

Trend Study 13A-8-04

Study site name: Black Ridge .

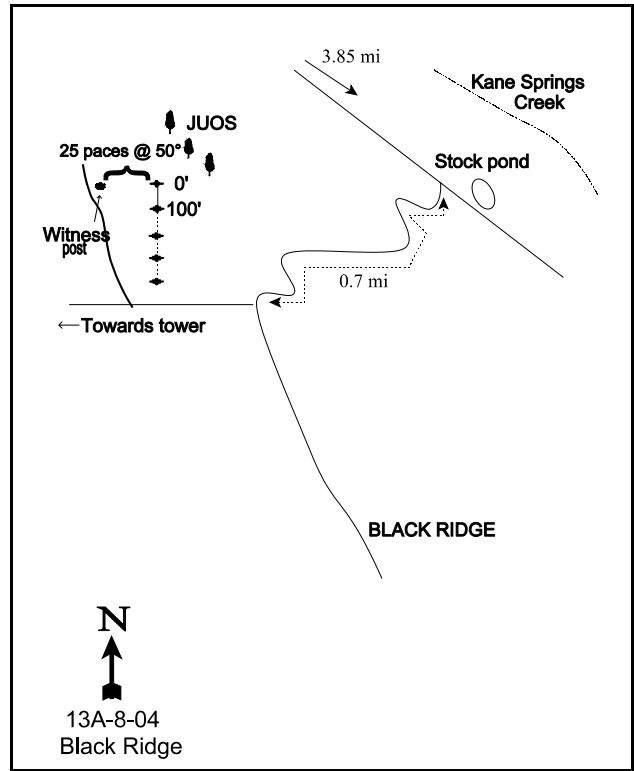
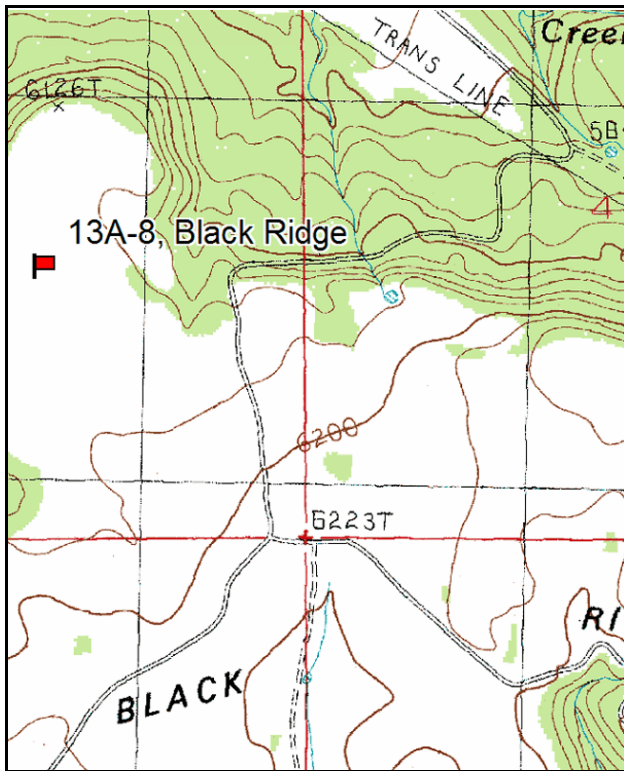
Vegetation type: Chained, Seeded, P-J .

Compass bearing: frequency baseline 165 degrees magnetic.

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

LOCATION DESCRIPTION

Travel south from Moab on SR 191 to just past mile marker 113, where a road turns off to Black Ridge and Yellow Circle Mine. Turn left and go 3.85 miles on the main road. Turn right and go 0.7 miles to the top of the ridge. Turn right onto a faint dirt road bearing west towards the relay tower. Go 0.15 miles to a faint fork. Bear right and continue 0.3 miles. Stop by a witness post on the right side of the road. The baseline starts 25 paces away from the witness post at 50°M. The 0-foot stake is tagged #7173.



Map Name: Kane Springs

Diagrammatic Sketch

Township 28S , Range 23E , Section 5

GPS: NAD 27, UTM 12S 4250519 N, 638717 E

DISCUSSION

Black Ridge - Trend Study No. 13A-8

The Black Ridge study is one of the lower elevation critical deer winter ranges on the southwest side of the LaSal Mountains. The site is located approximately a one-half mile south of the mesas edge, near the middle of the chained area. Slope and aspect are negligible with an elevation of 6,100 feet. This large mesa, managed by the BLM, was chained many years ago and must have been seeded mostly to crested wheatgrass for that is the only seeded species present at this time. Deer use appears to be greatest along the north rim above Kane Springs Creek. Cattle use the Black Ridge allotment during the spring, as they move up the mountain to the U.S. Forest Service administered lands. Pellet group data from 1999 estimated 20 cow (49 cdu/ha) and 94 deer days use/acre (232 ddu/ha). Pellet group data from 2004 estimated 1 cow (4 cdu/ha), 63 deer (155 ddu/ha), and 3 elk days use/acre (8 edu/ha).

The soil is classified as an upland sandy clay loam. Soil on the site appears to be moderately deep (effective rooting depth of almost 16 inches) and mostly free of rock. The soil is mildly alkaline (7.5 pH). Besides annual precipitation, site potential can also be limited by the amount of phosphorus in the soil (5.8 ppm). Values below 10 ppm may limit normal plant growth and development. The erosion condition class determined soil movement as slight in 2004. There are no gullies, but pedestaling and soil movement due to high intensity storms are evident. Wind erosion does cause soil movement on this site due to the high percentage of unprotected, loose sandy soil.

Wyoming big sagebrush is the dominant browse on this site. In 1994, the sagebrush provided almost 15% cover with an estimated population of 4,180 plants/acre. In 1999, sagebrush provided only about 12% cover and their numbers had decreased to 3,300 plants/acre. In 2004, sagebrush provided 13% cover and density has continued to decrease to 2,880 plants/acre. Young plants were abundant in 1987, since then they have been minimal in numbers. Sagebrush seedlings were also high in 1987 and 1994, but none were recorded in 1999 or 2004. Hedging on sagebrush is moderate to heavy and vigor is good. Percent decadence increased from 3% in 1987, 23% in 1994, 13% in 1999, and 22% in 2004. A nearby clump of mature juniper shows pronounced highlining, but there is visibly very little evidence of invading young trees onto this dry site.

The seeding established a fair stand of crested wheatgrass, although it has significantly decreased nested frequency values from 1987 to 2004. In some places crested wheatgrass is almost a monoculture. Diversity is very low throughout this community. Other perennial grasses observed in the area include Indian ricegrass, bottlebrush squirreltail, and three-awn. Annual grasses made up almost 20% of the grass cover in 1994 and increased to 39% of the grass cover in 1999 and 2004. Forbs are almost nonexistent, contributing less than 1% of the vegetative cover and most are annual forbs. On average, Wyoming big sagebrush and crested wheatgrass make up 84% of the total vegetative cover.

1994 TREND ASSESSMENT

The trend for soil is stable even with the large amounts of bare ground and low litter cover because of the mitigating physical characteristics of the site. Browse trend is down because of the increased rate of decadency, increased numbers of plants expressing poor vigor, and fairly high ratio of dead to living plants. The herbaceous understory trend is stable with the nested frequency values for perennial species being fairly stable, but the understory species are still in fairly poor condition with regard to productivity and species diversity. The Desirable Components Index rated this site as fair with a score of 43 due to low perennial forbs, few young shrubs, and high annual grasses (cheatgrass).

TREND ASSESSMENT

soil - stable (3), but very poor condition

browse - down (1)

herbaceous understory - stable (3)

winter range condition (DC Index) - 43 (fair) Wyoming sagebrush type

1999 TREND ASSESSMENT

The trend for soil is slightly down with decreases in litter cover, decreases in vegetative cover, and increases in percent bare soil. Even with these poor conditions, erosion is minor on this site because of the moderating physical characteristics of the site. Trend for sagebrush continues to be down because of continued losses in numbers, strip frequency is decreasing, no seedlings, and percent young has decreased to only 4% of the population. The ratio of dead to living plants is still relatively high at one for every 10 plants. The herbaceous understory trend is slightly down for perennials as well as for annuals. Only a single forb was found on this site in 1999. The Desirable Components Index rated this site as fair with a score of 36 due to low perennial grasses and forbs, few young shrubs, and high annual grasses (cheatgrass).

TREND ASSESSMENT

soil - slightly down (2)

browse - down (1)

herbaceous understory - slightly down (2)

winter range condition (DC Index) - 36 (fair) Wyoming sagebrush type

2004 TREND ASSESSMENT

The trend for soil is stable. Percent cover of bare ground, litter, and vegetation have remained similar to 1999 values. Large amounts of bare ground exists, but flat terrain has kept erosion to a minimum. Trend for key browse, Wyoming big sagebrush, is down. Density of sagebrush has continued to decrease (3,330 plants/acre in 1999 to 2,880 in 2004), while percent decadence continues to rise (13% in 1999 to 22% in 2004). Young recruitment is minimal and is not replacing those plants which are dying. Trend for herbaceous understory is down slightly. Crested wheatgrass has continued to decline in nested frequency and forbs are not abundant, although a few more annual forbs appeared in 2004 compared to no forbs in 1999. The Desirable Components Index rated this site as fair with a score of 37 due to low perennial forbs, few young shrubs, and high annual grasses (cheatgrass).

TREND ASSESSMENT

soil - stable (3), but very poor condition

browse - down (1)

herbaceous understory - slightly down (2)

winter range condition (DC Index) - 37 (fair) Wyoming sagebrush type

HERBACEOUS TRENDS --
Management unit 13A, Study no: 8

Type	Species	Nested Frequency				Average Cover %		
		'87	'94	'99	'04	'94	'99	'04
G	Agropyron cristatum	_b 169	_{ab} 142	_{ab} 145	_a 126	5.48	3.14	5.10
G	Aristida longiseta	-	8	4	-	.09	.03	-

Type	Species	Nested Frequency				Average Cover %		
		'87	'94	'99	'04	'94	'99	'04
G	<i>Bromus tectorum</i> (a)	-	192	197	192	1.47	2.03	3.22
G	<i>Sitanion hystrix</i>	_b 21	_b 43	_a 4	_a 1	.11	.01	.00
G	<i>Vulpia octoflora</i> (a)	-	_b 91	_a 9	_a 2	.23	.02	.01
Total for Annual Grasses		0	283	206	194	1.71	2.05	3.23
Total for Perennial Grasses		190	193	153	127	5.69	3.18	5.11
Total for Grasses		190	476	359	321	7.40	5.24	8.34
F	<i>Astragalus amphioxys</i>	1	-	-	-	-	-	-
F	<i>Descurainia pinnata</i> (a)	-	3	-	1	.00	-	.01
F	<i>Eriogonum cernuum</i> (a)	-	_c 47	_a -	_b 12	.12	-	.07
F	<i>Eriogonum ovalifolium</i>	5	-	-	-	-	-	-
F	<i>Lappula occidentalis</i> (a)	-	5	-	2	.02	-	.00
F	<i>Machaeranthera grindelioides</i>	_b 15	_{ab} 4	_a 1	_a 3	.01	.00	.00
F	<i>Salsola iberica</i> (a)	-	-	-	2	-	-	.00
Total for Annual Forbs		0	55	0	17	0.15	0	0.09
Total for Perennial Forbs		21	4	1	3	0.01	0.00	0.00
Total for Forbs		21	59	1	20	0.16	0.00	0.10

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

BROWSE TRENDS --

Management unit 13A, Study no: 8

Type	Species	Strip Frequency			Average Cover %		
		'94	'99	'04	'94	'99	'04
B	<i>Artemisia tridentata wyomingensis</i>	78	75	77	14.63	11.89	13.28
B	<i>Gutierrezia sarothrae</i>	0	0	1	-	-	.00
B	<i>Opuntia</i> spp.	2	1	1	.38	-	-
Total for Browse		80	76	79	15.01	11.89	13.28

CANOPY COVER, LINE INTERCEPT --

Management unit 13A, Study no: 8

Species	Percent Cover
	'04
<i>Artemisia tridentata wyomingensis</i>	18.51

KEY BROWSE ANNUAL LEADER GROWTH --
 Management unit 13A, Study no: 8

Species	Average leader growth (in)
	'04
<i>Artemisia tridentata wyomingensis</i>	1.2

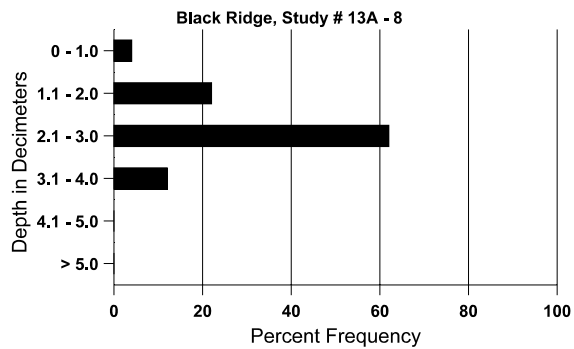
BASIC COVER --
 Management unit 13A, Study no: 8

Cover Type	Average Cover %			
	'87	'94	'99	'04
Vegetation	7.00	20.77	16.72	23.32
Rock	0	.05	0	.01
Pavement	0	.12	.28	.16
Litter	40.50	29.28	15.99	25.09
Cryptogams	.75	.41	1.38	3.13
Bare Ground	51.75	54.25	60.84	61.64

SOIL ANALYSIS DATA --
 Management unit 13A, Study no: 8, Study Name: Black Ridge

Effective rooting depth (in)	Temp °F (depth)	pH	%sand	%silt	%clay	%OM	PPM P	PPM K	ds/m
15.7	67.0 (16.9)	7.5	56.9	19.8	23.3	10.4	5.8	19.2	0.4

Stoniness Index



PELLET GROUP DATA --
 Management unit 13A, Study no: 8

Type	Quadrat Frequency		
	'94	'99	'04
Rabbit	59	17	12
Elk	-	-	1
Deer	45	29	24
Cattle	-	-	-

Days use per acre (ha)	
'99	'04
-	-
-	3 (8)
94 (232)	63 (155)
20 (49)	1 (4)

BROWSE CHARACTERISTICS --
 Management unit 13A, Study no: 8

		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 tridentata wyomingensis</i>												
87	7832	2833	5600	1966	266	-	38	12	3	-	1	23/33
94	4180	1060	260	2920	1000	520	16	4	24	3	18	19/32
99	3300	-	120	2740	440	320	55	42	13	4	4	19/30
04	2880	-	40	2200	640	340	44	52	22	9	9	18/32
<i>Atriplex canescens</i>												
87	0	-	-	-	-	-	0	0	-	-	0	-/-
94	0	-	-	-	-	-	0	0	-	-	0	-/-
99	0	-	-	-	-	-	0	0	-	-	0	16/24
04	0	-	-	-	-	20	0	0	-	-	0	-/-
<i>Ephedra viridis</i>												
87	33	-	-	33	-	-	100	0	-	-	0	20/22
94	0	-	-	-	-	-	0	0	-	-	0	-/-
99	0	-	-	-	-	-	0	0	-	-	0	-/-
04	0	-	-	-	-	-	0	0	-	-	0	41/38
<i>Gutierrezia sarothrae</i>												
87	66	33	33	33	-	-	0	0	-	-	0	12/13
94	0	-	-	-	-	-	0	0	-	-	0	-/-
99	0	-	-	-	-	-	0	0	-	-	0	-/-
04	20	-	20	-	-	-	0	0	-	-	0	-/-
<i>Opuntia spp.</i>												
87	0	-	-	-	-	-	0	0	-	-	0	-/-
94	60	-	-	60	-	-	0	0	-	-	0	5/25
99	20	-	-	20	-	20	0	0	-	-	0	5/5
04	20	-	-	20	-	-	0	0	-	-	0	4/6

		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)	
Sclerocactus													
87	0	-	-	-	-	-	0	0	-	-	0	-/-	
94	0	-	-	-	-	-	0	0	-	-	0	2/3	
99	0	-	-	-	-	-	0	0	-	-	0	-/-	
04	0	-	-	-	-	-	0	0	-	-	0	-/-	