

Trend Study 25C-27-08

Study site name: Poison Creek Bench.

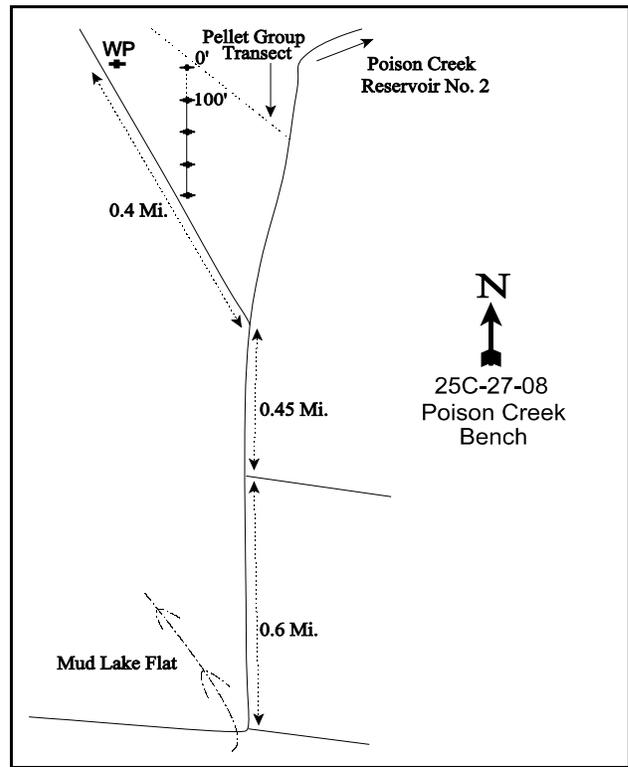
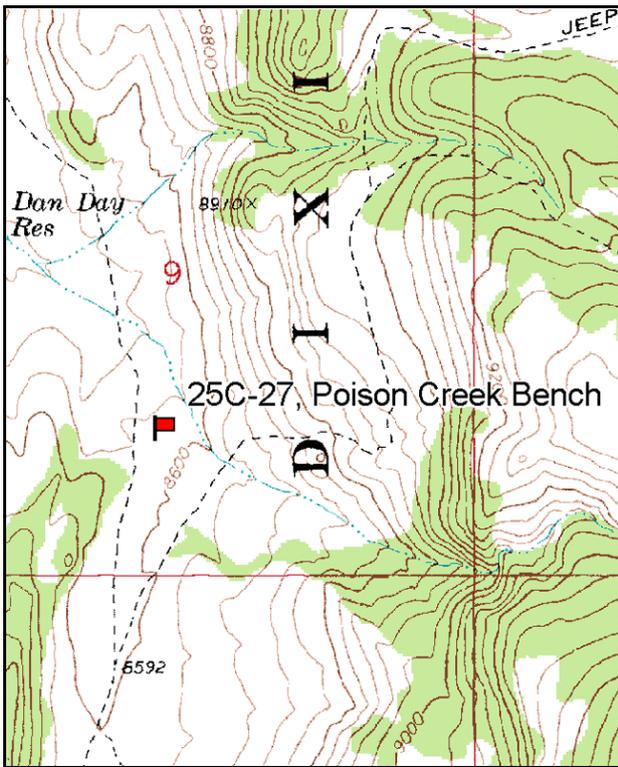
Vegetation type: Basin Big Sagebrush.

Compass bearing: frequency baseline 180 degrees magnetic.

Frequency belt placement: line 1 (11 & 95ft), line 2 (34ft), line 3 (59ft), line4 (71ft). Rebar: belt 3 on 2ft.

LOCATION DESCRIPTION

From the Center Creek study site (25C-25), continue north on the main road for 2.3 miles to the Mud Lake/Pacer Lake fork. Continue straight on the main road for 0.4 miles to a fork near an intermittent stream and turn right. This area can also be reached by coming from the north along the Poison Creek and Mud Lake roads. Drive 0.6 miles to a fork. Proceed straight through the fork for 0.45 miles to another fork. Bear left and proceed 0.4 miles to the study site, identified by a witness post on the right side of the road. The 0-foot baseline stake is about 30 paces east of the witness post. The 2-foot metal fencepost has a browse tag, #9001, attached.



Map Name: Antimony

Diagrammatic Sketch

Township 32S, Range 1W, Section 9

GPS: NAD 83, UTM 12S420602 E, 4209992 N

DISCUSSION

Poison Creek Bench - Trend Study No. 25C-27

Study Information

This study samples high elevation winter range on the west side of the unit which is probably used more by big game as transitional and summer range [elevation: 8,600 feet (2,621 m), slope: 1%-2%, aspect: northwest]. The bench where the study is located is dominated by mountain big sagebrush (*Artemisia tridentata* ssp. *vaseyana*). Surrounding ridges support aspen (*Populus tremuloides*), Rocky Mountain juniper (*Juniperus scopulorum*), and ponderosa pine (*Pinus ponderosa*). After the reading in 1994, the area was part of a prescribed burn. Pellet group data estimated light use by deer in 1998, 2003, and 2008 (11 ddu/acre:27 ddu/ha, 17 ddu/acre:41 ddu/ha, and 12 ddu/acre:30 ddu/ha, respectively). Elk use was estimated to be minimal in 1998 and 2008 (1 edu/acre:2 edu/ha and 3 edu/acre:7 edu/ha, respectively, and light in 2003 (8 edu/acre:20 edu/ha). Cattle use was estimated to be light in 1998 (11 cdu/acre:27 cdu/ha), increasing to moderately heavy use in 2003 and 2008 (33 cdu/acre:81 cdu/ha and 36 cdu/acre:90 cdu/ha), respectively.

Soil

Soil at the site is very rocky on the surface and in the profile. Effective rooting depth is estimated at just over 13 inches. Texture is a sandy clay loam which is moderately acidic (pH 6.0). Relative combined vegetation and litter cover was 73% in 1994, prior to the burn, 65% in 1998, 62% in 2003 and 68% in 2008. Relative combined rock and pavement cover was 19% in 1994, 25% in 1998, 29% in 2003 and 26% in 2008. Relative bare ground has remained low at 8% in 1994, 11% in 1998, 9% in 2003 and 6% in 2008. The erosion condition class was rated as stable in 2003 and 2008.

Browse

Ten browse species occurred on the site prior to the prescribed burn which occurred after the 1994 reading. Shrubs included a dense stand of vigorous mountain big sagebrush. Data from the density plots taken in 1987 and 1991 estimated a stand of around 8,300 plants/acre. During the 1994 reading, a total of 6,760 sagebrush plants/acre were estimated. Most of the decrease in density was the result of the much larger sample taken in 1994, which gives much better population estimates for browse species. Young recruitment was good and seedling sagebrush were abundant. Utilization was moderate to heavy and percent decadence moderate. After the prescribed burn, density of sagebrush was estimated at 1,280 plants/acre in 1998. Thirty-eight percent of the stand was composed of young plants, indicating an expanding population. Sagebrush density increased 48% in 2003 to 2,460 plants/acre. No seedlings were encountered and young plants were rare. Use was mostly light and vigor normal on most plants. Sagebrush density increased again in 2008 by 74% to 9,500 plants/acre. Recruitment of young was excellent with 75% of the sagebrush population comprised of young plants and with numerous seedlings. Vigor and decadence were normal on most plants.

The less common but more preferred bitterbrush (*Purshia tridentata*) had a relatively stable population between 1987 and 1991 of about 1,400 plants/acre. They showed heavier use than sagebrush with 70% of the large, bushy plants displaying heavy hedging in 1987. In 1991, only 26% of the shrubs were heavily hedged, however, nearly half displayed poor vigor and decadence was extremely high at 83%. By 1994, density was estimated at 920 plants/acre. Some of the change is due to the larger sample used in 1994. After the prescribed burn, nearly all of the bitterbrush was eliminated. Density in 1998 was estimated at only 40 young plants/acre. By 2003, bitterbrush density increased to 120 plants/acre. Use was moderate to heavy but vigor good and decadence low. Density of bitterbrush did not change in 2008, but the number of decadent plants increased to 67% of the population.

Parry rabbitbrush (*Chrysothamnus parryi*) was fairly common in 1987 with a high proportion being seedlings and young. These plants appeared to be unutilized. Density remained stable until 1994 but use was heavier. No Parry rabbitbrush was sampled in 1998 but around 1,100 plants/acre were estimated in 2003 and 2008. Use was light, vigor good, and decadence low. Stickyleaf low rabbitbrush (*Chrysothamnus viscidiflorus* ssp. *viscidiflorus*) was moderately abundant prior to the prescribed burn at 1,920 plants/acre in 1994. Density

increased slightly in 1998 to 2,520 plants/acre and remained stable in 2003 and 2008. There was a decrease in vigor and an increase in decadence of the population in 2008.

Herbaceous Understory

The herbaceous understory was diverse and productive even before the fire. Prior to the fire, the most abundant grasses included Letterman needlegrass (*Stipa lettermani*), bottlebrush squirreltail (*Sitanion hystrix*), mutton bluegrass (*Poa fendleriana*), a sedge (*Carex* sp.), and blue grama (*Bouteloua gracilis*). After the fire, perennial grasses production doubled, but composition remained similar. The most common species include a sedge which provided 49% of the grass cover in 1998 and 2003. Blue grama, mutton bluegrass, bottlebrush squirreltail, needle-and-thread (*Stipa comata*) and Letterman needlegrass are also common. It is not known if the site was seeded after the fire, but crested wheatgrass (*Agropyron cristatum*) and intermediate wheatgrass (*A. intermedium*) were encountered in one quadrat in 1998, but have not been encountered since. Forbs are especially diverse. Twenty-eight species were identified on the transect in 1994. Composition remained similar after the fire with 30 species classified in 1998, including many preferred and valuable as forage. The most common species include Indian paintbrush (*Castilleja linariaefolia*), redroot eriogonum (*Eriogonum racemosum*), sulfur eriogonum (*Eriogonum umbellatum*), Utah deervetch (*Lotus utahensis*), silvery lupine (*Lupinus argenteus*), and lobeleaf groundsel (*Senecio multibatus*). Sum of nested frequency of forbs had been declining steadily since 1987, but rebounded after the burn. Production also increased dramatically from 3% cover in 1994 to 16% by 1998. Production declined in 2003 to 6% cover, and again in 2008 to 3% cover.

1991 TREND ASSESSMENT

Trend for key browse is stable. The two key browse species for the site are mountain big sagebrush and antelope bitterbrush. The mountain big sagebrush population has not shown any significant changes since 1987. It decreased by less than 1%. Decadence has risen from 22% in 1987 to 37%. This rate of decadence should be expected with such a high density (8,332 plants/acre) in association with the extended drought we have been in since 1988. Antelope bitterbrush has actually experienced a 13% increase in it's numbers (1,332 to 1,532), but has demonstrated increases in decadence (20% to 83%). A high rate of decadence for bitterbrush has been found on many sites throughout Utah and would be expected to decrease with an end to the drought. The trend for grasses is stable. There was a slight increase in the sum of nested frequency of perennial grasses due to needle-and-thread grass being encountered for the first time. There was no significant change in any of the other grasses frequencies. The trend for the forbs is down. There was a large decrease in the sum of nested frequency of perennial forbs with a significant decrease in important forbs such as Utah deer vetch and silvery lupine.

browse - stable (0)

grass - stable (0)

forb - down (-2)

1994 TREND ASSESSMENT

Trend for browse is slightly up. Density of mountain big sagebrush declined 19% due primarily to a reduction in the number of young and decadent plants. Density of mature plants increased from 3,400 to 4,220 plants/acre. Decadence has declined from 37% to 21%. Trend for the other key species, antelope bitterbrush, is up due to decreased decadence, improved vigor, and a gradual increase in density. Trend for the grasses is stable. Sum of nested frequency of perennial grasses declined slightly, but remained relatively stable. Trend for forbs is down. Sum of nested frequency of perennial forbs continued to decline by 42%.

browse - slightly up (+1)

grass - stable (0)

forb - down (-2)

1998 TREND ASSESSMENT

Trend for browse is down due to the prescribed burn after the 1994 reading. Some sagebrush appears to have survived the fire and the current population density is estimated at 1,280 plants/acre. Young plants account for 36% of the population. Most of the bitterbrush appear to have been eliminated and only 40 young plants/acre remain on the site. The increaser, stickyleaf low rabbitbrush, has increased 24% since 1994. Trend for the grasses is slightly up. Sum of nested frequency of perennial grasses increased slightly, and production increased from 10% cover in 1994 to 23%. Trend for forbs is up. Sum of nested frequency of perennial forbs

increased, and cover increased from 3% in 1994 to 15%.

browse - down (-2)

grass - slightly up (+1)

forb - up (+2)

2003 TREND ASSESSMENT

Trend for browse is up. Density of mountain big sagebrush increased 48% and bitterbrush increased 67% from 40 to 120 plants/acre. Vigor was good, and percent decadence low. Bitterbrush is moderately to heavily hedged but has good vigor and low decadence. Seedling and young recruitment is nonexistent on bitterbrush and poor on sagebrush. However, this should rebound with a return to normal precipitation patterns. Trend for the grasses is stable. Sum of nested frequency and cover of perennial grasses were relatively constant. The trend for forbs is down. The sum of nested frequency of perennial forbs declined 44% and cover of perennial forbs declined 3-fold from 15% in 1998 to 5%.

browse - up (+2)

grass - stable (0)

forb - down (-2)

2008 TREND ASSESSMENT

Trend for browse is up. The primary browse species, mountain big sagebrush, increased 74% in density to 9,500 plants/acre. Vigor remained good and decadence was low. Recruitment was excellent with young plants comprising 75% of the population. The other preferred browse species, antelope bitterbrush, did not change in density, but the number of decadent plants in the population increased to 67%. The trend for grasses was slightly up. The sum of nested frequency of perennial grasses increased, primarily due to an increase in frequency of needle-and-thread grass and pinewoods needlegrass (*Stipa pinetorum*). There may have been some misidentification between Letterman needlegrass and pinewoods needlegrass. This is the first year that pinewoods needlegrass has been encountered on the site, but also the first year that Letterman needlegrass was not encountered. The trend for forbs is stable. Sum of nested frequency of perennial forbs increased slightly, but cover of perennial grasses decreased slightly. Composition of forbs is still good, but the sum of nested frequency of perennial forbs has decreased nearly 72% since the onset of the study.

browse - up (+2)

grass - slightly up (+1)

forb - stable (0)

HERBACEOUS TRENDS --
 Management unit 25C, Study no: 27

Type	Species	Nested Frequency						Average Cover %			
		'87	'91	'94	'98	'03	'08	'94	'98	'03	'08
G	Agropyron cristatum	-	-	-	3	-	-	-	.03	-	-
G	Agropyron intermedium	-	-	-	1	-	-	-	.00	-	-
G	Agropyron smithii	a-	a-	a-	a-	a-	b30	-	-	-	.13
G	Agropyron spicatum	-	-	-	-	8	3	-	-	.04	.00
G	Bouteloua gracilis	ab64	b73	a37	a33	ab45	ab48	1.07	1.01	2.07	1.52
G	Bromus anomalus	-	-	-	-	2	-	-	-	.00	-
G	Bromus inermis	8	-	-	-	-	-	-	-	-	-
G	Bromus japonicus (a)	-	-	-	-	-	-	-	.00	-	-
G	Carex sp.	a36	a48	b130	c175	c183	c187	2.08	11.49	12.11	10.14
G	Koeleria cristata	ab6	b9	b14	ab5	a-	ab7	.10	.06	-	.04
G	Poa fendleriana	ab84	ab69	b81	ab55	a29	a41	2.15	1.56	.38	.54
G	Poa pratensis	-	-	-	-	-	3	-	-	-	.03
G	Poa secunda	-	-	-	-	1	3	-	-	.00	.00
G	Sitanion hystrix	c160	c158	a76	ab100	bc131	ab95	.78	2.99	3.66	1.13
G	Stipa columbiana	a-	a-	a-	b24	a3	a-	-	.95	.03	-
G	Stipa comata	a-	ab35	a8	bc59	cd89	d128	.36	2.41	3.59	4.28
G	Stipa lettermani	c147	c149	b106	b82	b81	a-	3.65	2.75	2.70	-
G	Stipa pinetorum	a-	a-	a-	a-	a-	b127	-	-	-	3.74
Total for Annual Grasses		0	0	0	0	0	0	0	0.00	0	0
Total for Perennial Grasses		505	541	452	537	572	672	10.21	23.27	24.62	21.59
Total for Grasses		505	541	452	537	572	672	10.21	23.28	24.62	21.59
F	Agoseris glauca	-	1	-	-	11	-	-	-	.07	-
F	Antennaria parvifolia	c25	b19	a-	a5	a-	a4	-	.06	-	.03
F	Androsace septentrionalis (a)	-	-	a3	b30	a8	a2	.01	.28	.01	.00
F	Arabis demissa	c53	b27	ab11	ab14	a2	a6	.02	.08	.01	.04
F	Artemisia ludoviciana	2	-	1	1	3	3	.00	.03	.38	.15
F	Astragalus convallarius	13	8	9	17	5	7	.10	.24	.24	.10
F	Astragalus sp.	3	-	4	-	-	-	.01	-	-	-
F	Castilleja linariaefolia	c69	b33	ab24	b36	a4	a7	.32	1.11	.06	.19
F	Chaenactis douglasii	b63	a8	a2	a10	a3	a-	.01	.07	.03	-
F	Chenopodium leptophyllum(a)	-	-	a-	a-	b17	a3	-	-	.21	.00
F	Crepis acuminata	-	3	-	5	-	-	-	.04	.00	-
F	Cryptantha flavoculata	a5	b20	a5	a-	a-	a1	.01	-	-	.00
F	Cruciferae	-	2	-	-	-	-	-	-	-	-
F	Descurainia pinnata (a)	-	-	-	8	1	1	-	.04	.00	.00
F	Erigeron eatonii	b72	b79	a11	a26	a15	a22	.05	.49	.06	.24

Type	Species	Nested Frequency						Average Cover %			
		'87	'91	'94	'98	'03	'08	'94	'98	'03	'08
F	<i>Erigeron pumilus</i>	37	32	16	22	37	30	.14	.43	.42	.24
F	<i>Eriogonum racemosum</i>	_b 67	_b 68	_a 38	_{ab} 37	_{ab} 54	_{ab} 54	.21	.72	.93	.66
F	<i>Eriogonum umbellatum</i>	_b 35	_{ab} 38	_{ab} 29	_a 12	_{ab} 14	_{ab} 17	.25	.58	.45	.44
F	<i>Gayophytum ramosissimum</i> (a)	-	-	_a -	_a -	_b 26	_a -	-	-	.12	-
F	<i>Gilia</i> sp. (a)	_b 23	_a -	_a 5	_a -	_a -	_a -	.01	-	-	-
F	<i>Hymenoxys richardsonii</i>	5	7	3	3	3	2	.03	.15	.18	.18
F	<i>Ipomopsis aggregata</i>	1	4	5	7	-	2	.02	.36	-	.00
F	<i>Lappula occidentalis</i> (a)	-	-	_a -	_a -	_b 15	_a 3	-	-	.40	.00
F	<i>Linum lewisii</i>	6	7	2	3	-	-	.00	.04	-	-
F	<i>Lotus utahensis</i>	_c 118	_{ab} 28	_b 60	_{ab} 33	_a 8	_a 25	.22	1.35	.22	.22
F	<i>Lupinus argenteus</i>	_c 101	_b 59	_{bc} 72	_b 63	_a 26	_a 13	1.46	6.75	1.32	.14
F	<i>Lychnis drummondii</i>	_a -	_b 12	_a -	_{ab} 8	_a -	_a -	-	.06	-	-
F	<i>Lygodesmia spinosa</i>	10	13	2	6	4	4	.06	.09	.18	.06
F	<i>Machaeranthera canescens</i>	_b 26	_{ab} 13	_{ab} 7	_a 1	_a 4	_{ab} 15	.07	.03	.03	.08
F	<i>Microsteris gracilis</i> (a)	-	-	-	2	5	-	-	.03	.01	-
F	<i>Oenothera pallida</i>	-	-	-	-	1	3	-	-	.03	.00
F	<i>Orthocarpus luteus</i> (a)	-	-	3	-	1	1	.00	-	.03	.03
F	<i>Penstemon comarrhenus</i>	_b 17	_{ab} 6	_a 3	_{ab} 16	_a 5	_{ab} 17	.00	.05	.07	.12
F	<i>Petradoria pumila</i>	2	3	2	1	1	-	.03	.00	.00	-
F	<i>Phlox longifolia</i>	_b 67	_b 65	_a 16	_a 12	_a 17	_a 21	.04	.06	.11	.14
F	<i>Potentilla concinna</i>	6	3	2	1	3	3	.03	.01	.03	.03
F	<i>Senecio multilobatus</i>	_c 108	_a 23	_a 15	_b 73	_a 14	_a 5	.04	2.23	.06	.07
F	<i>Taraxacum officinale</i>	7	4	-	5	1	1	-	.05	.00	.01
F	<i>Tragopogon dubius</i>	-	-	-	-	-	-	-	-	.01	-
F	Unknown forb-perennial	2	-	-	-	-	-	-	-	-	-
F	<i>Veronica biloba</i> (a)	-	-	-	3	-	-	-	.15	-	-
Total for Annual Forbs		23	0	11	43	73	10	0.02	0.50	0.81	0.05
Total for Perennial Forbs		920	585	339	417	235	262	3.19	15.13	4.97	3.19
Total for Forbs		943	585	350	460	308	272	3.22	15.63	5.78	3.24

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

BROWSE TRENDS --

Management unit 25C, Study no: 27

Type	Species	Strip Frequency				Average Cover %			
		'94	'98	'03	'08	'94	'98	'03	'08
B	Artemisia nova	7	0	1	1	1.84	-	.00	.00
B	Artemisia tridentata vaseyana	98	23	56	84	20.42	2.53	7.54	11.13
B	Cercocarpus ledifolius	0	1	0	0	-	.00	-	-
B	Chrysothamnus nauseosus	0	0	0	2	-	-	-	.00
B	Chrysothamnus parryi	19	0	32	28	.20	-	1.02	1.39
B	Chrysothamnus viscidiflorus viscidiflorus	47	58	61	68	.46	2.99	7.39	6.69
B	Gutierrezia sarothrae	4	6	8	20	.00	.01	.18	.57
B	Juniperus scopulorum	0	0	0	0	.15	-	-	-
B	Leptodactylon pungens	13	2	11	10	.36	.00	.01	.00
B	Opuntia sp.	4	0	0	0	.05	-	-	-
B	Pediocactus simpsonii	0	10	1	3	-	.03	.00	.03
B	Purshia tridentata	32	2	6	5	8.53	.18	.15	.45
B	Symphoricarpos oreophilus	1	0	0	0	.00	-	-	-
B	Tetradymia canescens	3	6	1	3	.00	.00	.15	.15
Total for Browse		228	108	177	224	32.02	5.76	16.45	20.43

CANOPY COVER, LINE INTERCEPT --

Management unit 25C, Study no: 27

Species	Percent Cover	
	'03	'08
Artemisia tridentata vaseyana	8.53	13.14
Chrysothamnus parryi	1.73	2.03
Chrysothamnus viscidiflorus viscidiflorus	7.36	6.78
Gutierrezia sarothrae	.06	.85
Leptodactylon pungens	-	.06
Purshia tridentata	.75	1.48

KEY BROWSE ANNUAL LEADER GROWTH --

Management unit 25C, Study no: 27

Species	Average leader growth (in)	
	'03	'08
Artemisia tridentata vaseyana	2.0	0.9
Purshia tridentata	3.6	2.2

BASIC COVER --

Management unit 25C, Study no: 27

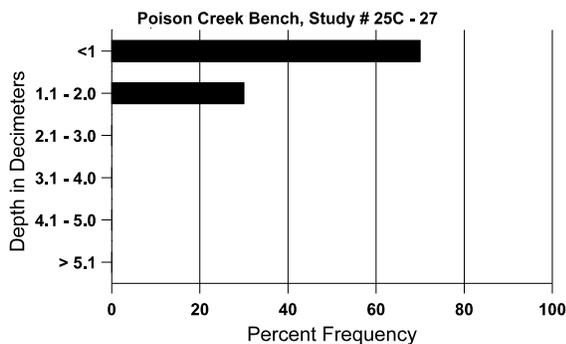
Cover Type	Average Cover %					
	'87	'91	'94	'98	'03	'08
Vegetation	11.75	7.50	42.77	51.95	49.54	51.95
Rock	20.50	13.75	18.45	9.80	13.75	10.92
Pavement	18.75	26.50	3.72	21.64	20.04	20.46
Litter	44.25	45.00	43.79	30.38	22.11	31.96
Cryptogams	.25	.25	.12	.01	.00	.00
Bare Ground	4.50	7.00	8.98	13.82	10.18	7.01

SOIL ANALYSIS DATA --

Management unit 25C, Study no: 27, Study Name: Poison Creek Bench

Effective rooting depth (in)	Temp °F (depth)	pH	sandy loam			%0M	PPM P	PPM K	ds/m
			% sand	% silt	% clay				
13.1	61.5 (7.5)	6.0	54.0	27.4	18.6	5.4	35.2	313.6	0.5

Stoniness Index



PELLET GROUP DATA --

Management unit 25C, Study no: 27

Type	Quadrat Frequency			
	'94	'98	'03	'08
Rabbit	21	9	3	80
Elk	-	1	2	5
Deer	30	19	8	17
Cattle	5	3	15	19

Days use per acre (ha)		
'98	'03	'08
-	-	-
1 (2)	8 (20)	3 (7)
11 (27)	17 (41)	12 (30)
11 (27)	33 (81)	36 (90)

BROWSE CHARACTERISTICS --
 Management unit 25C, Study no: 27

		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>Artemisia nova</i>												
87	0	-	-	-	-	-	0	0	0	-	0	-/-
91	0	-	-	-	-	-	0	0	0	-	0	-/-
94	520	-	-	280	240	80	23	0	46	42	42	6/18
98	0	-	-	-	-	-	0	0	0	-	0	-/-
03	20	-	-	20	-	-	100	0	0	-	0	-/-
08	20	-	-	20	-	-	100	0	0	-	0	10/19
<i>Artemisia tridentata vaseyana</i>												
87	8398	1799	2066	4466	1866	-	21	10	22	.71	2	28/24
91	8331	799	1866	3399	3066	-	31	2	37	2	8	25/24
94	6760	1720	1120	4220	1420	360	22	2	21	4	5	24/34
98	1280	480	460	520	300	3960	20	0	23	3	3	15/23
03	2460	-	60	2200	200	240	15	0	8	2	2	18/28
08	9500	4500	7080	2100	320	160	8	0	3	2	3	18/28
<i>Ceanothus fendleri</i>												
87	0	-	-	-	-	-	0	0	-	-	0	-/-
91	0	-	-	-	-	-	0	0	-	-	0	-/-
94	0	-	-	-	-	-	0	0	-	-	0	-/-
98	0	-	-	-	-	-	0	0	-	-	0	-/-
03	0	-	-	-	-	-	0	0	-	-	0	-/-
08	0	-	-	-	-	-	0	0	-	-	0	8/24
<i>Cercocarpus ledifolius</i>												
87	0	-	-	-	-	-	0	0	-	-	0	-/-
91	0	-	-	-	-	-	0	0	-	-	0	-/-
94	0	-	-	-	-	-	0	0	-	-	0	-/-
98	40	-	40	-	-	-	0	0	-	-	0	-/-
03	0	-	-	-	-	-	0	0	-	-	0	-/-
08	0	-	-	-	-	-	0	0	-	-	0	-/-
<i>Chrysothamnus nauseosus</i>												
87	0	-	-	-	-	-	0	0	-	-	0	-/-
91	0	-	-	-	-	-	0	0	-	-	0	-/-
94	0	-	-	-	-	-	0	0	-	-	0	-/-
98	0	-	-	-	-	-	0	0	-	-	0	-/-
03	0	-	-	-	-	-	0	0	-	-	0	-/-
08	40	-	20	20	-	-	0	0	-	-	0	10/17

		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												
87	731	199	466	66	199	-	0	0	27	-	0	8/6
91	798	-	266	199	333	-	17	33	42	8	25	7/7
94	740	20	20	720	-	-	19	14	0	-	0	8/5
98	0	-	-	-	-	-	0	0	0	-	0	-/-
03	1180	-	-	1160	20	-	5	2	2	-	0	8/9
08	1100	-	100	720	280	-	5	2	25	4	5	11/15
Chrysothamnus viscidiflorus viscidiflorus												
87	665	133	199	466	-	-	0	0	0	-	0	15/18
91	998	133	199	666	133	-	33	7	13	-	7	6/6
94	1920	-	140	1720	60	-	6	8	3	-	0	12/13
98	2520	60	500	1980	40	-	0	0	2	.79	.79	13/16
03	2260	-	20	2220	20	-	.88	0	1	-	0	15/22
08	2880	360	180	1440	1260	40	6	2	44	24	30	14/23
Gutierrezia sarothrae												
87	0	-	-	-	-	-	0	0	0	-	0	-/-
91	0	-	-	-	-	-	0	0	0	-	0	-/-
94	120	-	-	120	-	-	0	0	0	-	0	8/7
98	200	60	80	120	-	-	0	0	0	-	0	8/9
03	520	20	-	520	-	-	0	0	0	-	0	5/4
08	880	-	-	560	320	20	0	0	36	18	18	7/10
Juniperus osteosperma												
87	0	-	-	-	-	-	0	0	-	-	0	-/-
91	0	-	-	-	-	-	0	0	-	-	0	-/-
94	0	-	-	-	-	-	0	0	-	-	0	-/-
98	0	-	-	-	-	20	0	0	-	-	0	-/-
03	0	-	-	-	-	-	0	0	-	-	0	-/-
08	0	-	-	-	-	-	0	0	-	-	0	-/-
Leptodactylon pungens												
87	0	-	-	-	-	-	0	0	0	-	0	-/-
91	199	-	133	66	-	-	0	0	0	-	0	9/10
94	740	-	-	740	-	-	0	0	0	-	0	5/8
98	80	-	-	-	80	40	0	0	100	-	0	9/11
03	360	-	-	360	-	20	0	0	0	-	0	5/7
08	440	-	-	100	340	-	0	0	77	14	14	4/10

		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)
Opuntia sp.												
87	0	-	-	-	-	-	0	0	-	-	0	-/-
91	0	-	-	-	-	-	0	0	-	-	0	-/-
94	80	-	-	80	-	-	0	0	-	-	0	2/60
98	0	-	-	-	-	-	0	0	-	-	0	-/-
03	0	-	-	-	-	-	0	0	-	-	0	-/-
08	0	-	-	-	-	-	0	0	-	-	0	-/-
Pediocactus simpsonii												
87	0	-	-	-	-	-	0	0	0	-	0	-/-
91	0	-	-	-	-	-	0	0	0	-	0	-/-
94	0	-	-	-	-	-	0	0	0	-	0	-/-
98	240	-	60	180	-	-	0	0	0	-	0	2/3
03	20	-	-	20	-	-	0	0	0	-	0	1/3
08	60	-	20	20	20	-	0	0	33	33	33	2/3
Purshia tridentata												
87	1332	133	133	933	266	-	25	70	20	-	0	23/29
91	1531	66	66	199	1266	-	26	26	83	14	48	11/14
94	920	40	100	420	400	40	50	9	43	-	0	28/59
98	40	20	40	-	-	160	0	0	0	-	0	29/47
03	120	-	-	100	20	-	33	50	17	-	0	18/28
08	120	-	40	-	80	60	0	67	67	-	0	24/47
Rosa woodsii												
87	0	-	-	-	-	-	0	0	-	-	0	-/-
91	0	-	-	-	-	-	0	0	-	-	0	-/-
94	0	-	-	-	-	-	0	0	-	-	0	-/-
98	0	-	-	-	-	-	0	0	-	-	0	-/-
03	0	-	-	-	-	-	0	0	-	-	0	-/-
08	0	-	-	-	-	-	0	0	-	-	0	9/10
Symphoricarpos oreophilus												
87	0	-	-	-	-	-	0	0	-	-	0	-/-
91	0	-	-	-	-	-	0	0	-	-	0	-/-
94	20	-	-	20	-	-	0	0	-	-	0	10/11
98	0	-	-	-	-	-	0	0	-	-	0	13/36
03	0	-	-	-	-	-	0	0	-	-	0	15/27
08	0	-	-	-	-	-	0	0	-	-	0	18/46

		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)
Tetradymia canescens												
87	133	-	-	133	-	-	0	0	0	-	0	11/10
91	399	-	333	66	-	-	33	0	0	-	0	4/3
94	60	-	20	40	-	-	0	0	0	-	0	3/2
98	140	-	80	60	-	40	0	0	0	-	0	11/12
03	40	-	-	40	-	-	100	0	0	-	0	13/17
08	80	-	-	-	80	-	0	0	100	25	50	11/13