

MONUMENT RIDGE - TREND STUDY NO. 10R-7-10

Vegetation Type: Chaining, Burn

Range Type: Substantial Deer Winter, Crucial Elk Winter

NRCS Ecological Site Description: Upland Shallow Loam (Pinyon-Utah Juniper), R034XY322UT

Land Ownership: BLM

Elevation: 7200 ft. (2195 m)

Aspect: North

Slope: 1-2%

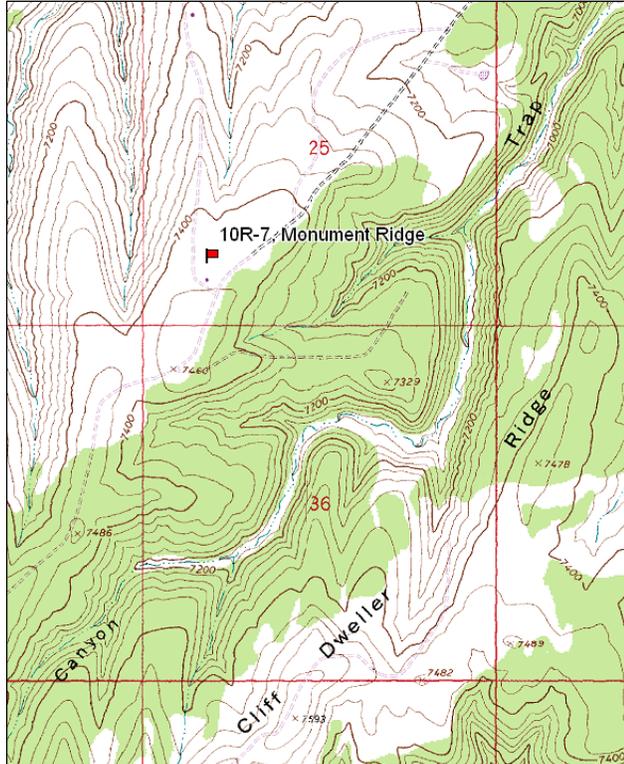
Transect bearing: 27° magnetic

Belt placement: line 1 (11ft), line 2 (34ft), line 3 (59ft), line 4 (71ft), line 5 (95ft).

Directions:

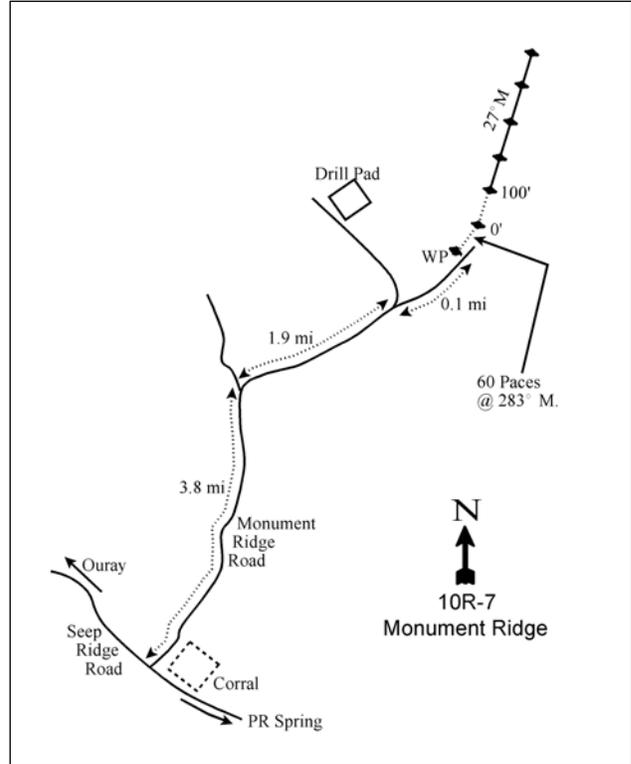
From Seep Ridge Road turn north onto the Monument Ridge Road and drive 3.8 miles to a fork. Take the right fork and travel 1.9 miles to a turnoff to a drill pad. Go straight past this turnoff 0.1 miles to a witness post on the left (north) side of the road. From the witness post walk 60 paces at 283°M to the 0-foot stake which is marked with browse tag #88 DWR.

Map Name: Seep Canyon



Township: 14S Range: 23E Section: 25

Diagrammatic Sketch:



GPS: NAD 83, UTM 12S 646182 E 4381204 N

MONUMENT RIDGE - TREND STUDY NO. 10R-7

Site Information

Site Description: The study is located about two and a half miles from the Monument Ridge Road at the head of Monument Canyon, which drains into Sweetwater Canyon. The area was chained and seeded in the 1960's. In the 1980's, a wild fire burned through the area removing most of the chaining debris and shrub cover, though pinyon pine (*Pinus edulis*) and Utah juniper (*Juniperus osteosperma*) trees are becoming reestablished. Energy development is common in the area and a drill pad is located to the southwest of the site. Grazing in the area is administered by the Bureau of Land Management as part of the Sweetwater allotment. The area is used heavily by elk in the fall and spring and pellet group transect data estimated heavy use by elk from 1997 to 2005, but more moderate use by elk in 2010. Estimated deer and cattle use has been light over the course of the study (Table - Pellet Group Data).

Browse: Preferred browse are limited to a few scattered mountain big sagebrush (*Artemisia tridentata* ssp. *vaseyana*), true mountain mahogany (*Cercocarpus montanus*) and rubber rabbitbrush (*Chrysothamnus nauseosus* ssp. *hololeucus*). Preferred browse species are not abundant enough to provide winter forage for wildlife species. Broom snakeweed (*Gutierrezia sarothrae*) and rubber rabbitbrush have had the highest cover for browse species (Table - Browse Trends). Although broom snakeweed is quite dense, it does not dominate the site (Table - Browse Characteristics). Pinyon and juniper trees are scattered over the site.

Herbaceous Understory: The site is dominated by crested wheatgrass (*Agropyron cristatum*) which has steadily increased in cover since 1997. Several other perennial grasses occur on the site, but in small numbers. Forbs are diverse but only a few species are abundant. Tufted milkvetch (*Astragalus spatulatus*) and scarlet globemallow (*Sphaeralcea coccinea*) are the most abundant forbs (Table - Herbaceous Trends).

Soil: The soil is a loam texture with a neutral soil reaction (pH 7.0). Phosphorus may have limited availability for plant growth and development at 5.0 ppm (Tiedemann and Lopez 2004) (Table - Soil Analysis Data). Bare ground cover is moderately high, but there is good protective ground cover provided by rock and pavement cover. Most vegetation and litter is provided by crested wheatgrass (Table - Basic Cover). The soil erosion condition was classified as slight in 2005 due to pedestaling and some shallow rills. The soil erosion condition was classified as stable in 2010.

Trend Assessments

Browse:

- **1997 to 2000 - stable (0):** Preferred browse species are limited on the site and the weedy species broom snakeweed is the dominant browse species.
- **2000 to 2005 - stable (0):** There was little change in any of the preferred browse populations.
- **2005 to 2010 - stable (0):** The density of mountain big sagebrush doubled, but density remains low at 300 plants/acre and cover remains low at less than 1%.

Grass:

- **1997 to 2000 - stable (0):** The sum of nested frequency of perennial grasses decreased with a significant decrease in the nested frequency of crested wheatgrass, but cover increased from 13% to 17%.
- **2000 to 2005 - slightly up (+1):** There was little change in the sum of nested frequency of perennial grasses, but cover increased to 27%.
- **2005 to 2010 - slightly up (+1):** The perennial grass sum of nested frequency remained similar, but cover increased to 34%.

Forb:

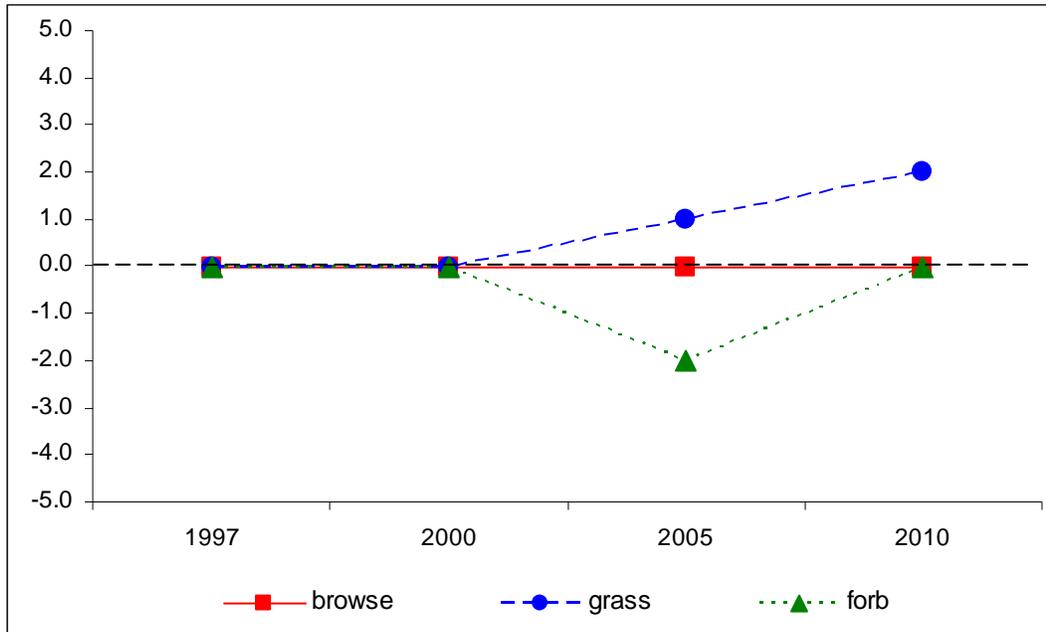
- **1997 to 2000 - stable (0):** The sum of nested frequency of perennial forbs decreased by 12%, but cover increased from 4% to 8%.
- **2000 to 2005 - down (-2):** There was a 52% decrease in the sum of nested frequency of perennial forbs and cover decreased to 2%. There was a significant decrease in the nested frequency of tufted milkvetch with a subsequent decrease in cover.
- **2005 to 2010 - up (+2):** The perennial forb sum of nested frequency increased 36%, though there was little change in cover.

DEER DESIRABLE COMPONENTS INDEX - MID-LEVEL POTENTIAL SCALE --
Management unit 10R, study no: 7

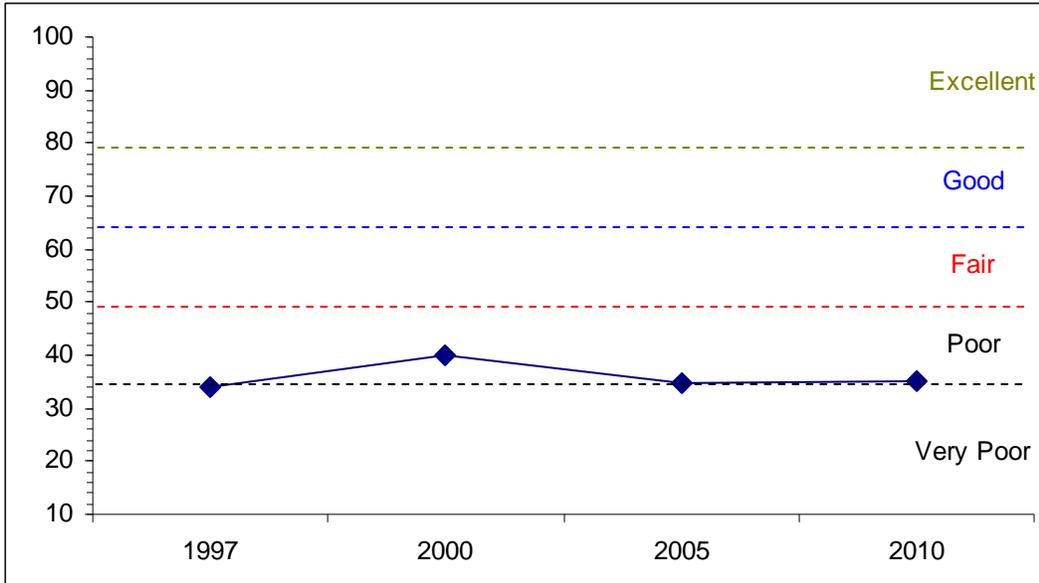
Year	Preferred Browse Cover	Preferred Browse Decadence	Preferred Browse Young	Perennial Grass Cover	Annual Grass Cover	Perennial Forb Cover	Noxious Weeds	Total Score	Ranking
97	0.4	0.0	0.0	25.3	0.0	8.4	0.0	34.1	Very Poor-Poor
00	0.1	0.0	0.0	30.0	0.0	10.0	0.0	40.1	Poor
05	0.2	0.0	0.0	30.0	0.0	4.7	0.0	34.9	Very Poor-Poor
10	0.6	0.0	0.0	30.0	0.0	4.7	0.0	35.3	Very Poor-Poor

Trend Summary

CUMULATIVE RANGE TREND ASSESSMENT--
Management unit 10R, Study no: 7



DEER DESIRABLE COMPONENTS INDEX TREND, MID-LEVEL POTENTIAL--
 Management unit 10R, Study no: 7



HERBACEOUS TRENDS--
 Management unit 10R, Study no: 7

Type	Species	Nested Frequency				Average Cover %			
		'97	'00	'05	'10	'97	'00	'05	'10
G	<i>Agropyron cristatum</i>	b444	a405	a410	a391	12.07	16.14	26.90	33.15
G	<i>Agropyron dasystachyum</i>	5	2	-	11	.01	.03	-	.42
G	<i>Bouteloua gracilis</i>	5	-	-	-	.04	-	-	-
G	<i>Carex sp.</i>	b13	b20	b14	a-	.24	.30	.13	-
G	<i>Oryzopsis hymenoides</i>	ab6	a2	b15	ab12	.06	.03	.26	.10
G	<i>Poa fendleriana</i>	b22	a-	ab7	ab13	.19	-	.02	.36
G	<i>Poa secunda</i>	3	1	1	13	.01	.00	.00	.18
G	<i>Stipa comata</i>	5	-	3	3	.03	-	.15	.15
Total for Annual Grasses		0	0	0	0	0	0	0	0
Total for Perennial Grasses		503	430	450	443	12.67	16.52	27.46	34.38
Total for Grasses		503	430	450	443	12.67	16.52	27.46	34.38
F	<i>Alyssum alyssoides (a)</i>	a-	a-	a-	b25	-	-	-	.07
F	<i>Antennaria rosea</i>	2	13	5	8	.01	.08	.07	.02
F	<i>Arabis sp.</i>	b37	a17	a2	a6	.12	.06	.00	.01
F	<i>Arenaria fendleri</i>	a-	a5	a2	b36	-	.03	.01	.45
F	<i>Artemisia dracunculul</i>	a5	b26	ab12	a7	.09	.61	.07	.18
F	<i>Aster sp.</i>	13	-	2	2	.19	-	.00	.03
F	<i>Astragalus spatulatus</i>	b155	b162	a53	a37	2.37	5.93	1.18	.50
F	<i>Cryptantha sp.</i>	7	-	-	-	.02	-	-	-
F	<i>Descurainia pinnata (a)</i>	3	-	-	-	.01	-	-	-
F	<i>Erigeron sp.</i>	b46	a17	a11	a6	.45	.04	.09	.06
F	<i>Hymenoxys acaulis</i>	-	7	1	4	-	.01	.00	.01
F	<i>Machaeranthera grindelioides</i>	a-	b9	a-	a-	-	.05	.03	.03
F	<i>Penstemon pachyphyllus</i>	b28	b28	a-	a-	.13	.41	-	-

Type	Species	Nested Frequency				Average Cover %			
		'97	'00	'05	'10	'97	'00	'05	'10
F	Phlox longifolia	1	2	-	5	.00	.00	-	.03
F	Schoenocrambe linifolia	ab10	a-	ab3	b11	.04	-	.00	.05
F	Senecio multilobatus	-	3	-	1	-	.01	-	.03
F	Sphaeralcea coccinea	b106	a67	ab81	b110	.74	.36	.89	.90
F	Taraxacum officinale	-	1	-	-	-	.00	-	-
F	Tragopogon dubius	-	3	-	1	-	.01	-	.00
Total for Annual Forbs		3	0	0	25	0.00	0	0	0.07
Total for Perennial Forbs		410	360	172	234	4.18	7.65	2.36	2.34
Total for Forbs		413	360	172	259	4.19	7.65	2.36	2.41

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

BROWSE TRENDS--

Management unit 10R, Study no: 7

Type	Species	Strip Frequency				Average Cover %			
		'97	'00	'05	'10	'97	'00	'05	'10
B	Artemisia frigida	14	24	12	14	.14	.09	.09	.12
B	Artemisia tridentata vaseyana	6	6	5	10	.18	.03	.07	.36
B	Cercocarpus montanus	3	2	2	2	-	-	-	-
B	Chrysothamnus depressus	1	0	0	0	.00	-	-	-
B	Chrysothamnus nauseosus hololeucus	1	5	3	3	.30	.76	1.25	1.01
B	Gutierrezia sarothrae	97	96	87	96	2.33	1.76	1.46	5.03
B	Opuntia sp.	0	0	1	0	-	-	.03	-
Total for Browse		122	133	110	125	2.96	2.65	2.91	6.53

CANOPY COVER, LINE INTERCEPT--

Management unit 10R, Study no: 7

Species	Percent Cover	
	'05	'10
Artemisia frigida	.05	.03
Artemisia tridentata vaseyana	.26	.65
Cercocarpus montanus	-	.01
Chrysothamnus nauseosus hololeucus	.26	1.14
Gutierrezia sarothrae	1.39	3.26

KEY BROWSE ANNUAL LEADER GROWTH--

Management unit 10R, Study no: 7

Species	Average leader growth (in)	
	'05	'10
Artemisia tridentata vaseyana	2.7	1.7
Cercocarpus montanus	1.8	1.9

BASIC COVER--

Management unit 10R, Study no: 7

Cover Type	Average Cover %			
	'97	'00	'05	'10
Vegetation	23.26	32.34	31.30	45.77
Rock	7.60	7.85	6.38	7.92
Pavement	8.05	1.02	3.75	3.73
Litter	24.22	23.26	28.67	33.98
Cryptogams	3.00	6.57	.29	.03
Bare Ground	13.55	26.27	39.65	29.59

SOIL ANALYSIS DATA --

Management unit 10R, Study no: 7, Study Name: Monument Ridge

Effective rooting depth (in)	pH	loam			%OM	PPM P	PPM K	ds/m
		%sand	%silt	%clay				
13.5	7.0	40.0	35.4	24.6	3.5	5.0	115.2	3.3

PELLET GROUP DATA--

Management unit 10R, Study no: 7

Type	Quadrat Frequency				Days use per acre (ha)			
	'97	'00	'05	'10	'97	'00	'05	'10
Rabbit	1	10	53	17	-	-	-	-
Elk	53	65	78	36	166 (410)	72 (177)	94 (231)	34 (84)
Deer	2	5	25	17	-	11 (29)	9 (23)	21 (51)
Cattle	1	1	11	8	20 (50)	-	12 (29)	8 (20)

BROWSE CHARACTERISTICS--

Management unit 10R, Study no: 7

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									
97	380	42	53	5	40	0	0	5	7/8
00	620	42	55	3	40	0	0	3	3/5
05	380	26	74	0	40	0	0	0	4/4
10	700	17	83	0	60	3	23	0	4/7
Artemisia nova									
97	0	0	0	-	-	0	0	0	-/-
00	0	0	0	-	-	0	0	0	-/-
05	0	0	0	-	-	0	0	0	-/-
10	0	0	0	-	-	0	0	0	7/18
Artemisia tridentata vaseyana									
97	120	50	50	-	20	33	0	0	15/22
00	160	38	63	-	-	50	13	0	13/21
05	140	0	100	-	80	14	57	0	16/26
10	300	20	80	-	-	27	47	0	16/27

Year	Plants per Acre (excluding seedlings)	Age class distribution			Seedling (plants/acre)	Utilization			Average Height Crown (in)
		% Young	% Mature	% Decadent		% moderate	% heavy	% poor vigor	
Cercocarpus montanus									
97	60	0	67	33	-	0	100	0	23/37
00	40	0	0	100	-	50	50	50	39/43
05	60	33	33	33	-	0	100	0	33/39
10	60	33	33	33	-	0	67	0	28/37
Chrysothamnus depressus									
97	20	0	100	-	-	0	0	0	-/-
00	0	0	0	-	-	0	0	0	-/-
05	0	0	0	-	-	0	0	0	-/-
10	0	0	0	-	-	0	0	0	-/-
Chrysothamnus nauseosus hololeucus									
97	20	0	0	100	-	0	0	0	15/20
00	120	67	0	33	-	0	0	17	24/33
05	80	0	100	0	-	0	25	0	22/26
10	80	25	75	0	-	50	0	0	22/26
Gutierrezia sarothrae									
97	15900	19	81	0	140	0	0	0	5/5
00	14320	15	81	4	180	0	0	2	4/5
05	11680	29	69	1	2220	0	0	1	5/6
10	16400	23	77	0	1460	3	0	.24	5/6
Opuntia sp.									
97	0	0	0	-	-	0	0	0	-/-
00	0	0	0	-	-	0	0	0	-/-
05	20	0	100	-	-	0	0	0	4/3
10	0	0	0	-	-	0	0	0	5/13
Purshia tridentata									
97	0	0	0	-	-	0	0	0	-/-
00	0	0	0	-	-	0	0	0	-/-
05	0	0	0	-	-	0	0	0	-/-
10	0	0	0	-	-	0	0	0	16/49