

LITTLE DEER PEAK - TREND STUDY NO. 25B-6-09

Vegetation Type: Wyoming Big Sagebrush

Range Type: Crucial Deer Winter, Substantial Elk Winter

NRCS Ecological Site Description: Upland Loam (Wyoming Big Sagebrush), R034XY306UT

Land Ownership: BLM

Elevation: 7,500 ft (2,560 m)

Aspect: Southwest

Slope: 0%-3%

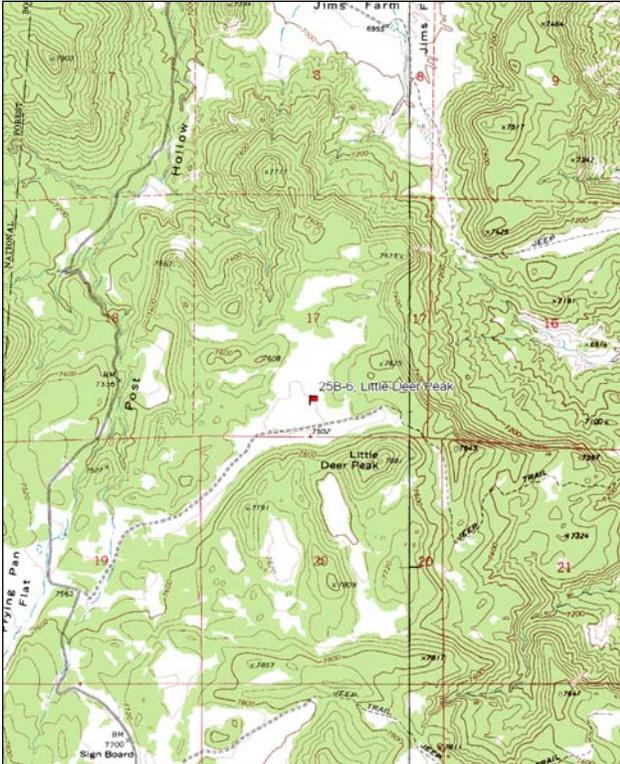
Transect bearing: 160 degrees magnetic

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

Directions:

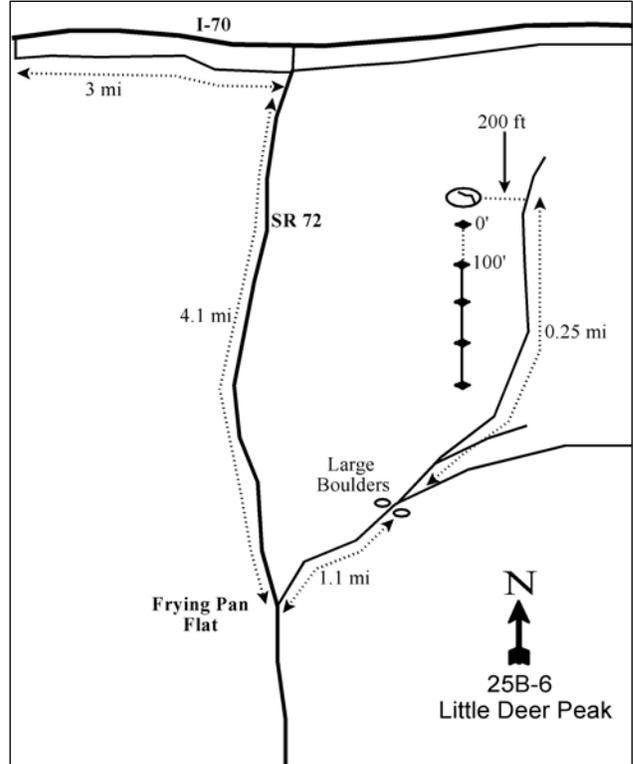
From Salina, go 37.5 miles east on I-70 to a rest area. From the rest area, go approximately 3 miles east on the frontage road to Fremont Junction. Turn south on SR 72 and drive 4.1 miles to a left turn across from Frying Pan Flat. Go left down this road for 1.1 miles to a fork between 2 large boulders. 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



Township: 24S, Range: 5E, Section: 17

Diagrammatic Sketch:



GPS: NAD 83, UTM 12S 466614 E 4285760 N

LITTLE DEER PEAK - TREND STUDY NO. 25B-6

Site Information

Site Description: This study samples a sagebrush flat surrounded by pinyon pine (*Pinus edulis*) and Utah juniper (*Juniperus osteosperma*) woodland. The area is grazed as part of the BLM's Little Deer Peak grazing allotment. Most cool season grasses are gone, replaced by warm season species, perhaps due to grazing pressure. When ungulate use was first estimated using pellet group counts in 1999 the area showed heavy use by elk and deer with light cattle use. Elk use has steadily decreased since the first reading while deer use has fluctuated between moderately high and low. Cattle use has been consistently low (Table - Pellet Group Data).

Browse: Wyoming big sagebrush (*Artemisia tridentata* ssp. *wyomingensis*) is the most abundant browse species. Most of the plants are scrubby and stunted, looking similar to black sagebrush (*Artemisia nova*). Sagebrush density has stabilized since nearly halving after the first reading in 1985. Decadence rates have been high each year and may begin to negatively affect the population when combined with low recruitment rates (Table - Browse Characteristics).

Herbaceous Understory: Perennial grasses are limited to four species, which provide high cover (>10%), however, production is dominated by blue grama (*Bouteloua gracilis*) which has provided 80% or more of grass cover since 1999. Forbs are very limited and have never provided 2% or more cover since 1999 (Table - Herbaceous Trends).

Soil: The soil was classified as a sandy clay loam with a neutral pH (7.3) (Table - Soil Analysis Data). Bare ground has varied between 33%-42% (Table - Basic Cover). Soil erosion condition was classified as stable in 2009, with some flow patterns evident.

Trend Assessments

Browse:

- **1985 to 1991 – slightly down (-1):** Wyoming big sagebrush density declined 47%, however, much of the population consisted of young plants that are easily lost in drought conditions. Decadence was still high at 29% while recruitment of young was low at 5%.
- **1991 to 1999 – stable (0):** Differences in density may be related to the larger sample area used in 1999; therefore trend was determined using other parameters. Wyoming big sagebrush decadence remains unchanged while recruitment of young plants increased slightly to 11%.
- **1999 to 2004 - stable (0):** Wyoming big sagebrush density was unchanged from the last reading, as was decadence. Recruitment decreased to just 1%.
- **2004 to 2009 – down (-2):** Wyoming big sagebrush density decreased 16% while decadence increased to 57%, coupled with low recruitment this indicated a decline in the health of the sagebrush component in this community. Sagebrush canopy cover also decreased from 17% to 9%.

Grass:

- **1985 to 1991 – slightly up (+1):** The nested frequency of perennial grasses increased 16%. Only three species were sampled.
- **1991 to 1999 - stable (0):** The nested frequency of perennial grasses remained similar to the last reading. Cover was high at 17%, although blue grama and bottlebrush squirreltail (*Sitanion hystrix*) accounted for nearly 100% of cover.
- **1999 to 2004 - stable (0):** The nested frequency of perennial grasses remained similar to the past two samplings and cover increased to 18%, once again blue grama and bottlebrush squirreltail accounted for 95% of grass cover.

- **2004 to 2009 – slightly down (-1):** The nested frequency of perennial grasses decreased 18% while cover fell to 11%. Blue grama was the predominant grass providing 92% of grass cover. Overall, four species were sampled.

Forb:

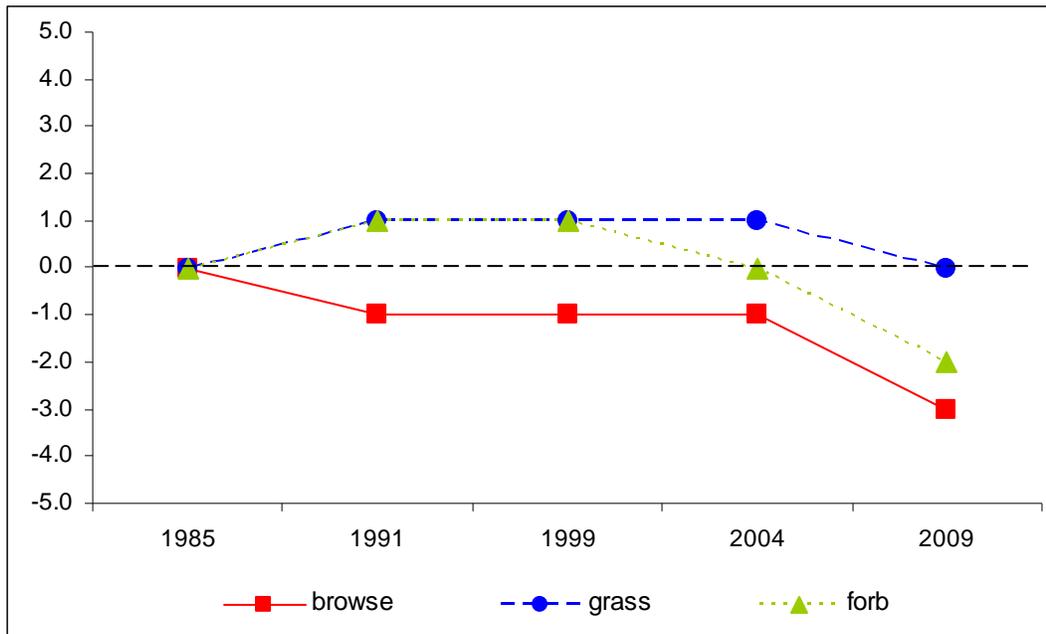
- **1985 to 1991 – slightly up (+1):** The nested frequency of perennial forbs increased 17%. The forb community was neither diverse nor abundant.
- **1991 to 1999 - stable (0):** The nested frequency of perennial forbs was similar to the last reading and cover was at 2%.
- **1999 to 2004 – slightly down (-1):** The nested frequency of perennial forbs decreased 19% while cover decreased to 1%.
- **2004 to 2009 - down (-2):** The nested frequency of perennial forbs decreased 61% and cover was well below 1%. Only three forb species were sampled.

DEER DESIRABLE COMPONENTS INDEX - LOW POTENTIAL SCALE --
Management unit 25B, study no: 6

Year	Preferred Browse Cover	Preferred Browse Decadence	Preferred Browse Young	Perennial Grass Cover	Annual Grass Cover	Perennial Forb Cover	Noxious Weeds	Total Score	Ranking
99	17.5	6.1	5.5	30.0	0.0	3.0	0.0	62.1	Good
04	16.2	6.5	0.5	30.0	0.0	2.5	0.0	55.7	Good
09	12.4	-2.1	1.5	22.1	0.0	0.3	0.0	34.3	Fair

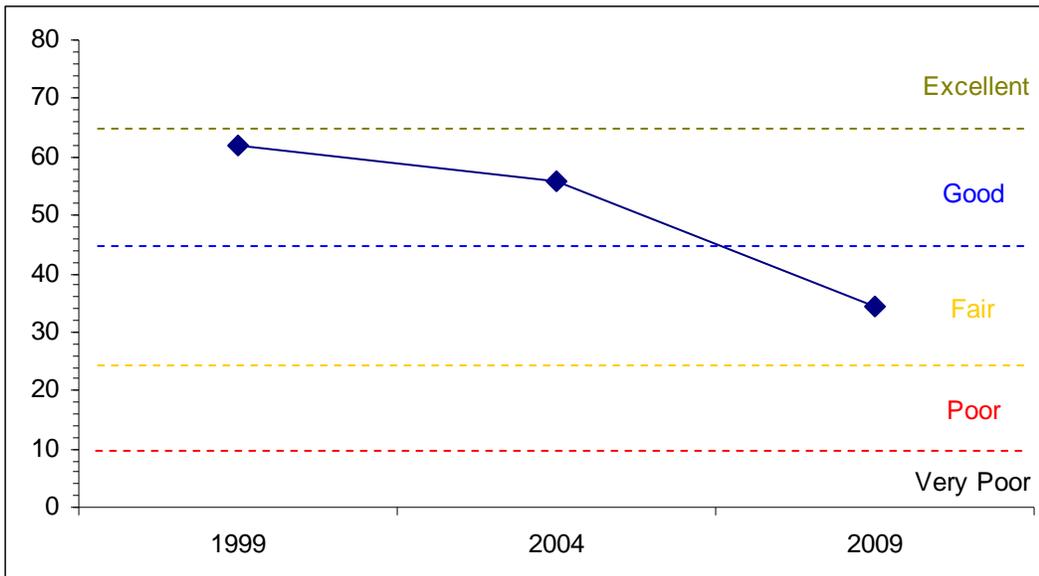
Trend Summary

CUMULATIVE RANGE TREND ASSESSMENT--
Management unit 25B Study no: 6



DEER DESIRABLE COMPONENTS INDEX TREND, LOW POTENTIAL SCALE

Management unit 25B, Study no: 6



HERBACEOUS TRENDS--

Management unit 25B, Study no: 6

Type	Species	Nested Frequency					Average Cover %		
		'85	'91	'99	'04	'09	'99	'04	'09
G	Agropyron cristatum	a-	a-	a-	c35	b17	.00	.90	.13
G	Bouteloua gracilis	a286	b321	a278	a279	a278	14.19	14.63	10.19
G	Carex sp.	b9	a-	a-	a-	a-	-	-	-
G	Oryzopsis hymenoides	a-	ab11	a-	a1	b23	-	.00	.37
G	Sitanion hystrix	b92	b115	c188	b129	a47	2.71	2.75	.36
Total for Annual Grasses		0	0	0	0	0	0	0	0
Total for Perennial Grasses		387	447	466	444	365	16.92	18.30	11.06
Total for Grasses		387	447	466	444	365	16.92	18.30	11.06
F	Arabis sp.	-	-	7	-	-	.01	-	-
F	Astragalus sp.	6	-	-	-	-	-	-	-
F	Chaenactis douglasii	1	-	-	-	-	-	-	-
F	Chenopodium fremontii (a)	-	-	a-	b13	a5	-	.03	.02
F	Chenopodium leptophyllum(a)	-	-	a-	b28	a-	-	.08	-
F	Descurainia pinnata (a)	-	-	-	3	-	-	.00	-
F	Draba sp. (a)	-	-	1	-	-	.00	-	-
F	Erigeron pumilus	bc33	c50	a8	ab21	a7	.07	.17	.02
F	Gayophytum ramosissimum(a)	-	-	-	3	-	-	.00	-
F	Penstemon comarrhenus	3	-	-	1	-	-	.03	-
F	Penstemon sp.	2	6	2	-	-	.00	-	-
F	Sanguisorba minor	-	-	-	1	-	-	.00	-
F	Sphaeralcea coccinea	b105	bc119	c152	bc114	a47	1.43	1.03	.14
Total for Annual Forbs		0	0	1	47	5	0.00	0.12	0.01
Total for Perennial Forbs		150	175	169	137	54	1.52	1.24	0.16

Type	Species	Nested Frequency					Average Cover %		
		'85	'91	'99	'04	'09	'99	'04	'09
	Total for Forbs	150	175	170	184	59	1.52	1.37	0.18

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	'09	'99	'04	'09
B	<i>Artemisia frigida</i>	9	4	1	.09	.33	.00
B	<i>Artemisia nova</i>	1	0	0	.00	-	-
B	<i>Artemisia tridentata wyomingensis</i>	84	86	85	13.93	12.68	9.93
B	<i>Cercocarpus ledifolius</i>	0	0	1	-	-	.00
B	<i>Chrysothamnus viscidiflorus viscidiflorus</i>	62	65	54	1.35	2.10	1.00
B	<i>Echinocereus triglochidatus</i>	4	0	0	.00	-	-
B	<i>Gutierrezia sarothrae</i>	50	58	5	1.60	2.32	.00
B	<i>Leptodactylon pungens</i>	4	2	2	.00	.00	.00
B	<i>Opuntia sp.</i>	12	11	7	.01	.06	.07
B	<i>Pediocactus simpsonii</i>	2	7	4	.00	.02	.01
	Total for Browse	228	233	159	17.00	17.53	11.03

CANOPY COVER, LINE INTERCEPT--

Management unit 25B, Study no: 6

Species	Percent Cover	
	'04	'09
<i>Artemisia frigida</i>	.23	-
<i>Artemisia tridentata wyomingensis</i>	16.70	9.38
<i>Chrysothamnus viscidiflorus viscidiflorus</i>	6.31	.88
<i>Gutierrezia sarothrae</i>	2.63	-
<i>Opuntia sp.</i>	.08	.25

KEY BROWSE ANNUAL LEADER GROWTH--

Management unit 25B, Study no: 6

Species	Average leader growth (in)	
	'04	'09
<i>Artemisia tridentata wyomingensis</i>	2.0	0.4

BASIC COVER--

Management unit 25B, Study no: 6

Cover Type	Average Cover %				
	'85	'91	'99	'04	'09
Vegetation	17.50	14.75	34.75	36.79	25.79
Rock	2.00	2.00	2.86	2.88	2.04
Pavement	13.50	7.25	4.82	7.90	3.34
Litter	29.00	32.25	23.83	24.63	34.11
Cryptogams	1.25	1.75	1.10	2.19	1.85
Bare Ground	36.75	42.00	38.14	41.32	33.45

SOIL ANALYSIS DATA --

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

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

PELLET GROUP DATA--

Management unit 25B, Study no: 6

Type	Quadrat Frequency			Days use per acre (ha)		
	'99	'04	'09	'99	'04	'09
Rabbit	41	20	56	-	-	-
Elk	17	8	24	41 (100)	21 (53)	11 (26)
Deer	12	8	11	31 (76)	3 (8)	25 (63)
Cattle	1	1	-	7 (18)	4 (11)	2 (5)

BROWSE CHARACTERISTICS--

Management unit 25B, Study no: 6

Year	Plants per Acre (excluding seedlings)	Age class distribution			Seedling (plants/acre)	Utilization			Average Height Crown (in)
		% Young	% Mature	% Decadent		% moderate	% heavy	% poor vigor	
Artemisia frigida									
85	66	0	100	-	-	0	0	0	10/10
91	66	0	100	-	-	0	100	0	2/6
99	300	13	87	-	100	13	13	0	5/5
04	160	0	100	-	-	0	0	0	7/9
09	20	0	100	-	-	0	0	0	-/-
Artemisia nova									
85	0	0	0	0	-	0	0	0	-/-
91	0	0	0	0	-	0	0	0	-/-
99	100	0	0	100	-	0	0	100	-/-
04	0	0	0	0	-	0	0	0	-/-
09	0	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)	
<i>Artemisia tridentata wyomingensis</i>										
85	9598	24	42	35	66	45	42	21	10/15	
91	5131	5	66	29	-	19	8	6	10/16	
99	6200	11	59	30	180	35	2	6	12/24	
04	6220	1	70	29	20	21	26	13	13/25	
09	5220	3	40	57	400	24	29	46	12/24	
<i>Cercocarpus ledifolius</i>										
85	0	0	0	-	-	0	0	0	-/-	
91	0	0	0	-	-	0	0	0	-/-	
99	0	0	0	-	-	0	0	0	-/-	
04	0	0	0	-	-	0	0	0	-/-	
09	40	100	0	-	-	0	0	0	-/-	
<i>Chrysothamnus viscidiflorus viscidiflorus</i>										
85	4532	34	66	0	-	4	0	0	9/10	
91	7731	25	62	13	66	24	9	3	3/6	
99	3540	7	85	8	-	5	0	7	6/10	
04	3300	1	98	1	-	0	0	.60	9/14	
09	2340	1	34	65	-	22	27	66	4/9	
<i>Echinocereus triglochidatus</i>										
85	0	0	0	-	-	0	0	0	-/-	
91	0	0	0	-	-	0	0	0	-/-	
99	100	20	80	-	-	0	0	0	1/3	
04	0	0	0	-	-	0	0	0	-/-	
09	0	0	0	-	-	0	0	0	-/-	
<i>Gutierrezia sarothrae</i>										
85	0	0	0	0	-	0	0	0	-/-	
91	0	0	0	0	-	0	0	0	-/-	
99	2940	6	94	0	340	.68	0	0	6/9	
04	2820	0	100	0	-	0	0	0	7/9	
09	100	0	80	20	-	0	0	20	4/5	
<i>Leptodactylon pungens</i>										
85	0	0	0	0	-	0	0	0	-/-	
91	0	0	0	0	-	0	0	0	-/-	
99	80	0	75	25	-	0	0	25	5/7	
04	120	0	100	0	-	0	0	0	5/7	
09	60	0	67	33	20	0	0	33	3/4	
<i>Opuntia sp.</i>										
85	199	0	100	0	-	0	0	0	5/7	
91	133	0	100	0	-	0	0	0	2/9	
99	380	11	84	5	40	0	0	11	3/9	
04	320	6	94	0	-	0	0	0	2/7	
09	220	27	55	18	-	0	0	27	2/6	

		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>Pediocactus simpsonii</i>										
85	0	0	0	-	-	0	0	0	-/-	
91	0	0	0	-	-	0	0	0	-/-	
99	40	100	0	-	-	0	0	0	1/3	
04	160	13	88	-	-	0	0	0	1/2	
09	80	25	75	-	20	0	0	0	0/1	
<i>Pinus edulis</i>										
85	0	0	0	-	-	0	0	0	-/-	
91	0	0	0	-	66	0	0	0	-/-	
99	0	0	0	-	-	0	0	0	-/-	
04	0	0	0	-	-	0	0	0	-/-	
09	0	0	0	-	-	0	0	0	-/-	