	a242	b285	a216	a227	14.34	14.65	9.14	8.33
G	Bromus tectorum (a)	-	8	22	13	14	.78	.11	.05	.06
G	Koeleria cristata	-	14	3	13	1	1.54	.00	.08	.03
G	Oryzopsis hymenoides	-	4	5	6	-	.03	.15	.03	-
G	Poa fendleriana	a3	ab27	ab20	ab20	b39	.52	.56	.27	1.01
G	Poa pratensis	-	7	-	-	-	.38	-	-	-
G	Sitanion hystrix	ab9	a-	ab3	b11	a-	.00	.01	.06	-
Total for Annual Grasses		0	8	22	13	14	0.78	0.11	0.05	0.06
Total for Perennial Grasses		336	294	316	266	267	16.82	15.38	9.58	9.38
Total for Grasses		336	302	338	279	281	17.60	15.50	9.64	9.44
F	Arabis sp.	1	4	1	-	-	.01	.00	-	-
F	Artemisia ludoviciana	1	-	-	-	1	-	-	-	.00
F	Cryptantha humilis	-	4	-	4	3	.63	-	.03	.01
F	Descurainia pinnata (a)	-	-	-	7	1	-	-	.01	.00
F	Draba sp. (a)	-	-	2	8	-	-	.00	.01	-
F	Erigeron pumilus	ab4	a-	b12	a-	ab13	-	.08	.00	.08
F	Eriogonum alatum	1	3	-	3	-	.00	-	.01	-
F	Heterotheca villosa	-	-	1	-	-	-	.03	-	-
F	Lappula occidentalis (a)	-	a-	a3	b17	a4	-	.00	.10	.01
F	Lesquerella rectipes	b10	a-	a-	a-	a2	-	-	-	.01
F	Machaeranthera grindelioides	-	-	-	-	3	-	-	-	.00
F	Microsteris gracilis (a)	-	a4	a3	a4	b78	.01	.00	.01	.21
F	Oenothera sp.	-	6	-	-	-	.02	-	-	-
F	Pedicularis centranthera	-	-	4	-	4	-	.06	-	.06
F	Penstemon pachyphyllus	a9	b20	a7	a-	a4	1.54	.01	-	.01
F	Petradoria pumila	b118	ab70	ab75	a48	a44	3.45	3.50	1.68	2.43
F	Phlox longifolia	-	-	2	-	-	-	.01	-	-
F	Polygonum douglasii (a)	-	-	-	-	8	-	-	-	.02
F	Ranunculus testiculatus (a)	-	a-	a-	a-	b61	-	-	-	.12
F	Sphaeralcea coccinea	-	2	2	-	-	.00	.01	-	-
Total for Annual Forbs		0	4	8	36	152	0.00	0.01	0.14	0.37
Total for Perennial Forbs		144	109	104	55	74	5.67	3.72	1.73	2.61
Total for Forbs		144	113	112	91	226	5.68	3.73	1.87	2.98

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

BROWSE TRENDS--

Management unit 14, Study no: 8

Type	Species	Strip Frequency				Average Cover %			
		'94	'99	'04	'09	'94	'99	'04	'09
B	Artemisia tridentata vaseyana	53	53	55	69	7.89	11.36	12.91	14.35
B	Chrysothamnus nauseosus	3	1	3	1	.01	.00	.03	.00
B	Chrysothamnus viscidiflorus	0	2	0	0	-	.00	-	-
B	Gutierrezia sarothrae	9	16	21	38	.01	.04	.29	.33
B	Juniperus osteosperma	0	6	5	5	2.57	4.34	4.81	3.26
B	Opuntia sp.	4	5	5	6	.00	.03	.00	.15
Total for Browse		69	83	89	119	10.48	15.78	18.06	18.11

CANOPY COVER, LINE INTERCEPT--

Management unit 14, Study no: 8

Species	Percent Cover		
	'99	'04	'09
Artemisia tridentata vaseyana	-	13.75	15.93
Chrysothamnus nauseosus	-	.05	-
Gutierrezia sarothrae	-	1.06	.40
Juniperus osteosperma	1.79	4.80	7.33

KEY BROWSE ANNUAL LEADER GROWTH--

Management unit 14, Study no: 8

Species	Average leader growth (in)	
	'04	'09
Artemisia tridentata vaseyana	2.0	1.7

POINT-QUARTER TREE DATA--

Management unit 14, Study no: 8

Species	Trees per Acre				Average diameter (in)			
	'94	'99	'04	'09	'94	'99	'04	'09
Juniperus osteosperma	75	68	87	73	4.3	4.2	4.4	5.8
Pinus edulis	19	21	22	24	2.6	2.7	2.4	3.3

BASIC COVER--

Management unit 14, Study no: 8

Cover Type	Average Cover %				
	'86	'94	'99	'04	'09
Vegetation	15.25	29.00	35.43	31.02	28.51
Rock	1.00	.50	.43	.41	.91
Pavement	1.25	.96	1.86	1.91	1.35
Litter	63.25	35.18	42.61	36.85	40.74
Cryptogams	0	.16	2.39	1.18	.75
Bare Ground	19.25	32.11	34.52	45.59	43.61

SOIL ANALYSIS DATA --

Management unit 14, Study no: 8, Study Name: Peters Point

Effective rooting depth (in)	pH	sandy loam			%OM	PPM P	PPM K	ds/m
		%sand	%silt	%clay				
11.8	7.2	62.9	18.6	18.6	2.3	8.5	86.4	0.6

PELLET GROUP DATA--

Management unit 14, Study no: 8

Type	Quadrat Frequency				Days use per acre (ha)		
	'94	'99	'04	'09	'99	'04	'09
Rabbit	23	39	9	46	-	-	-
Elk	-	-	4	4	1 (2)	11 (26)	8 (20)
Deer	6	13	12	5	13 (32)	15 (36)	5 (12)
Cattle	-	2	4	9	7 (17)	12 (29)	20 (50)

BROWSE CHARACTERISTICS--

Management unit 14, Study no: 8

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>Amelanchier utahensis</i>									
86	0	0	0	-	-	0	0	0	-/-
94	0	0	0	-	-	0	0	0	-/-
99	0	0	0	-	-	0	0	0	-/-
04	0	0	0	-	-	0	0	0	-/-
09	0	0	0	-	-	0	0	0	54/94
<i>Artemisia frigida</i>									
86	99	0	100	-	-	0	0	0	9/7
94	0	0	0	-	-	0	0	0	-/-
99	0	0	0	-	-	0	0	0	-/-
04	0	0	0	-	-	0	0	0	-/-
09	0	0	0	-	-	0	0	0	-/-
<i>Artemisia tridentata vaseyana</i>									
86	1832	29	64	7	133	35	13	5	20/20
94	2780	23	56	21	460	17	5	67	19/33
99	2300	13	79	8	60	4	6	6	19/31
04	2720	14	68	18	2200	35	7	10	18/31
09	3580	16	66	17	13160	30	1	8	18/33
<i>Cercocarpus montanus</i>									
86	0	0	0	-	-	0	0	0	-/-
94	0	0	0	-	-	0	0	0	33/31
99	0	0	0	-	-	0	0	0	64/55
04	0	0	0	-	-	0	0	0	55/44
09	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)	
<b>Chrysothamnus nauseosus</b>										
86	1431	74	14	12	33	53	5	19	43/52	
94	160	0	0	100	-	50	0	88	15/14	
99	20	0	100	0	-	100	0	0	-/-	
04	60	0	0	100	-	0	0	100	-/-	
09	20	0	100	0	-	100	0	0	12/13	
<b>Chrysothamnus viscidiflorus</b>										
86	0	0	0	0	-	0	0	0	-/-	
94	0	0	0	0	-	0	0	0	-/-	
99	40	0	50	50	-	0	0	50	-/-	
04	0	0	0	0	-	0	0	0	-/-	
09	0	0	0	0	-	0	0	0	-/-	
<b>Gutierrezia sarothrae</b>										
86	899	15	82	4	33	0	0	4	6/6	
94	200	0	90	10	-	0	0	20	6/7	
99	1580	33	67	0	260	0	0	0	4/4	
04	1160	0	72	28	-	19	0	10	8/11	
09	2420	19	81	0	60	0	0	0	6/7	
<b>Juniperus osteosperma</b>										
86	166	80	20	-	-	20	0	0	88/42	
94	0	0	0	-	-	0	0	0	-/-	
99	140	29	71	-	-	0	0	0	-/-	
04	120	17	83	-	-	0	0	0	-/-	
09	120	0	100	-	-	0	0	0	-/-	
<b>Opuntia sp.</b>										
86	299	22	78	-	-	0	0	0	3/8	
94	80	50	50	-	-	0	0	0	5/15	
99	120	0	100	-	-	0	0	0	3/10	
04	100	20	80	-	-	0	0	0	4/11	
09	120	17	83	-	-	0	0	17	4/10	
<b>Pediocactus simpsonii</b>										
86	0	0	0	-	-	0	0	0	-/-	
94	0	0	0	-	-	0	0	0	-/-	
99	0	0	0	-	-	0	0	0	-/-	
04	0	0	0	-	-	0	0	0	-/-	
09	0	0	0	-	-	0	0	0	1/2	
<b>Pinus edulis</b>										
86	0	0	0	-	33	0	0	0	-/-	
94	0	0	0	-	-	0	0	0	-/-	
99	0	0	0	-	-	0	0	0	-/-	
04	0	0	0	-	-	0	0	0	-/-	
09	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)
Purshia tridentata									
86	0	0	0	-	-	0	0	0	-/-
94	0	0	0	-	-	0	0	0	-/-
99	0	0	0	-	-	0	0	0	-/-
04	0	0	0	-	-	0	0	0	11/21
09	0	0	0	-	-	0	0	0	9/27