

Trend Study 25B-6-04

Study site name: Little Deer Peak .

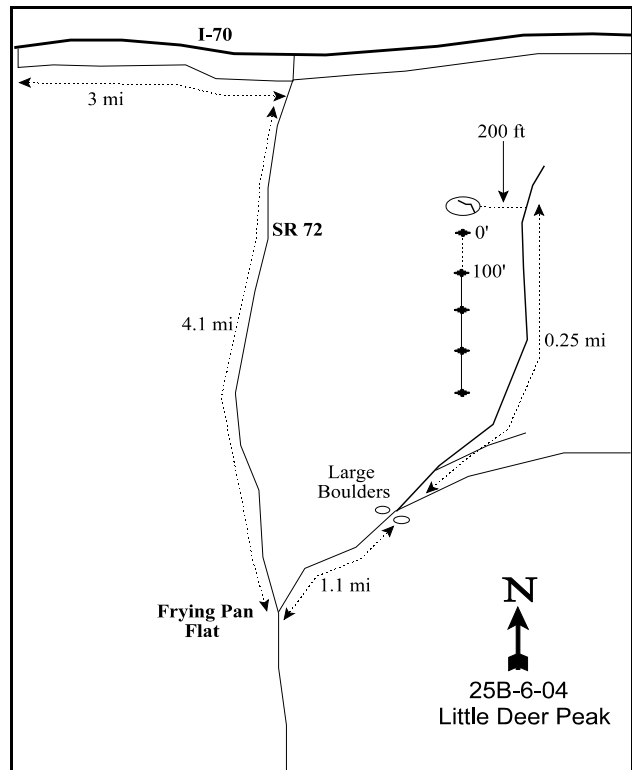
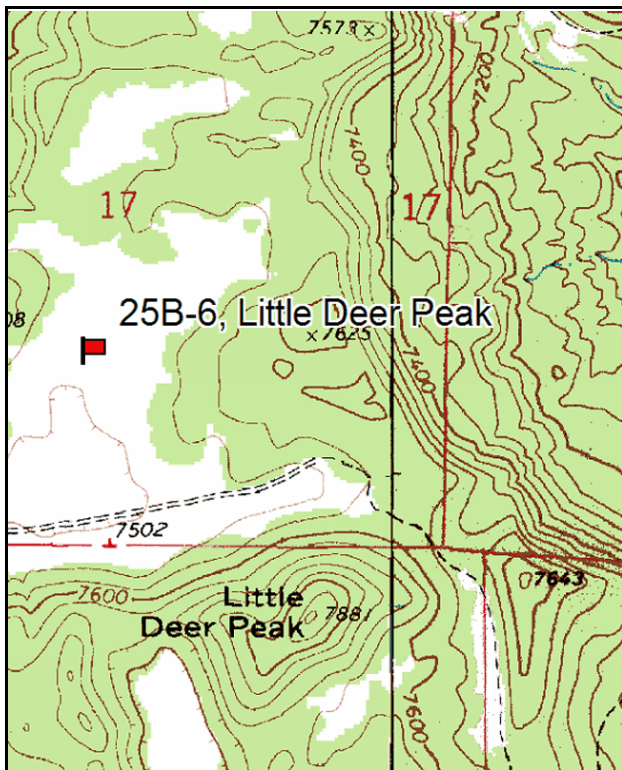
Vegetation type: Wyoming Big Sagebrush .

Compass bearing: frequency baseline 160 degrees magnetic.

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

LOCATION DESCRIPTION

From Salina, go 37.5 miles east on I-70 to a rest area. From the rest area, go approximately 3 miles east on the frontage road to Fremont Junction. Turn south on SR 72 and drive 4.1 miles to a left turn across from Frying Pan Flat. Go left down this road for 1.1 miles to a fork between 2 large boulders. Take the left fork 0.05 miles to another fork. Go left 0.2 miles to a large split boulder which is 200 feet to the left of the road. The 0-foot baseline stake is 15 feet south of the split boulder and has a red browse tag #7082 attached.



Map Name: John's Peak, Utah

Diagrammatic Sketch

Township 24S , Range 5E , Section 17

GPS: NAD 27, UTM 12S 4285555 N, 466677 E

DISCUSSION

Little Deer Peak - Trend Study No. 25B-6

The Little Deer Peak transect samples a sagebrush flat of about 260 acres that is surrounded by low hills of pinyon-juniper woodland. The flat has a slope of a little over 1% and an elevation of 7,490 feet. The BLM Little Deer Peak grazing allotment is for cattle from March 16 to May 31. Grazing pressure appears to have been heavy in the past as most cool season grasses are gone and a warm season grass dominates the area by contributing 84% of the total grass cover. It has not received much use since 1982 and there were no recent signs of livestock or big game use in 1985. No deer pellet groups were found on the study area in 1985, but in 1991 there were 5 deer days use/acre (12 ddu/ha) and 9 elk days use/acre (22 edu/ha) estimated. In 1999, the pellet group transect showed 31 deer days use/acre (76 ddu/ha), 41 elk days use/acre (100 edu/ha), and 7 cow days use/acre (18 cdu/ha). In 2004 wildlife use was lower with an estimated 3 deer days use/acre (8 ddu/ha), 21 elk days use/acre (53 edu/ha), and 4 cow days use/acre (11 cdu/ha). Escape cover is good on the nearby slopes.

The soil texture is a sandy clay loam with a neutral pH (7.3). Infiltration is poor, as evidenced by the puddles that formed from small amounts of rain which have fallen on the site. Effective rooting depth is just over 12 inches with little surface rock and pavement cover. Pavement and rock accounts for about 10% of the ground cover. Bare ground has varied between 37-42%. It appears that the bare interspaces have been subject to soil loss and compaction from trampling. Moderate pedestalling is evident for grasses and shrubs. Many of the large bare areas present are the result of red harvester ant activities. Some areas are denuded of vegetation up to 20 feet in diameter by the harvester ant activities. Grasshoppers were also present in moderately high numbers in 1991. The large patches of blue grama appear to grow on the more clay soils where the soil penetrometer had more shallow readings or 4-5 inches. There was a noticeable caliche layer at approximately 12 inches in depth which could be restrictive to plant roots.

Wyoming big sagebrush is the most abundant browse plant with about 13% cover. The plants are scrubby and stunted and look very similar to black sagebrush in stature. Average size is only 12 inches high with about a 16 to 25 inch crown. Density has remained stable since 1999 at 6,200 plants/acre. Decadence has also remained stable at about 30%. Plants showing poor vigor was high in 1985 at 21%. Percent dying increased to 13% in 2004, which is higher than it had ever been due to drought. Utilization has been light to moderate with some heavier use in 1985. Percentage of young plants present in the population has been quite variable through the years and was very low in 2004. Low rabbitbrush and broom snakeweed are also abundant and appear to be stable.

Quadrat frequency and diversity of herbaceous species is low. Two species of grass, blue grama and bottlebrush squirreltail, are fairly common. Blue grama dominates, provides about 80% of the grass cover. Bottlebrush squirreltail significantly decreased in frequency from 77% of quadrats sampled in 1999 to 56% by 2004. Crested wheatgrass was not sampled in 1985 or 1991. In 1999, it was noted that it was on site, but not sampled. In 2004 crested wheatgrass increased and was sampled in 18% of the quadrats. Scarlet globemallow and low fleabane are the only common forbs and they do not provide much usable forage. Scarlet globemallow nested frequency decreased significantly in 2004.

1985 APPARENT TREND ASSESSMENT

The soil trend appears to be stable. Although there is a lot of bare soil exposed, the area is very level and no gullies are present. Vegetative trend appears down as the Wyoming big sagebrush appears to be declining. There are no desirable species to move in and replace it. The herbaceous species provide little forage and include several species of increasers.

1991 TREND ASSESSMENT

Soil trend is stable for now even though percent bare soil increased slightly. The minor change was not enough to change the trend slightly down. This turn around with an increase in precipitation. The key browse species, Wyoming big sagebrush, has lost 47% of its population since 1985. However, it should be noted that about 25% of the population were young plants which can be lost to drought fairly easy. Percent decadency has decreased from 35 to 29%. This would indicate that the initially high densities and the extended drought have thinned out the sagebrush thereby lowering the percentage of the population classified as being in poor vigor from 21% down to only 6%. Low rabbitbrush has more than doubled its density in the interim. Trend for browse would be considered slightly down. There is very low diversity of species for the grasses and forbs. Nested frequency and quadrat frequency for perennial grasses and forbs show an increase that warrants a trend of slightly up.

TREND ASSESSMENT

soil - stable (3)

browse - slightly down (2)

herbaceous understory - slightly up (4)

1999 TREND ASSESSMENT

Soil trend would be considered stable with a decrease in percent bare ground, but still in poor condition overall. With the sample size for browse being increased by more than three times, the browse density will be changed somewhat. The key browse species, Wyoming big sagebrush, now has a density of 6,200 plants/acre. What is more important to note for changes in trend is that percent decadency has stayed about the same; percent young is still moderately high at 11%; the percentage of the decadent class that were classified as dying has remained almost unchanged since 1985; those classified with poor vigor have gone from 21% and remained stable at 6%; the number of plants with heavy use has decreased from 42% to 8%, now it is only 2%. All these changes would indicate a slightly improving trend for sagebrush on this site. There is very low diversity of species for the grasses and forbs. It has stayed about the same, with some gains and some losses for both groups of plants. The Desirable Components Index (see methods) rating is good to excellent with a high amount of grass cover and a healthy stand of sagebrush.

TREND ASSESSMENT

soil - stable, but poor condition (3)

browse - slightly improving (4)

herbaceous understory - stable (3)

winter range condition (DC Index) - 65 (good to excellent) Wyoming big sagebrush type

2004 TREND ASSESSMENT

The soil trend is stable as the percent cover of vegetation, litter, and bare ground is nearly unchanged since 1999. The browse trend is stable. Wyoming big sagebrush cover, density, and decadence are also unchanged. The percent of young plants is low and percent dying has increased, but is not extremely high at this time. Broom snakeweed and low rabbitbrush densities are also stable. The herbaceous understory trend is stable. The sum of nested frequency for perennial grasses and forbs has declined slightly since 1999, however it is not enough to warrant a change in trend. Bottlebrush squirreltail and scarlet globemallow were the species that have decreased most significantly. The Desirable Components Index (see methods) rating is good with a high amount of grass cover and a healthy stand of sagebrush.

TREND ASSESSMENT

soil - stable, but poor condition (3)

browse - stable (3)

herbaceous understory - stable (3)

winter range condition (DC Index) - 58 (good) Wyoming big sagebrush type

HERBACEOUS TRENDS --

Management unit 25B, Study no: 6

Type	Species	Nested Frequency				Average Cover %	
		'85	'91	'99	'04	'99	'04
G	Agropyron cristatum	a-	a-	a-	b35	.00	.90
G	Bouteloua gracilis	a286	b321	a278	a279	14.19	14.63
G	Carex spp.	b9	a-	a-	a-	-	-
G	Oryzopsis hymenoides	a-	b11	a-	a1	-	.00
G	Sitanion hystrix	a92	a115	b188	a129	2.71	2.75
Total for Annual Grasses		0	0	0	0	0	0
Total for Perennial Grasses		387	447	466	444	16.92	18.30
Total for Grasses		387	447	466	444	16.92	18.30
F	Arabis spp.	-	-	7	-	.01	-
F	Astragalus spp.	6	-	-	-	-	-
F	Chaenactis douglasii	1	-	-	-	-	-
F	Chenopodium fremontii (a)	-	-	a-	b13	-	.03
F	Chenopodium leptophyllum(a)	-	-	a-	b28	-	.08
F	Descurainia pinnata (a)	-	-	-	3	-	.00
F	Draba spp. (a)	-	-	1	-	.00	-
F	Erigeron pumilus	bc33	c50	a8	ab21	.07	.17
F	Gayophytum ramosissimum(a)	-	-	-	3	-	.00
F	Penstemon comarrhenus	3	-	-	1	-	.03
F	Penstemon spp.	2	6	2	-	.00	-
F	Sanguisorba minor	-	-	-	1	-	.00
F	Sphaeralcea coccinea	a105	ab119	b152	ab114	1.43	1.03
Total for Annual Forbs		0	0	1	47	0.00	0.12
Total for Perennial Forbs		150	175	169	137	1.52	1.24
Total for Forbs		150	175	170	184	1.52	1.37

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

BROWSE TRENDS --

Management unit 25B, Study no: 6

Type	Species	Strip Frequency		Average Cover %	
		'99	'04	'99	'04
B	<i>Artemisia frigida</i>	9	4	.09	.33
B	<i>Artemisia nova</i>	1	0	-	-
B	<i>Artemisia tridentata wyomingensis</i>	84	86	13.93	12.68
B	<i>Chrysothamnus viscidiflorus viscidiflorus</i>	62	65	1.35	2.10
B	<i>Echinocereus triglochidatus</i>	4	0	-	-
B	<i>Gutierrezia sarothrae</i>	50	58	1.60	2.32
B	<i>Leptodactylon pungens</i>	4	2	-	-
B	<i>Opuntia spp.</i>	12	11	.01	.06
B	<i>Pediocactus simpsonii</i>	2	7	-	.02
Total for Browse		228	233	17.00	17.53

CANOPY COVER, LINE INTERCEPT --

Management unit 25B, Study no: 6

Species	Percent Cover
	'04
<i>Artemisia frigida</i>	.23
<i>Artemisia tridentata wyomingensis</i>	16.70
<i>Chrysothamnus viscidiflorus viscidiflorus</i>	6.31
<i>Gutierrezia sarothrae</i>	2.63
<i>Opuntia spp.</i>	.08

KEY BROWSE ANNUAL LEADER GROWTH --

Management unit 25B, Study no: 6

Species	Average leader growth (in)
	'04
<i>Artemisia tridentata wyomingensis</i>	2.0

BASIC COVER --

Management unit 25B, Study no: 6

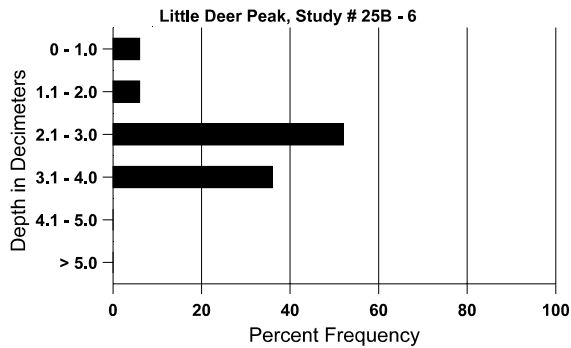
Cover Type	Average Cover %			
	'85	'91	'99	'04
Vegetation	17.50	14.75	34.75	36.79
Rock	2.00	2.00	2.86	2.88
Pavement	13.50	7.25	4.82	7.90
Litter	29.00	32.25	23.83	24.63
Cryptogams	1.25	1.75	1.10	2.19
Bare Ground	36.75	42.00	38.14	41.32

SOIL ANALYSIS DATA --

Management unit 25B, Study no: 6, Study Name: Little Deer Peak

Effective rooting depth (in)	Temp °F (depth)	pH	%sand	%silt	%clay	%OM	PPM P	PPM K	ds/m
12.5	54.0 (12.5)	7.3	49.8	25.2	24.9	1.4	13.1	153.6	0.5

Stoniness Index



PELLET GROUP DATA --

Management unit 25B, Study no: 6

Type	Quadrat Frequency		Days use per acre (ha)	
	'99	'04	'99	'04
Rabbit	41	20	-	-
Elk	17	8	41 (100)	21 (53)
Deer	12	8	31 (76)	3 (8)
Cattle	1	1	7 (18)	4 (11)

BROWSE CHARACTERISTICS --
Management unit 25B, Study no: 6

		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	66	-	-	66	-	-	0	0	-	-	0	10/10
91	66	-	-	66	-	-	0	100	-	-	0	2/6
99	300	100	40	260	-	-	13	13	-	-	0	5/5
04	160	-	-	160	-	-	0	0	-	-	0	7/9
Artemisia nova												
85	0	-	-	-	-	-	0	0	0	-	0	-/-
91	0	-	-	-	-	-	0	0	0	-	0	-/-
99	100	-	-	-	100	-	0	0	100	100	100	-/-
04	0	-	-	-	-	-	0	0	0	-	0	-/-
Artemisia tridentata wyomingensis												
85	9599	66	2266	4000	3333	-	45	42	35	2	21	10/15
91	5132	-	266	3400	1466	-	19	8	29	2	6	10/16
99	6200	180	680	3640	1880	1020	35	2	30	6	6	12/24
04	6220	20	60	4340	1820	1540	21	26	29	13	13	13/25
Chrysothamnus viscidiflorus viscidiflorus												
85	4533	-	1533	3000	-	-	4	0	0	-	0	9/10
91	7733	66	1933	4800	1000	-	24	9	13	1	3	3/6
99	3540	-	240	3020	280	-	5	0	8	4	7	6/10
04	3300	-	40	3220	40	-	0	0	1	.60	.60	9/14
Echinocereus triglochidatus												
85	0	-	-	-	-	-	0	0	-	-	0	-/-
91	0	-	-	-	-	-	0	0	-	-	0	-/-
99	100	-	20	80	-	-	0	0	-	-	0	1/3
04	0	-	-	-	-	-	0	0	-	-	0	-/-
Gutierrezia sarothrae												
85	0	-	-	-	-	-	0	0	-	-	0	-/-
91	0	-	-	-	-	-	0	0	-	-	0	-/-
99	2940	340	180	2760	-	40	.68	0	-	-	0	6/9
04	2820	-	-	2820	-	-	0	0	-	-	0	7/9
Leptodactylon pungens												
85	0	-	-	-	-	-	0	0	0	-	0	-/-
91	0	-	-	-	-	-	0	0	0	-	0	-/-
99	80	-	-	60	20	-	0	0	25	25	25	5/7
04	120	-	-	120	-	-	0	0	0	-	0	5/7

		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 spp.												
85	200	-	-	200	-	-	0	0	0	-	0	5/7
91	133	-	-	133	-	-	0	0	0	-	0	2/9
99	380	40	40	320	20	-	0	0	5	5	11	3/9
04	320	-	20	300	-	-	0	0	0	-	0	2/7
Pediocactus simpsonii												
85	0	-	-	-	-	-	0	0	-	-	0	-/-
91	0	-	-	-	-	-	0	0	-	-	0	-/-
99	40	-	40	-	-	-	0	0	-	-	0	1/3
04	160	-	20	140	-	-	0	0	-	-	0	1/2
Pinus edulis												
85	0	-	-	-	-	-	0	0	-	-	0	-/-
91	0	66	-	-	-	-	0	0	-	-	0	-/-
99	0	-	-	-	-	-	0	0	-	-	0	-/-
04	0	-	-	-	-	-	0	0	-	-	0	-/-