

BLACK RIDGE - STUDY NO. 13A-8-09

Vegetation Type: Chained, Seeded, P-J

Range Type: Crucial Deer Winter, Crucial Elk Winter

NRCS Ecological Site Description: [Upland Loam \(Basin Big Sagebrush\), R035XY306UT](#)

Land Ownership: BLM

Elevation: 6,100 ft (1,859 m)

Aspect: Flat

Slope: 0%-1%

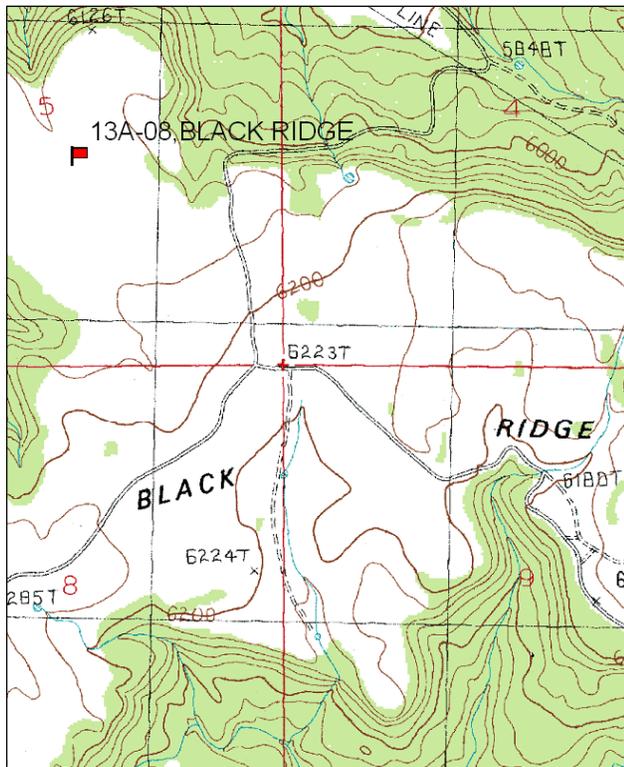
Transect bearing: 165 degrees magnetic

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

Directions:

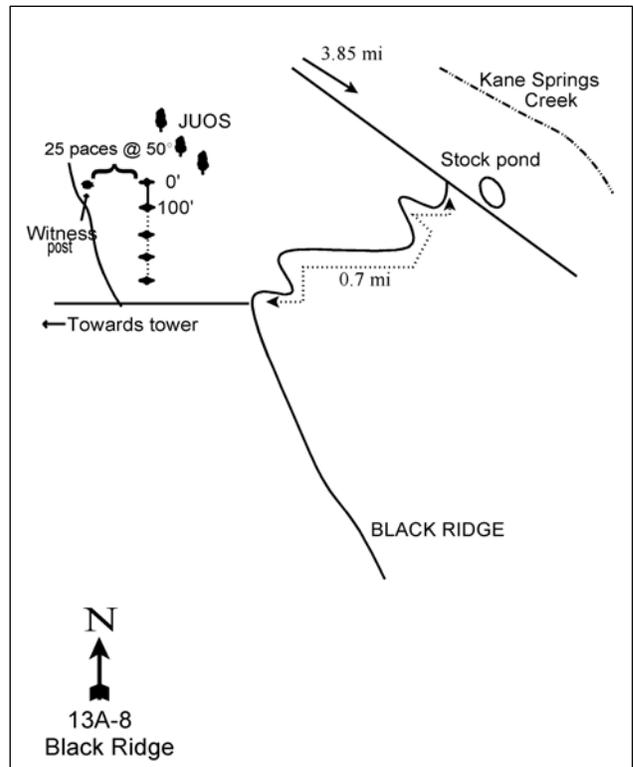
Travel south from Moab on SR 191 to just past mile marker 113, where a road turns off to Black Ridge and Yellow Circle Mine. Turn left and go 4.4 miles on the main road to the top of the ridge. Turn right onto a faint dirt road bearing west towards the relay tower. Go 0.15 miles to a faint fork. Bear 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



Township: 28S, Range: 23E, Section: 5

Diagrammatic Sketch:



GPS: NAD 83, UTM 12S 638655 E 4250723 N

BLACK RIDGE - TREND STUDY NO. 13A-8

Site Information

Site Description: The study is on one of the lower elevation crucial deer winter ranges on the southwest side of the La Sal Mountains. This large mesa, managed by the BLM, was chained many years ago and must have been seeded mostly to crested wheatgrass (*Agropyron cristatum*) because that is the only non-native perennial grass species present. The site is located approximately a half mile south of the mesas edge, near the middle of the chained area. Deer use appears to be greatest along the north rim above Kane Springs Creek. Pellet group data has estimated deer use to have decreased since 1999. There has been minimal use by elk on the site since 1999. Cattle use has fluctuated between light to moderate use since 1999 (Table - Pellet Group Data). Cattle use the Black Ridge allotment during the spring, as they move up the mountain to the U.S. Forest Service administered lands.

Browse: Wyoming big sagebrush (*Artemisia tridentata* ssp. *wyomingensis*) is the dominant browse on this site. It provides all of the measured browse cover for the site, though there are other limited browse species present on the site. Cover of sagebrush has averaged 13% (Table - Browse Trends) and density of sagebrush has averaged 3,500 plants/acre since 1994. Vigor and decadence of the sagebrush population has been mostly good, though decadence has risen in recent years. Recruitment of young sagebrush plants has declined since the outset of the study and is very poor on the site. Browse use of sagebrush has been moderate to heavy on the site (Table -Browse Characteristics).

Herbaceous Understory: The dominant grass on the site is the seeded species crested wheatgrass, which has provided nearly all of the perennial grass cover over the duration of the study. Diversity is very low throughout this community. Other perennial grasses observed historically on the site include Indian ricegrass (*Oryzopsis hymenoides*), bottlebrush squirreltail (*Sitanion hystrix*), and three-awn (*Aristida longiseta*), though none of these species were sampled in 2009. Annual grasses, primarily cheatgrass (*Bromus tectorum*), provide the majority of the remaining grass cover on the site. Nested frequency and cover of annual species has fluctuated over the sample years (Table - Herbaceous Trends).

Forbs are almost nonexistent. The annual forb species burr buttercup (*Ranunculus testiculatus*) was the only forb sampled in 2009, providing negligible cover (Table - Herbaceous Trends).

Soil: The soil is classified as upland sandy clay loam with an effective rooting depth of almost 16 inches. The soil has a mildly alkaline pH (7.5). Phosphorus has limited availability for plant growth and development at 5.8 ppm (Tiedemann and Lopez 2004) (Table - Soil Analysis Data). The average bare ground cover is quite high on the site (Table - Basic Cover). Pedastaling around plants and soil movement are common problems on this site. The soil erosion condition classification was rated as slight in 2004 and stable in 2009.

Trend Assessments

Browse:

- **1987 to 1994 - slightly down (-1):** Differences in density may be related to the larger sample area used in 1994; therefore, other parameters were used to determine trend. Decadence of sagebrush increased from 3% to 24% and plants displaying poor vigor increased from 1% to 18%. Recruitment of young sagebrush plants decreased markedly.
- **1994 to 1999 - down (-2):** Density of sagebrush decreased by 21% to 3,300 plants/acre, and cover decreased from 15% to 12%. Decadence and vigor of sagebrush both improved slightly. Recruitment of young sagebrush plants decreased slightly.
- **1999 to 2004 - slightly down (-1):** Density of sagebrush decreased by another 13% to 2,880 plants/acre, though cover increased slightly. Recruitment of young sagebrush plants continued to decrease to only 1% of the population.

- **2004 to 2009 – slightly up (+1):** Density of sagebrush increased by 28% to 3,700 plants/acre, though cover fell slightly. Decadence also increased from 22% to 35%, but vigor remained good. Recruitment of young sagebrush was still very low.

Grass:

- **1987 to 1994 - stable (0):** There was little change in the nested frequency of perennial grasses.
- **1994 to 1999 - down (-2):** There was a 21% decrease in the sum of nested frequency of perennial grasses, and cover decreased from 6% to 3%.
- **1999 to 2004 - slightly down (-1):** The sum of nested frequency of perennial grasses decreased by 17%, though cover increased slightly. Cheatgrass cover increased to the highest rate in any of the years it was sampled.
- **2004 to 2009 - slightly up (+1):** The sum of nested frequency of perennial grasses increased by 15%, and cover increased slightly. There was a significant decrease in the sum of nested frequency of cheatgrass, and cheatgrass cover decreased to the lowest rate in any of the years it was sampled.

Forb:

- **1987 to 1994 - slightly down (-1):** Forbs are very rare on this site. The sum of nested frequency of perennial forbs decreased on the site with only one perennial forb species being sampled.
- **1994 to 1999 - stable (0):** Forb cover and frequency are negligible on this site.
- **1999 to 2004 - stable (0):** Forb cover and frequency are negligible on this site.
- **2004 to 2009 - stable (0):** Forb cover and frequency are negligible on this site. Only one annual species was sampled on the site.

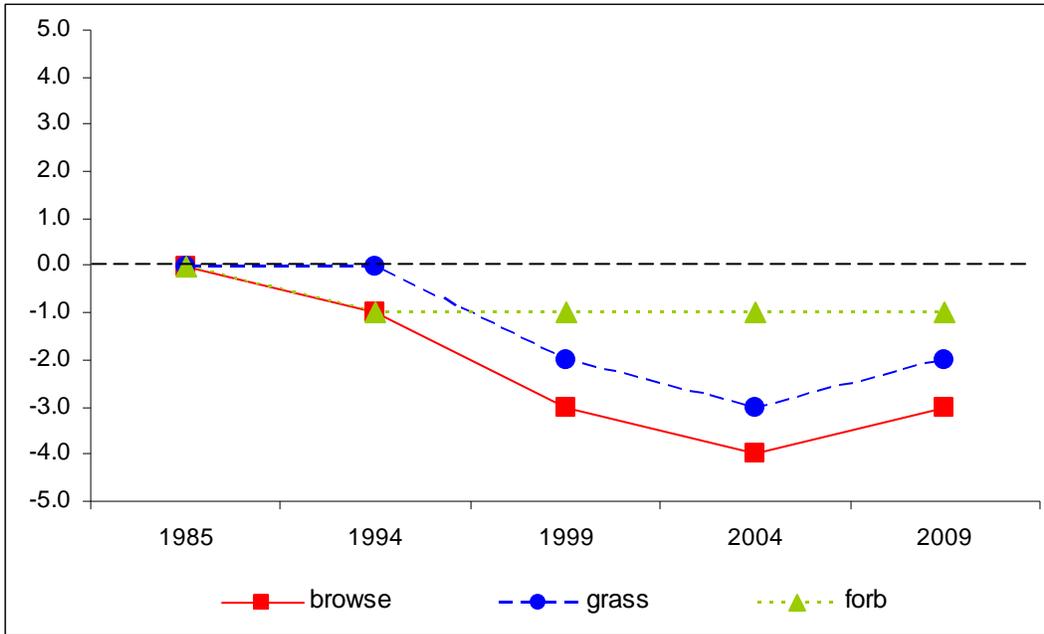
DEER DESIRABLE COMPONENTS INDEX - LOW POTENTIAL SCALE --

Management unit 13A, study no: 8

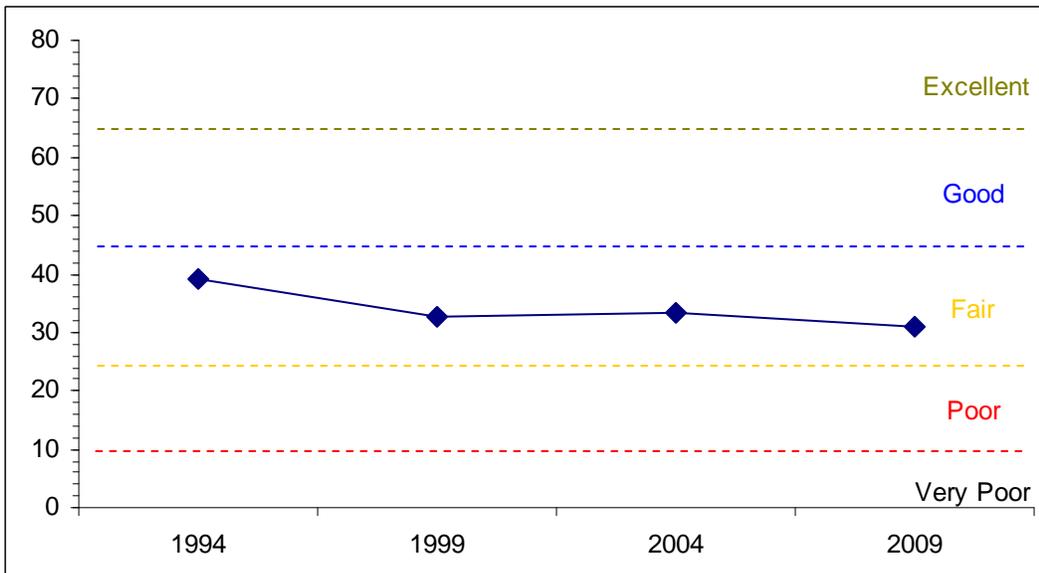
Year	Preferred Browse Cover	Preferred Browse Decadence	Preferred Browse Young	Perennial Grass Cover	Annual Grass Cover	Perennial Forb Cover	Noxious Weeds	Total Score	Ranking
94	18	8	3	11	-1	0	0	39	Fair
99	15	11	2	6	-2	0	0	33	Fair
04	17	8	1	10	-2	0	0	33	Fair
09	15	5	1	11	0	0	0	31	Fair

Trend Summary

CUMULATIVE RANGE TREND ASSESSMENT--
Management unit 13A Study no: 8



DESIRABLE COMPONENTS INDEX TREND, LOW POTENTIAL SCALE
Management unit 13A, Study no: 8



HERBACEOUS TRENDS--

Management unit 13A, Study no: 8

Type	Species	Nested Frequency					Average Cover %			
		'87	'94	'99	'04	'09	'94	'99	'04	'09
G	Agropyron cristatum	b169	ab142	ab145	a126	ab146	5.48	3.14	5.10	5.53
G	Aristida longiseta	-	8	4	-	-	.09	.03	-	-
G	Bromus tectorum (a)	-	b192	b197	b192	a79	1.47	2.03	3.22	.41
G	Sitanion hystrix	b21	b43	a4	a1	a-	.11	.01	.00	-
G	Vulpia octoflora (a)	-	b91	a9	a2	a-	.23	.02	.01	-
Total for Annual Grasses		0	283	206	194	79	1.71	2.05	3.23	0.41
Total for Perennial Grasses		190	193	153	127	146	5.69	3.18	5.11	5.53
Total for Grasses		190	476	359	321	225	7.40	5.24	8.34	5.94
F	Astragalus amphioxys	1	-	-	-	-	-	-	-	-
F	Descurainia pinnata (a)	-	3	-	1	-	.00	-	.01	-
F	Eriogonum cernuum (a)	-	b47	a-	a12	a-	.12	-	.07	-
F	Eriogonum ovalifolium	5	-	-	-	-	-	-	-	-
F	Lappula occidentalis (a)	-	5	-	2	-	.02	-	.00	-
F	Machaeranthera grindelioides	b15	ab4	a1	a3	a-	.01	.00	.00	-
F	Ranunculus testiculatus (a)	-	-	-	-	2	-	-	-	.00
F	Salsola iberica (a)	-	-	-	2	-	-	-	.00	-
Total for Annual Forbs		0	55	0	17	2	0.15	0	0.09	0.00
Total for Perennial Forbs		21	4	1	3	0	0.01	0.00	0.00	0
Total for Forbs		21	59	1	20	2	0.16	0.00	0.10	0.00

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	'09	'94	'99	'04	'09
B	Artemisia tridentata wyomingensis	78	75	77	78	14.63	11.89	13.28	12.17
B	Gutierrezia sarothrae	0	0	1	3	-	-	.00	.00
B	Opuntia sp.	2	1	1	1	.38	.00	.00	.00
Total for Browse		80	76	79	82	15.01	11.89	13.28	12.17

CANOPY COVER, LINE INTERCEPT--

Management unit 13A, Study no: 8

Species	Percent Cover	
	'04	'09
Artemisia tridentata wyomingensis	18.51	13.98

KEY BROWSE ANNUAL LEADER GROWTH--

Management unit 13A, Study no: 8

Species	Average leader growth (in)	
	'04	'09
Artemisia tridentata wyomingensis	1.2	0.9

BASIC COVER--

Management unit 13A, Study no: 8

Cover Type	Average Cover %				
	'87	'94	'99	'04	'09
Vegetation	7.00	20.77	16.72	23.32	17.06
Rock	0	.05	0	.01	.01
Pavement	0	.12	.28	.16	.16
Litter	40.50	29.28	15.99	25.09	23.64
Cryptogams	.75	.41	1.38	3.13	.89
Bare Ground	51.75	54.25	60.84	61.64	62.18

SOIL ANALYSIS DATA --

Management unit 13A, Study no: 8, Study Name: Black Ridge

Effective rooting depth (in)	pH	sandy clay loam			%OM	PPM P	PPM K	ds/m
		%sand	%silt	%clay				
15.7	7.5	56.9	19.8	23.3	10.4	5.8	19.2	0.4

PELLET GROUP DATA--

Management unit 13A, Study no: 8

Type	Quadrat Frequency			
	'94	'99	'04	'09
Rabbit	59	17	12	50
Elk	-	-	1	3
Deer	45	29	24	30
Cattle	-	-	-	8

Days use per acre (ha)		
'99	'04	'09
-	-	-
-	3 (8)	3 (7)
94 (232)	63 (155)	23 (58)
20 (49)	1 (4)	21 (52)

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

Year	Plants per Acre (excluding seedlings)	Age class distribution			Seedling (plants/acre)	Utilization		% poor vigor	Average Height Crown (in)
		% Young	% Mature	% Decadent		% moderate	% heavy		
<i>Artemisia tridentata wyomingensis</i>									
87	7831	71	25	3	2833	38	12	1	23/33
94	4180	6	70	24	1060	16	4	18	19/32
99	3300	4	83	13	-	55	42	4	19/30
04	2880	1	76	22	-	44	52	9	18/32
09	3700	1	64	35	-	34	55	9	18/33
<i>Atriplex canescens</i>									
87	0	0	0	-	-	0	0	0	-/-
94	0	0	0	-	-	0	0	0	-/-
99	0	0	0	-	-	0	0	0	16/24
04	0	0	0	-	-	0	0	0	-/-
09	0	0	0	-	-	0	0	0	-/-
<i>Ephedra viridis</i>									
87	33	0	100	-	-	100	0	0	20/22
94	0	0	0	-	-	0	0	0	-/-
99	0	0	0	-	-	0	0	0	-/-
04	0	0	0	-	-	0	0	0	41/38
09	0	0	0	-	-	0	0	0	37/35
<i>Gutierrezia sarothrae</i>									
87	66	50	50	-	33	0	0	0	12/13
94	0	0	0	-	-	0	0	0	-/-
99	0	0	0	-	-	0	0	0	-/-
04	20	100	0	-	-	0	0	0	-/-
09	60	0	100	-	-	0	0	0	7/9
<i>Opuntia sp.</i>									
87	0	0	0	-	-	0	0	0	-/-
94	60	0	100	-	-	0	0	0	5/25
99	20	0	100	-	-	0	0	0	5/5
04	20	0	100	-	-	0	0	0	4/6
09	40	0	100	-	-	0	0	0	6/10
<i>Sclerocactus sp.</i>									
87	0	0	0	-	-	0	0	0	-/-
94	0	0	0	-	-	0	0	0	2/3
99	0	0	0	-	-	0	0	0	-/-
04	0	0	0	-	-	0	0	0	-/-
09	0	0	0	-	-	0	0	0	2/3