

WILD COW POINT - TREND STUDY NO. 14-22-09

Vegetation Type: Chained, Seeded P-J

Range Type: Crucial Deer Yearlong, Crucial Elk Winter

NRCS Ecological Site Description: Mountain Shallow Loam (Ponderosa Pine), R048AY439UT

Land Ownership: BLM

Elevation: 7,600 ft (2,316 m)

Aspect: Northwest

Slope: 0%-2%

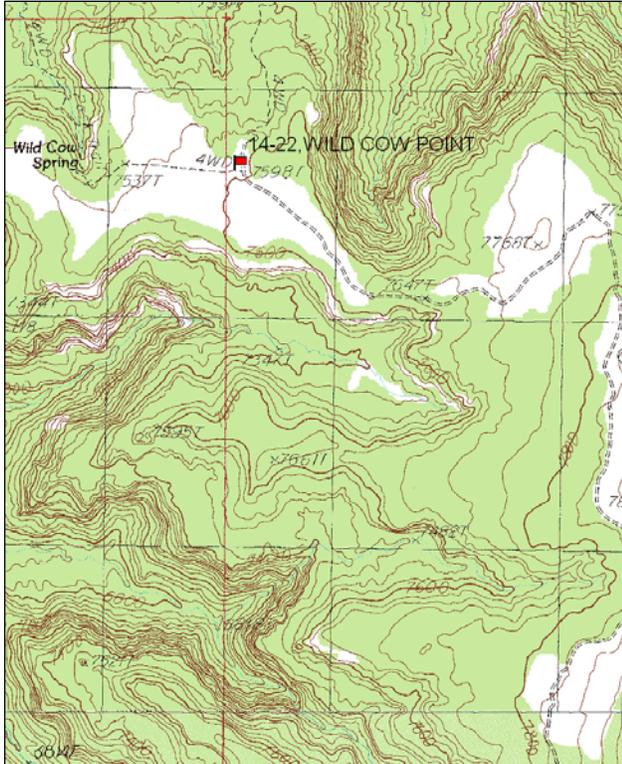
Transect bearing: 165 degrees magnetic.

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

Directions:

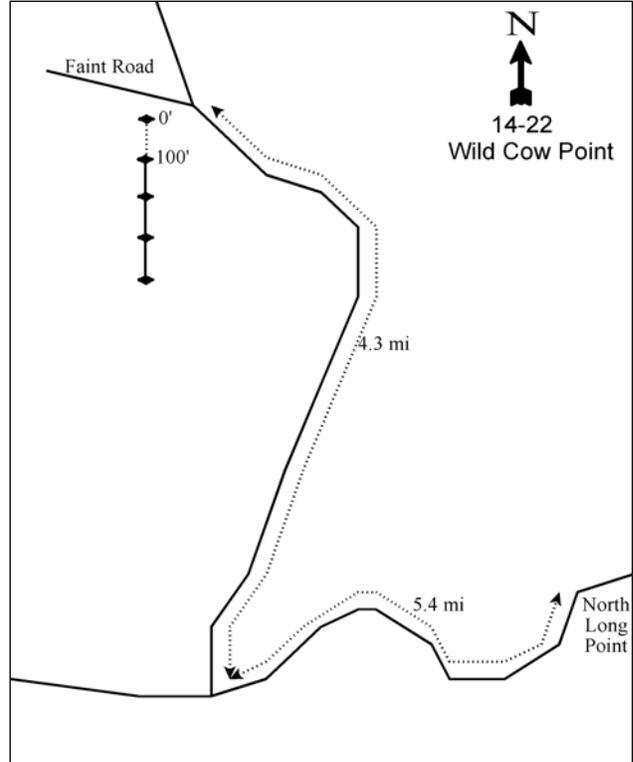
Drive to North Long Point. From the west rim of North Long Point, proceed west down the dugway on the Dark Canyon Plateau Road for 5.4 miles. Turn north on the Wild Cow Point Road and go 4.3 miles to a chaining and a faint road to the left (west). The zero foot stake is 10 feet south of the faint road on the west side of the Wild Cow Point Road about 100 hundred feet into the chaining, with the 0-foot stake having browse tag #481 attached. All stakes are 3 ½ foot tall green fence posts.

Map Name: Fable Valley



Township: 33S, Range: 18E, Section: 22

Diagrammatic Sketch:



GPS: NAD 83, UTM 12S 593494 E 4194850 N

WILD COW POINT - TREND STUDY NO. 14-22

Site Information

Site Description: The study samples a chained and seeded area northwest of Elk Ridge. The narrow plateau is cut back by numerous canyons, which flow south into Fable Valley or north into Beef Basin. The study area is located on the higher, southwest end of Wild Cow Point. A large area was chained and seeded to crested wheatgrass (*Agropyron cristatum*) in the early 1960's. Pellet group data from the site has indicated moderate use by deer and light to minimal use from elk and cattle since 1999 (Table - Pellet Group Data).

Browse: The sagebrush community is composed of black sagebrush (*Artemisia nova*) in association with Wyoming big sagebrush (*A. tridentata* ssp. *wyomingensis*). Both sagebrush populations are mostly mature with decreasing recruitment of young plants since 1992. Density of both Wyoming big sagebrush and black sagebrush has declined since 1992. Decadence has been normal in most sample years, but was high for both sagebrush populations in 1986 and 2004. Utilization has been heavier on Wyoming sagebrush with heavy use noted in all sample years. Utilization of black sagebrush has been mostly light to moderate. Another preferred browse species, dwarf rabbitbrush (*Chrysothamnus depressus*), has also decreased in density since 1992 and has shown signs of moderate to heavy hedging in past readings (Table - Browse Characteristics).

Surviving pinyon pine (*Pinus edulis*) and Utah juniper (*Juniperus osteosperma*) have regained their dominance since the chaining. They dominate much of the landscape, although the larger openings support good stands of sagebrush. The pinyon and juniper were on average about 7 feet tall in 1986, with some producing seed. Point quarter data has indicated little change in the density or average diameter of pinyon or juniper since 1999 (Table - Point-Quarter Data). Many of the juniper trees were knocked over in the chaining, but have survived.

Herbaceous Understory: Crested wheatgrass is the dominant species in cover on the site and has provided an increasing proportion of the grass cover since 1992. The large patches of crested wheatgrass form a dense stand over much of the area. Mutton bluegrass (*Poa fendleriana*) is also common, but has declined since 1992. Blue grama (*Bouteloua gracilis*) was common in 1992, but declined significantly in 1999 and remains rare on the site. Forbs are not very common or of real importance on this range. The more common and possibly utilized species include redroot buckwheat (*Eriogonum racemosum*), desert phlox (*Phlox austromontana*), low fleabane (*Erigeron pumilus*), and hoary aster (*Machaeranthera canescens*).

Soil: The soil is a reddish sandy loam with a slightly alkaline pH derived from a hematite sandstone parent material. The upper horizon contains very little organic matter and phosphorus has limited availability for plant growth and development at 4.8 ppm (Tiedemann and Lopez 2004) (Table - Soil Analysis Data). The average litter cover is good, especially where the wheatgrass is dense, keeping bare ground cover moderate (Table - Basic Cover). The soil erosion condition was classified as stable in 2004, but was slight in 2009 due to pedestaling of plants, flow patterns, and surface litter and soil movement.

Trend Assessments

Browse:

- **1986 to 1992 - slightly up (+1):** Differences in density may be related to the larger sample area used in 1992; therefore, trend was determined using other parameters. The decadence of the primary browse species, black sagebrush and Wyoming big sagebrush, both decreased markedly. Recruitment of young plants also increased for both species.
- **1992 to 1999 - down (-2):** The density of both sagebrush species decreased markedly and density of the other preferred browse species, dwarf rabbitbrush, decreased by 62% to 880 plants/acre. Recruitment of young sagebrush plants decreased substantially for both species.
- **1999 to 2004 - down (-2):** The density of black sagebrush decreased by 31% to 2,260 plants/acre and the density of Wyoming big sagebrush decreased by 10% to 1,660 plants/acre. Decadence of both sagebrush species increased markedly and recruitment of young sagebrush plants decreased.

- **2004 to 2009 - stable (0):** The density of black sagebrush increased slightly to 2,700 plants/acre, but the density of Wyoming big sagebrush decreased slightly to 1,400 plants/acre. Decadence of both sagebrush species decreased to more moderate levels. Recruitment of young plants decreased in the Wyoming big sagebrush population and increased slightly in the black sagebrush population, but is still low.

Grass:

- **1986 to 1992 - slightly up (+1):** There was a 10% increase in the sum of nested frequency of perennial grasses and crested wheatgrass increased significantly in nested frequency.
- **1992 to 1999 - slightly down (-1):** The sum of nested frequency of perennial grasses decreased 17% with a significant decrease in the nested frequency of blue grama and bottlebrush squirreltail (*Sitanion hystrix*).
- **1999 to 2004 - down (-2):** There was a 22% decrease in the sum of nested frequency of perennial grasses and cover of decreased from 17% to 10%. There was a significant increase in the nested frequency of the annual grass cheatgrass (*Bromus tectorum*).
- **2004 to 2009 - up (+2):** The sum of nested frequency of perennial grasses increased by 37% and cover increased to 18%. There was a significant increase in the nested frequency of crested wheatgrass and a significant decrease in the nested frequency of cheatgrass.

Forb:

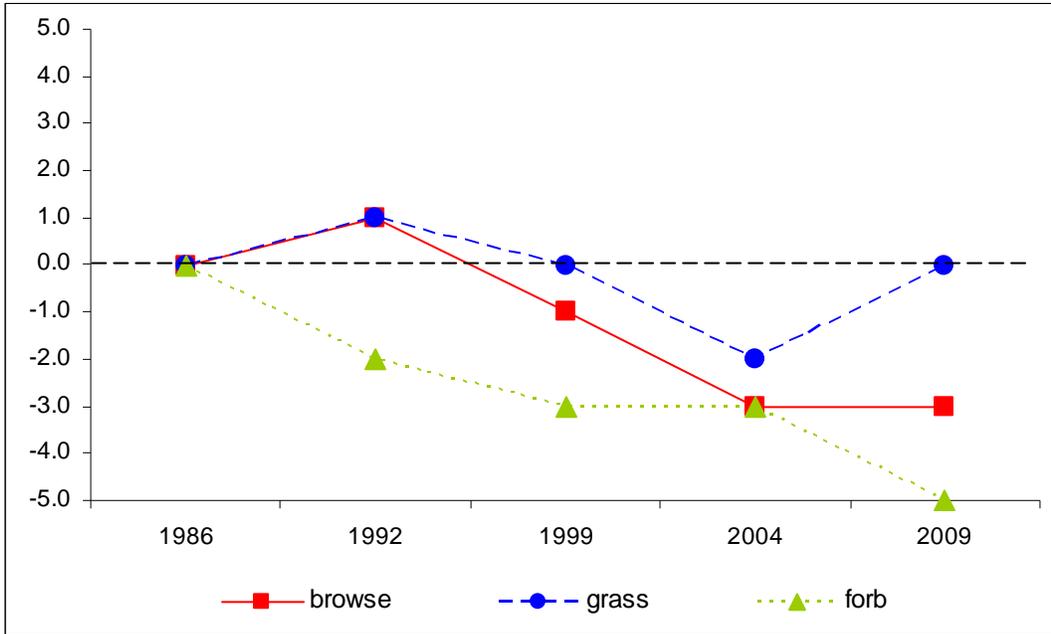
- **1986 to 1992 - down (-2):** The sum of nested frequency of perennial forbs decreased by 50% with a significant decrease in the nested frequency of redroot buckwheat, low fleabane, and timber poisonvetch (*Astragalus convallarius*).
- **1992 to 1999 - slightly down (-1):** There was a 19% decrease in the sum of nested frequency of perennial grasses and cover decreased from 3% to 2%.
- **1999 to 2004 - stable (0):** There was no change in the sum of nested frequency of perennial forbs, though cover decreased to 1%. Hoary aster increased significantly in nested frequency.
- **2004 to 2009 - down (-2):** The sum of nested frequency of perennial forbs decreased by 57% and cover decreased to less than 1%. There was a significant decrease in the nested frequency of hoary aster.

DEER DESIRABLE COMPONENTS INDEX - LOW POTENTIAL SCALE --
Management unit 14, study no: 22

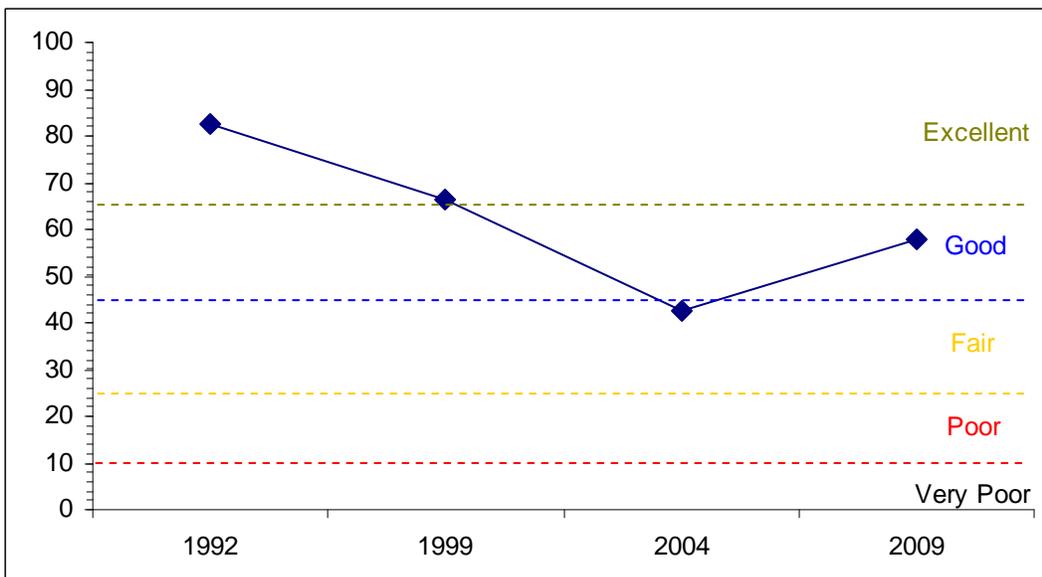
Year	Preferred Browse Cover	Preferred Browse Decadence	Preferred Browse Young	Perennial Grass Cover	Annual Grass Cover	Perennial Forb Cover	Noxious Weeds	Total Score	Ranking
92	24.3	10.0	12.3	30.0	0.0	5.9	0.0	82.5	Excellent
99	18.0	10.5	4.4	30.0	0.0	3.8	0.0	66.5	Good-Excellent
04	15.3	4.0	1.4	19.6	0.0	2.3	0.0	42.6	Fair
09	15.3	9.6	1.7	30.0	0.0	1.3	0.0	57.8	Good

Trend Summary

CUMULATIVE RANGE TREND ASSESSMENT--
 Management unit 14, Study no: 22



DEER DESIRABLE COMPONENTS INDEX TREND, LOW POTENTIAL SCALE
 Management unit 14, Study no: 22



HERBACEOUS TRENDS--

Management unit 14, Study no: 22

Type	Species	Nested Frequency					Average Cover %			
		'86	'92	'99	'04	'09	'92	'99	'04	'09
G	Agropyron cristatum	a108	b181	b194	b157	c240	8.47	10.26	7.28	14.38
G	Bouteloua gracilis	b57	b49	a18	a17	a16	2.04	.14	.11	.42
G	Bromus tectorum (a)	-	-	a8	b20	a-	-	.01	.05	-
G	Poa fendleriana	c168	bc129	ab119	a87	ab94	6.62	6.46	2.42	2.53
G	Sitanion hystrix	bc33	c42	a4	a2	ab10	.29	.04	.00	.25
Total for Annual Grasses		0	0	8	20	0	0	0.01	0.05	0
Total for Perennial Grasses		366	401	335	263	360	17.42	16.91	9.82	17.58
Total for Grasses		366	401	343	283	360	17.42	16.93	9.87	17.58
F	Allium sp.	2	6	12	10	2	.01	.11	.03	.01
F	Antennaria neglecta	b8	ab6	a1	a-	a-	.53	.00	-	-
F	Arabis sp.	3	-	3	-	1	-	.18	.00	.03
F	Astragalus convallarius	b41	a7	a2	a-	a-	.19	.01	-	-
F	Astragalus sp.	-	-	-	-	2	-	-	-	.15
F	Calochortus nuttallii	1	-	-	-	-	-	-	-	-
F	Castilleja linariaefolia	-	3	2	-	-	.00	.00	-	-
F	Cordylanthus kingii (a)	a5	a26	a9	b94	a15	.89	.07	1.36	.09
F	Cryptantha flavoculata	2	-	-	-	-	-	-	-	-
F	Erigeron flagellaris	-	1	2	-	-	.03	.03	-	-
F	Erigeron pumilus	b32	a3	a1	a3	a6	.01	.00	.00	.16
F	Eriogonum racemosum	c60	b22	ab8	ab15	a2	.20	.10	.11	.01
F	Eriogonum umbellatum	12	8	10	4	3	.10	.10	.03	.04
F	Heterotheca villosa	-	2	-	-	-	.00	-	-	-
F	Lesquerella rectipes	16	9	15	8	3	.20	.58	.05	.01
F	Machaeranthera canescens	a-	a6	a13	b36	a4	.02	.10	.62	.02
F	Oenothera caespitosa	-	-	-	2	3	-	-	.00	.03
F	Penstemon lentus	10	3	3	1	-	.01	.03	.00	-
F	Phlox austromontana	b46	b41	ab24	a19	a7	1.54	.60	.22	.07
F	Phlox longifolia	-	-	-	-	3	-	-	-	.00
F	Polygonum douglasii (a)	-	11	1	2	4	.03	.00	.01	.01
F	Senecio multilobatus	15	4	3	5	9	.03	.01	.07	.07
F	Thlaspi montanum	9	-	-	-	-	-	-	-	-
F	Townsendia incana	-	8	5	1	-	.06	.01	.00	-
Total for Annual Forbs		5	37	10	96	19	0.91	0.08	1.37	0.09
Total for Perennial Forbs		257	129	104	104	45	2.96	1.88	1.17	0.63
Total for Forbs		262	166	114	200	64	3.88	1.97	2.54	0.73

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

BROWSE TRENDS--

Management unit 14, Study no: 22

Type	Species	Strip Frequency				Average Cover %			
		'92	'99	'04	'09	'92	'99	'04	'09
B	Artemisia nova	47	43	44	46	9.66	6.71	4.63	7.27
B	Artemisia tridentata wyomingensis	36	43	36	34	7.38	6.64	6.94	4.75
B	Chrysothamnus depressus	41	22	17	8	2.36	1.02	.64	.21
B	Chrysothamnus viscidiflorus viscidiflorus	0	1	0	2	-	.00	-	.00
B	Echinocereus sp.	1	0	0	0	.00	-	-	-
B	Gutierrezia sarothrae	1	4	1	0	.00	.03	.00	-
B	Juniperus osteosperma	5	4	3	2	3.31	2.82	4.53	5.05
B	Opuntia sp.	4	3	2	1	.00	.03	.03	.03
B	Pinus edulis	9	8	10	5	4.99	6.15	5.93	3.75
B	Sclerocactus sp.	0	0	1	0	-	-	.00	-
Total for Browse		144	128	114	98	27.73	23.43	22.73	21.07

CANOPY COVER, LINE INTERCEPT--

Management unit 14, Study no: 22

Species	Percent Cover		
	'99	'04	'09
Artemisia nova	-	5.63	9.35
Artemisia tridentata wyomingensis	-	7.23	5.61
Chrysothamnus depressus	-	.25	.18
Juniperus osteosperma	4.40	6.73	6.86
Pinus edulis	7.40	12.94	8.08

KEY BROWSE ANNUAL LEADER GROWTH--

Management unit 14, Study no: 22

Species	Average leader growth (in)	
	'04	'09
Artemisia nova	1.0	0.5
Artemisia tridentata wyomingensis	1.5	1.0

POINT-QUARTER TREE DATA--

Management unit 14, Study no: 22

Species	Trees per Acre		
	'99	'04	'09
Juniperus osteosperma	40	41	37
Pinus edulis	59	62	38

Average diameter (in)		
'99	'04	'09
11.5	9.3	8.8
4.2	5.5	4.5

BASIC COVER--

Management unit 14, Study no: 22

Cover Type	Average Cover %				
	'86	'92	'99	'04	'09
Vegetation	12.25	43.56	38.62	35.64	38.97
Rock	.25	1.17	1.22	.66	1.23
Pavement	.25	0	.06	.00	.18
Litter	65.50	46.42	50.02	48.98	51.72
Cryptogams	.50	5.09	2.24	2.09	.58
Bare Ground	21.25	15.97	24.81	34.81	31.29

SOIL ANALYSIS DATA --

Management unit 14, Study no: 22, Study Name: Wild Cow Point

Effective rooting depth (in)	pH	sandy loam			%OM	PPM P	PPM K	ds/m
		%sand	%silt	%clay				
18.5	7.4	72.4	15.1	12.6	1.6	4.8	60.8	0.5

PELLET GROUP DATA--

Management unit 14, Study no: 22

Type	Quadrat Frequency				Days use per acre (ha)		
	'92	'99	'04	'09	'99	'04	'09
Rabbit	49	39	38	31	-	-	-
Elk	1	2	2	1	1 (2)	11 (27)	2 (5)
Deer	29	18	19	19	38 (94)	27 (68)	24 (60)
Cattle	1	-	2	1	3 (7)	-	3 (7)

BROWSE CHARACTERISTICS--

Management unit 14, Study no: 22

Year	Plants per Acre (excluding seedlings)	Age class distribution			Seedling (plants/acre)	Utilization		% poor vigor	Average Height Crown (in)
		% Young	% Mature	% Decadent		% moderate	% heavy		
Artemisia nova									
86	5098	12	45	42	33	29	45	10	8/13
92	5160	17	71	11	240	45	13	10	-/-
99	3260	9	74	18	120	15	4	4	11/18
04	2260	1	57	42	1540	21	3	29	11/21
09	2700	5	74	21	100	4	0	14	12/28
Artemisia tridentata wyomingensis									
86	398	17	33	50	66	42	50	8	16/15
92	2560	38	43	20	40	30	56	6	-/-
99	1840	9	79	12	-	26	27	2	20/33
04	1660	4	63	34	12860	18	70	12	17/26
09	1400	1	86	13	-	56	30	1	18/33

		Age class distribution					Utilization			
Year	Plants per Acre (excluding seedlings)	% Young	% Mature	% Decadent	Seedling (plants/acre)	% moderate	% heavy	% poor vigor	Average Height Crown (in)	
Chrysothamnus depressus										
86	2365	11	82	7	33	31	4	4	4/6	
92	2320	14	56	30	60	34	32	16	-/-	
99	880	5	80	16	-	14	30	7	5/10	
04	680	3	71	26	20	41	21	9	6/11	
09	240	0	75	25	-	0	0	0	4/7	
Chrysothamnus nauseosus graveolens										
86	0	0	0	-	-	0	0	0	-/-	
92	0	0	0	-	-	0	0	0	-/-	
99	0	0	0	-	-	0	0	0	-/-	
04	0	0	0	-	-	0	0	0	29/36	
09	0	0	0	-	-	0	0	0	-/-	
Chrysothamnus viscidiflorus										
86	0	0	0	-	-	0	0	0	-/-	
92	0	0	0	-	-	0	0	0	-/-	
99	20	0	100	-	-	0	0	0	35/53	
04	0	0	0	-	-	0	0	0	9/10	
09	40	0	100	-	-	0	0	0	10/20	
Echinocereus sp.										
86	0	0	0	-	-	0	0	0	-/-	
92	20	0	100	-	20	0	0	0	-/-	
99	0	0	0	-	-	0	0	0	-/-	
04	0	0	0	-	-	0	0	0	-/-	
09	0	0	0	-	-	0	0	0	-/-	
Gutierrezia sarothrae										
86	33	0	100	0	-	0	0	0	4/3	
92	60	67	33	0	-	0	0	0	-/-	
99	100	40	40	20	40	0	20	0	7/11	
04	20	0	100	0	-	0	0	0	7/9	
09	0	0	0	0	-	0	0	0	-/-	
Juniperus osteosperma										
86	165	60	40	-	-	0	0	0	93/89	
92	140	57	43	-	20	0	0	0	-/-	
99	80	0	100	-	20	0	0	0	61/63	
04	60	0	100	-	-	0	0	0	-/-	
09	40	0	100	-	-	0	0	0	-/-	
Opuntia sp.										
86	0	0	0	-	-	0	0	0	-/-	
92	80	0	100	-	20	0	0	50	-/-	
99	60	0	100	-	-	0	0	0	4/8	
04	40	0	100	-	-	0	0	0	2/6	
09	20	0	100	-	-	0	0	0	2/4	

		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>Pinus edulis</i>										
86	233	100	0	-	-	0	0	0	-/-	
92	180	56	44	-	-	0	0	0	-/-	
99	160	38	63	-	-	0	0	0	-/-	
04	200	10	90	-	-	0	0	0	-/-	
09	100	0	100	-	-	0	0	0	-/-	
<i>Sclerocactus sp.</i>										
86	0	0	0	-	-	0	0	0	-/-	
92	0	0	0	-	-	0	0	0	-/-	
99	0	0	0	-	-	0	0	0	-/-	
04	20	0	100	-	-	0	0	0	4/4	
09	0	0	0	-	-	0	0	0	5/5	