

ROCK CREEK - TREND STUDY NO. 9-23-10

Vegetation Type: Mountain Big Sagebrush

Range Type: Crucial Deer Winter, Crucial Elk Summer (Calving habitat)

NRCS Ecological Site Description: Not Available

Land Ownership: Ute Tribe

Elevation: 7147 ft. (2179 m)

Aspect: Southeast

Slope: 6%

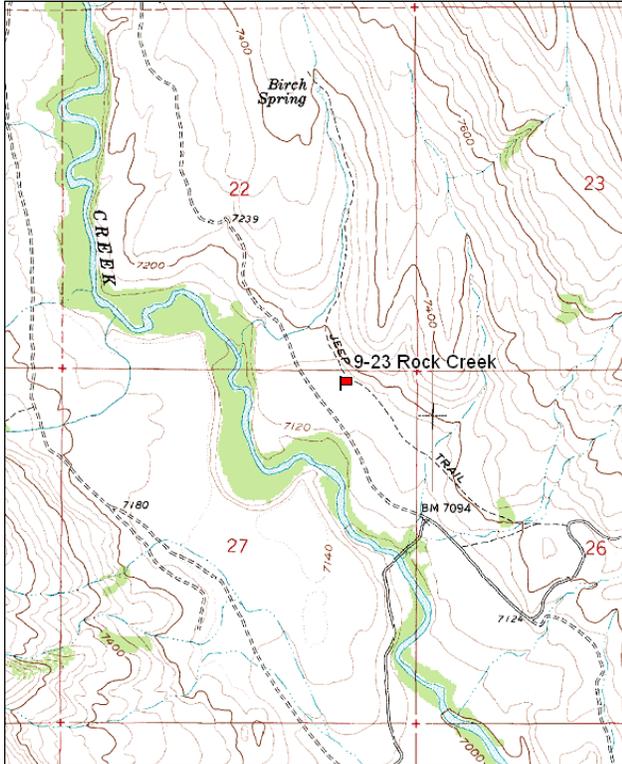
Transect bearing: 330° magnetic

Belt placement: line 1 (11ft), line 2 (34ft), line 3 (59ft), line 4 (71ft), line 5 (95ft). Rebar for belt 4 is on the 2 foot mark.

Directions:

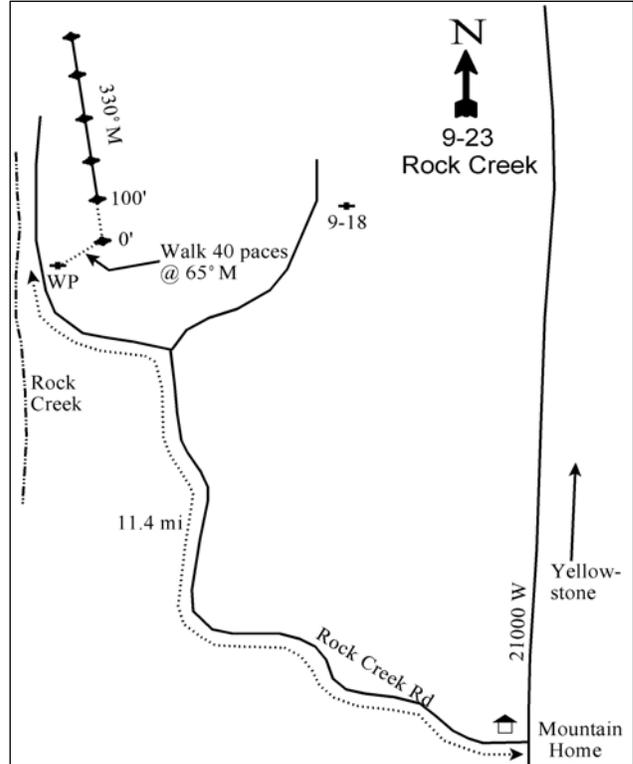
From the corner store in Mountain Home (21000 W and 6750 N), travel 11.4 miles northwest toward Rock Creek. The witness post is on the right (east) side of the road. From the witness post walk 40 paces at 65°M to the 0-foot stake, which is marked by browse tag #9172.

Map Name: Dry Mountain



Township: 1N Range: 6W Section: 27

Diagrammatic Sketch:



GPS: NAD 83, UTM 12T 538384 E 4478840 N

ROCK CREEK - TREND STUDY NO. 9-23

Site Information

Site Description: The study samples a mountain big sagebrush (*Artemisia tridentata* ssp. *vaseyana*) community with scattered pinyon pine (*Pinus edulis*) and Utah juniper (*Juniperus osteosperma*). The land is owned and managed by the Uintah and Ouray Tribes in the McAfee Basin area. The area is on the border between crucial winter and crucial summer range for both deer and elk, and is likely used during both seasons. The area may be inaccessible to wildlife in more severe winters. Pellet group transect data has indicated moderate use by deer and light to moderate use by elk since 2005. Estimated use by cattle has been light since 2005 (Table - Pellet Group Data).

Browse: Mountain big sagebrush is the key browse species, providing nearly all of the browse cover and the majority of the vegetation cover (Table - Browse Trends). Mountain big sagebrush is comprised of a dense stand of fairly large, heavily used plants. Decadence and poor vigor of sagebrush are moderately high, though recruitment of young plants is fairly good. There is also a small population of antelope bitterbrush (*Purshia tridentata*) that displays heavy use. Most of the bitterbrush plants have a prostrate growth form, averaging about one and half feet in height. Other shrubs on the site include shadscale (*Atriplex confertifolia*), rubber rabbitbrush (*Chrysothamnus nauseosus*) and broom snakeweed (*Gutierrezia sarothrae*). Broom snakeweed was fairly abundant in 2005, but decreased substantially in 2010 (Table - Browse Characteristics).

Herbaceous Understory: Grasses are diverse and fairly abundant on the site, and are primarily comprised of native perennial species. Needle-and-thread (*Stipa comata*), bottlebrush squirreltail (*Sitanion hystrix*), mutton bluegrass (*Poa fendleriana*) and Sandberg bluegrass (*P. secunda*) are the dominant perennial grasses. Cheatgrass (*Bromus tectorum*), an annual, was moderately abundant on the site in 2005, but decreased substantially in nested frequency and cover in 2010. Other perennial grass species include thickspike wheatgrass (*Agropyron dasystachyum*), Indian ricegrass (*Oryzopsis hymenoides*) and sedge (*Carex* sp.). Forbs are fairly diverse, but are not abundant on the site. Annual forbs were prevalent in 2005, but decreased substantially in 2010 (Table - Herbaceous Trends).

Soil: Soil texture is a sandy loam with a slightly acidic soil reaction (pH 6.5) (Table - Soil Analysis Data). Bare ground cover is fairly high, especially in the interspaces between shrubs. Vegetation and litter cover are moderate (Table - Basic Cover) and some erosion is noticeable. The soil erosion condition was classified as slight in 2005 and 2010 because of soil and litter movement, slight pedestals around shrubs and flow patterns.

Trend Assessments

Browse:

- **2005 to 2010 - slightly up (+1):** The density of mountain big sagebrush increased by 13% from 3,960 plants/acre to 4,480 plants/acre, though cover remained similar. Recruitment of young sagebrush plants increased from 3% to 13%. Decadence and poor vigor decreased slightly, but both remained moderately high at 27% and 18%, respectively.

Grass:

- **2005 to 2010 - up (+2):** The perennial grass sum of nested frequency increased by 21% with a slight increase in cover from 12% to 13%. Cheatgrass decreased significantly in nested frequency and cover decreased from 4% to less than 1%.

Forb:

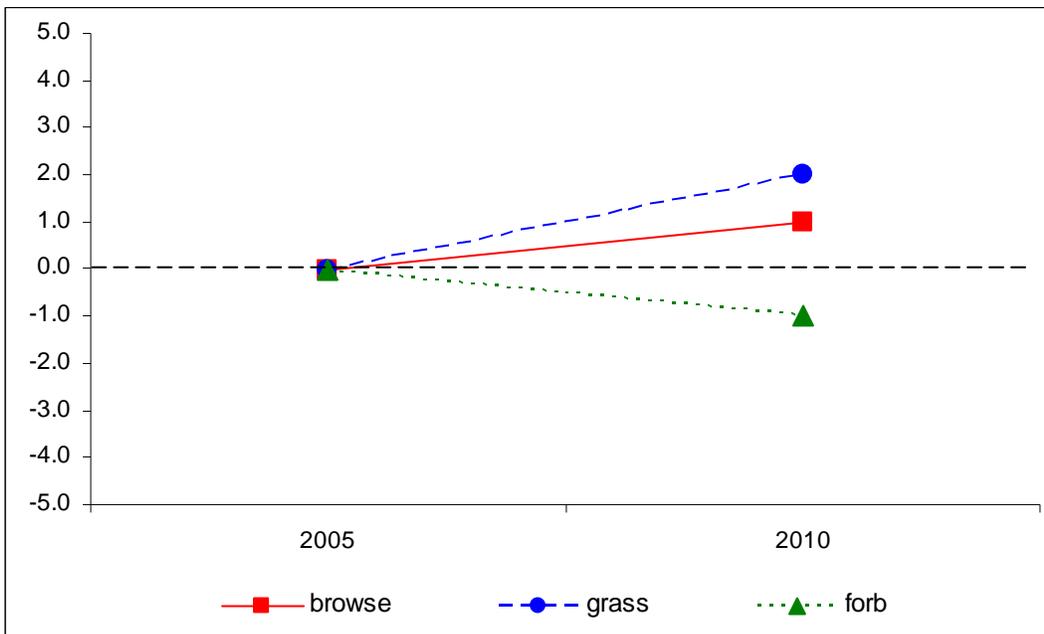
- **2005 to 2010 - slightly down (-1):** The perennial forb sum of nested frequency decreased by 23%, but forbs were already rare on the site. Cover of perennial forbs decreased from 2% to less than 1%. Annual forbs also decreased substantially on the site.

DEER DESIRABLE COMPONENTS INDEX - MID-LEVEL POTENTIAL SCALE --
 Management unit 9, study no: 23

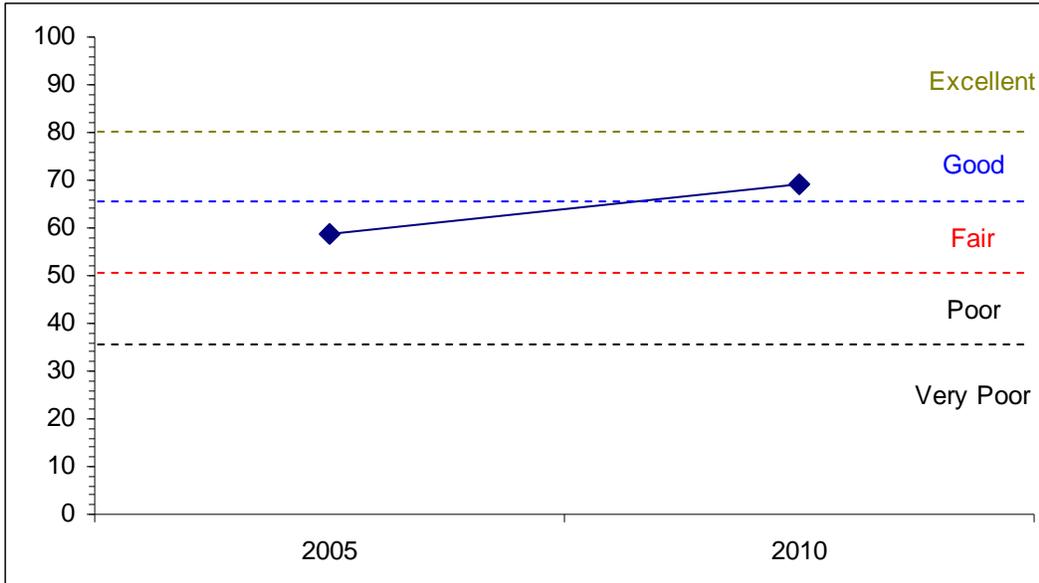
Year	Preferred Browse Cover	Preferred Browse Decadence	Preferred Browse Young	Perennial Grass Cover	Annual Grass Cover	Perennial Forb Cover	Noxious Weeds	Total Score	Ranking
05	27.2	5.4	1.8	24.1	-3.1	3.1	0.0	58.6	Fair
10	28.6	7.6	6.1	25.4	-0.1	1.3	0.0	69.0	Good

Trend Summary

CUMULATIVE RANGE TREND ASSESSMENT--
 Management unit 9, Study no: 23



DEER DESIRABLE COMPONENTS INDEX TREND, MID-LEVEL POTENTIAL--
 Management unit 9, Study no: 23



HERBACEOUS TRENDS--
 Management unit 09, Study no: 23

Type	Species	Nested Frequency		Average Cover %	
		'05	'10	'05	'10
G	Agropyron cristatum	-	4	-	.01
G	Agropyron dasystachyum	73	58	.71	.52
G	Agropyron spicatum	5	6	.03	.04
G	Bouteloua gracilis	3	6	.03	.03
G	Bromus tectorum (a)	_b 154	_a 35	3.60	.10
G	Carex sp.	_a 31	_b 86	.20	.93
G	Koeleria cristata	2	7	.00	.39
G	Oryzopsis hymenoides	5	7	.18	.06
G	Poa fendleriana	_a 7	_b 76	.27	1.34
G	Poa secunda	157	116	2.47	.80
G	Sitanion hystrix	_b 81	_a 57	1.96	1.41
G	Stipa comata	_a 138	_b 179	6.00	6.99
G	Stipa lettermani	1	5	.15	.15
G	Vulpia octoflora (a)	_b 146	_a 5	.47	.01
Total for Annual Grasses		300	40	4.07	0.11
Total for Perennial Grasses		503	607	12.03	12.71
Total for Grasses		803	647	16.11	12.82
F	Allium sp.	_b 51	_a 18	.26	.04
F	Astragalus convallarius	3	1	.18	.01
F	Astragalus sp.	2	3	.00	.00
F	Calochortus nuttallii	2	-	.00	-
F	Chaenactis douglasii	-	4	-	.01
F	Chenopodium leptophyllum(a)	-	4	-	.01
F	Collomia linearis (a)	7	-	.04	-

Type	Species	Nested Frequency		Average Cover %	
		'05	'10	'05	'10
F	<i>Comandra pallida</i>	17	18	.69	.33
F	<i>Cordylanthus</i> sp. (a)	2	-	.00	-
F	<i>Cryptantha</i> sp.	5	1	.04	.03
F	<i>Delphinium nuttallianum</i>	1	-	.00	-
F	<i>Descurainia pinnata</i> (a)	6	-	.01	-
F	<i>Draba</i> sp. (a)	11	-	.04	-
F	<i>Erigeron pumilus</i>	7	5	.12	.04
F	<i>Gayophytum ramosissimum</i> (a)	_b 36	_a 3	.08	.00
F	<i>Gilia</i> sp. (a)	_b 71	_a 1	.25	.00
F	<i>Lappula occidentalis</i> (a)	9	7	.02	.01
F	<i>Machaeranthera grindelioides</i>	1	9	.00	.04
F	<i>Microsteris gracilis</i> (a)	22	27	.11	.05
F	<i>Penstemon watsonii</i>	7	-	.09	-
F	<i>Plantago patagonica</i> (a)	_b 128	_a 30	.41	.09
F	<i>Polygonum douglasii</i> (a)	_b 78	_a 15	.20	.07
F	<i>Schoenrambe linifolia</i>	3	9	.01	.04
F	<i>Sphaeralcea coccinea</i>	12	18	.10	.12
Total for Annual Forbs		370	87	1.18	0.25
Total for Perennial Forbs		111	86	1.53	0.67
Total for Forbs		481	173	2.71	0.92

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

BROWSE TRENDS--

Management unit 09, Study no: 23

Type	Species	Strip Frequency		Average Cover %	
		'05	'10	'05	'10
B	<i>Artemisia tridentata vaseyana</i>	85	95	20.43	20.57
B	<i>Atriplex confertifolia</i>	3	0	-	-
B	<i>Chrysothamnus nauseosus</i>	1	1	.15	-
B	<i>Eriogonum corymbosum</i>	1	0	-	-
B	<i>Gutierrezia sarothrae</i>	33	12	1.83	.04
B	<i>Opuntia</i> sp.	32	35	.62	.42
B	<i>Purshia tridentata</i>	13	13	1.14	1.95
Total for Browse		168	156	24.18	22.99

CANOPY COVER, LINE INTERCEPT--

Management unit 09, Study no: 23

Species	Percent Cover	
	'05	'10
Artemisia tridentata vaseyana	26.91	27.20
Chrysothamnus nauseosus	-	.10
Eriogonum corymbosum	.08	-
Gutierrezia sarothrae	1.33	.13
Opuntia sp.	.58	.58
Purshia tridentata	2.34	2.58

KEY BROWSE ANNUAL LEADER GROWTH--

Management unit 09, Study no: 23

Species	Average leader growth (in)	
	'05	'10
Artemisia tridentata vaseyana	1.5	1.3
Purshia tridentata	3.0	3.1

BASIC COVER--

Management unit 09, Study no: 23

Cover Type	Average Cover %	
	'05	'10
Vegetation	35.58	38.11
Rock	2.58	3.35
Pavement	.46	1.23
Litter	36.63	47.40
Cryptogams	3.44	1.34
Bare Ground	38.35	28.14

SOIL ANALYSIS DATA --

Management unit 9, Study no: 23, Study Name: Rock Creek

Effective rooting depth (in)	pH	sandy clay loam			%OM	PPM P	PPM K	ds/m
		%sand	%silt	%clay				
10.8	6.6	55.1	13.8	31.1	1.8	14.4	147.2	0.4

PELLET GROUP DATA--

Management unit 09, Study no: 23

Type	Quadrat Frequency		Days use per acre (ha)	
	'05	'10	'05	'10
Rabbit	45	23	-	-
Elk	7	3	22 (55)	9 (22)
Deer	51	23	48 (119)	36 (88)
Cattle	-	1	-	7 (18)

BROWSE CHARACTERISTICS--
Management unit 09, Study no: 23

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 vaseyana</i>									
05	3960	3	65	32	2820	26	41	20	23/36
10	4480	13	60	27	240	27	46	18	23/37
<i>Atriplex confertifolia</i>									
05	100	20	80	-	-	80	0	0	-/-
10	0	0	0	-	-	0	0	0	-/-
<i>Chrysothamnus nauseosus</i>									
05	20	0	0	100	-	0	0	100	17/38
10	20	0	0	100	-	0	0	100	25/23
<i>Chrysothamnus viscidiflorus viscidiflorus</i>									
05	0	0	0	-	-	0	0	0	11/8
10	0	0	0	-	-	0	0	0	-/-
<i>Eriogonum corymbosum</i>									
05	20	0	100	-	-	0	0	0	-/-
10	0	0	0	-	-	0	0	0	-/-
<i>Gutierrezia sarothrae</i>									
05	1700	1	96	2	-	0	0	1	9/11
10	320	19	81	0	-	0	0	0	8/9
<i>Leptodactylon pungens</i>									
05	0	0	0	-	-	0	0	0	-/-
10	0	0	0	-	-	0	0	0	13/15
<i>Opuntia sp.</i>									
05	1540	1	97	1	-	0	0	0	3/6
10	1180	7	93	0	160	0	0	0	2/8
<i>Pediocactus simpsonii</i>									
05	0	0	0	-	-	0	0	0	3/4
10	0	0	0	-	-	0	0	0	5/5
<i>Purshia tridentata</i>									
05	420	14	57	29	-	29	62	14	21/37
10	500	4	96	0	-	8	64	0	16/32