Trend Study 10R-20-00

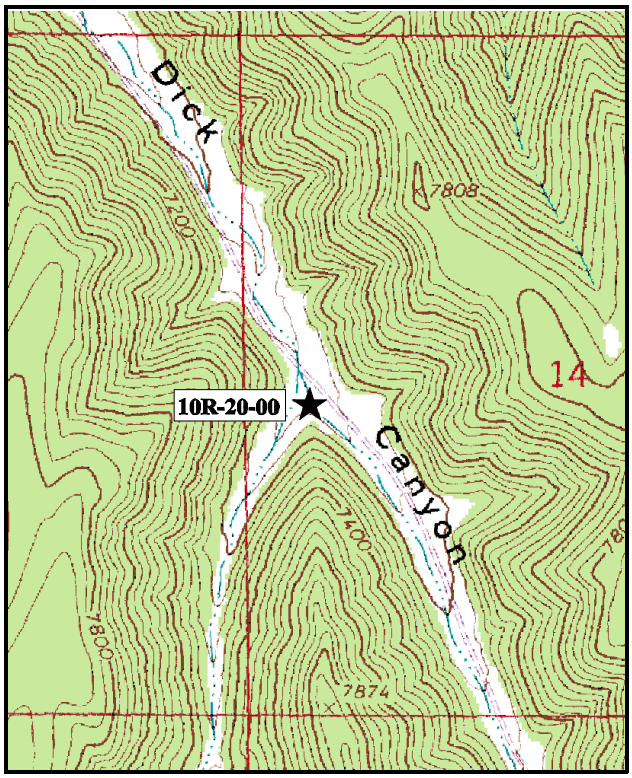
Study site name: Dick Canyon . Range type: Perennial Grass.

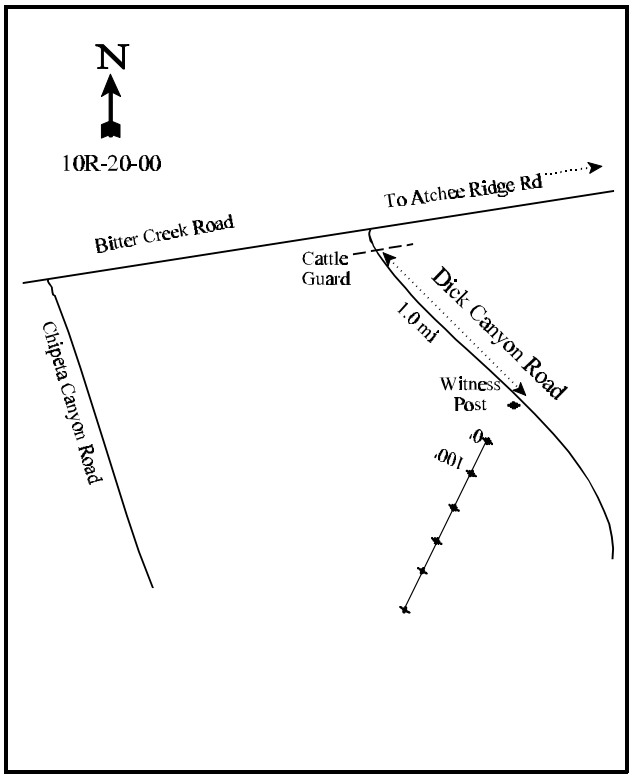
Compass bearing: frequency baseline 196°M.

Footmark (first frame placement) 5 feet, footmarks (frequency belts) line 1(11ft), line 2(34 ft), line 3(59 ft), line 4(71 ft) line 5 (95 ft).

LOCATION DESCRIPTION

From the cattle guard at the mouth of Dick Canyon travel 1 mile to a witness post on the right side of the road. From the witness post the 0' stake is 60 paces at 186°M and is marked with browse tag # 104.





Map name: Rathole Ridge

Diagrammatic Sketch

Township 15 S , Range 25 E , Section 14 .

UTM 4375128.746 N, 663954.545 E

DISCUSSION

Trend Study No. 10R-20

The Dick Canyon trend study was established in 1998 as a special studies site to address perceived conflicts over elk and livestock use in the North Book Cliffs. It samples a perennial grass canyon bottom in Dick Canyon. It has a northeast aspect with a 5% slope and an elevation of 7,000 feet. This area is classified as transitional range for deer and elk. Pellet group data from 1998 estimated 13 elk days use/acre (32 edu/ha) and 26 cow days use/acre (64 cdu/ha). Pellet group transect data in 2000 estimate 1 deer day use/acre (2 ddu/ha), 25 elk days use/acre (62 edu/ha) and 3 cow days use/acre (7 cdu/ha). This area is within the Atchee Ridge allotment which permits cattle grazing from June through September on a deferred rest rotation basis.

Soils on the site have a sandy loam texture with an average temperature of 64°F at nearly 18 inches. Soils are neutral (pH of 6.8). The soil is moderately deep with an estimated effective rooting depth of over 18 inches. There is very little rock or pavement on the surface or within the profile. The estimated stoniness index profile is more a measure of compaction than actual presence of rock on this site. Bare ground provides less than 1% cover in 2000, with most of this being the result of rodent activity. Vegetation and litter cover is high which keeps erosion at minimal levels.

Browse on this site is minimal. Basin big sagebrush and white-stemmed rubber rabbitbrush are present in the canyon bottom with a few young aspen being found near the canyon walls. A few elderberry and snowberry were measured for height and crown but not sampled within the shrub density strips in 2000. Basin big sagebrush is estimated at 120 plants/acre in 2000, with half of the population coming from young plants. Decadency is moderately high at 33%, but vigor is good and use is light. White-stemmed rubber rabbitbrush was estimated at only 20 plant/acre in 1998, increasing to 260 plants/acre in 2000. This increase in density is due to a large number of young plants sampled in the population in 2000 (200 plants/acre) which gives this species a 77% recruitment level. Use is currently light and vigor good with a low rate of decadency.

By far, the dominant vegetation at the Dick Canyon transect is perennial grass. Six perennial grasses were sampled in 1998 and five species in 2000. Together, perennial grasses provide at least 80% of the total vegetative cover in both 1998 and 2000. The most abundant species are Kentucky bluegrass and Great Basin wildrye. Kentucky bluegrass provided 34% average cover in 1998, and over 25% average cover in 2000. Basin wildrye provided 17% cover in 1998 and 15% cover in 2000. Other perennial grasses include: thickspike wheatgrass, subalpine needlegrass, and needle-and-thread. Perennial grasses as a group slightly increased in sum of nested frequency in 2000. Forbs are also fairly abundant and provide nearly 10% average cover in 2000, representing 16% of the total vegetative cover at this site. The most abundant species are pale agoseris, dandelion, and yarrow. Perennial forbs also increased in sum of nested frequency in 2000. Utilization was not apparent on any herbaceous species in 2000.

1998 APPARENT TREND ASSESSMENT

Soils appear to be stable and in good condition with high vegetation and litter cover from perennial herbaceous species and very low bare ground. Browse at this site is sparse and of less importance than at other sites. Basin big sagebrush and white-stemmed rubber rabbitbrush are the main species, but these occur at very low densities. The herbaceous understory is dominant and very abundant and is the key component in this community. Perennial species dominate and provide good forage and cover.

2000 TREND ASSESSMENT

Trend for soil is stable with vegetation and litter cover remaining very high with little bare ground present. Trend for browse is slightly up with good recruitment from basin big sagebrush and white-stemmed rubber rabbitbrush. Both of these species have increased densities from the influx of young plants. Trend for the herbaceous understory is slightly up with the increase in sum of nested frequencies for perennial grasses and forbs.

TREND ASSESSMENT
soil - stable (3)
browse - slightly up (4)
herbaceous understory - slightly up (4)

HERBACEOUS TRENDS --
Herd unit 10R, Study no: 20

Type	Species	Nested Frequency		Quadrat Frequency		Average Cover %	
		'98	'00	'98	'00	'98	'00
G	Agropyron dasystachyum	179	166	55	56	5.12	2.30
G	Aristida purpurea	3	-	1	-	.03	-
G	Elymus cinereus	140	157	41	46	17.52	15.36
G	Poa pratensis	459	450	100	99	34.06	25.43
G	Stipa columbiana	1	*17	1	6	.00	.75
G	Stipa comata	47	47	16	18	1.59	3.01
Total for Annual Grasses		0	0	0	0	0	0
Total for Perennial Grasses		829	837	214	225	58.33	46.88
Total for Grasses		829	837	214	225	58.33	46.88
F	Achillea millefolium	32	59	14	24	.46	.68
F	Agoseris glauca	222	*262	82	90	7.82	6.64
F	Androsace septentrionalis (a)	-	5	-	1	-	.00
F	Artemisia dracunculus	13	7	5	5	.22	.20
F	Cirsium spp.	3	3	1	1	.03	.00
F	Lathyrus brachycalyx	2	-	1	-	.03	.00
F	Lappula occidentalis (a)	1	-	1	-	.00	-
F	Oenothera spp.	9	11	5	6	.19	.03
F	Penstemon spp.	-	1	-	1	-	.03
F	Phlox longifolia	-	*6	-	6	-	.03
F	Potentilla spp.	2	*9	1	3	.15	.18
F	Taraxacum officinale	63	*104	24	41	1.05	1.55
F	Tragopogon dubius	31	*9	15	4	.46	.07
F	Unknown forb-perennial	42	*-	16	-	.62	-

Type	Species	Nested Frequency '98	Nested Frequency '00	Quadrat Frequency '98	Quadrat Frequency '00	Average Cover % '98	Average Cover % '00
Total for Annual Forbs		1	5	1	1	0.00	0.00
Total for Perennial Forbs		419	471	164	181	11.05	9.44
Total for Forbs		420	476	165	182	11.06	9.45

* Indicates significant difference at % = 0.10

BROWSE TRENDS --
Herd unit 10R, Study no: 20

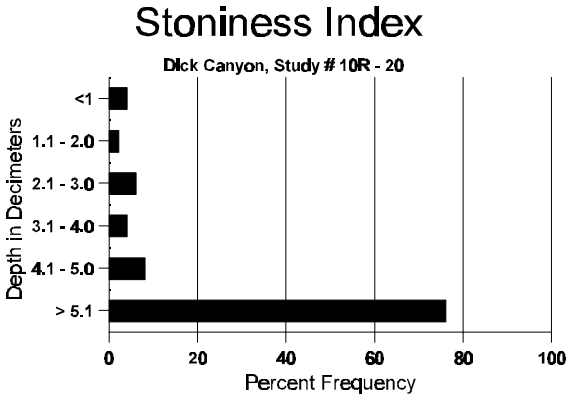
Type	Species	Strip Frequency '98	Strip Frequency '00	Average Cover % '98	Average Cover % '00
B	Artemisia tridentata tridentata	4	6	.18	1.14
B	Chrysothamnus nauseosus hololeucus	1	7	1.00	1.25
B	Populus tremuloides	1	0	.15	.00
Total for Browse		6	13	1.33	2.40

BASIC COVER --
Herd unit 10R, Study no: 20

Cover Type	Nested Frequency '98	Nested Frequency '00	Average Cover % '98	Average Cover % '00
Vegetation	490	490	67.69	65.13
Rock	12	-	.12	0
Pavement	40	9	.49	.04
Litter	498	497	80.58	89.56
Cryptogams	2	-	.03	0
Bare Ground	57	29	2.04	.56

SOIL ANALYSIS DATA --
Herd Unit 10R, Study # 20, Study Name: Dick Canyon

Effective rooting depth (inches)	Temp °F (depth)	pH	%sand	%silt	%clay	%0M	PPM P	PPM K	dS/m
18.3	64.4 (17.7)	6.8	56.0	31.4	12.6	3.8	12.6	214.4	.9



PELLET GROUP FREQUENCY --
Herd unit 10R, Study no: 20

Type	Quadrat Frequency		Pellet Transect			
			Pellet Groups per Acre		Days Use per Acre (ha)	
	'98	'00	'98	'00	'98	'00
Elk	2	4	165	322	13 (31)	25 (62)
Deer	-	-	-	9	-	1 (2)
Cattle	3	2	313	35	26 (64)	3 (12)

BROWSE CHARACTERISTICS --
Herd unit 10R, Study no: 20

AGE	YR	Form Class (No. of Plants) 1	2	3	4	5	6	7	8	9	Vigor Class 1	2	3	4	Plants Per Acre	Average (inches) Ht.	Cr.	Total
Artemisia tridentata tridentata																		
Y	98	1	-	-	-	-	-	-	-	-	1	-	-	-	20			1
	00	3	-	-	-	-	-	-	-	-	3	-	-	-	60			3
M	98	2	-	-	-	-	-	-	-	-	2	-	-	-	40	43	37	2
	00	1	-	-	-	-	-	-	-	-	1	-	-	-	20	47	43	1
D	98	1	-	-	-	-	-	-	-	-	-	-	-	1	20			1
	00	1	-	-	1	-	-	-	-	-	2	-	-	-	40			2
X	98	-	-	-	-	-	-	-	-	-	-	-	-	-	80			4
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	40			2

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'98	00%	00%	25%	+33%
'00	00%	00%	00%	

Total Plants/Acre (excluding Dead & Seedlings) '98 80 Dec: 25%
'00 120 33%

AGE	YR	Form Class (No. of Plants) 1	2	3	4	5	6	7	8	9	Vigor Class 1	2	3	4	Plants Per Acre	Average (inches) Ht.	Cr.	Total
Chrysothamnus nauseosus hololeucus																		
Y	98	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	00	9	-	-	1	-	-	-	-	-	10	-	-	-	200			10
M	98	1	-	-	-	-	-	-	-	-	1	-	-	-	20	36	56	1
	00	2	-	-	-	-	-	-	-	-	2	-	-	-	40	47	55	2
D	98	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	00	-	-	-	1	-	-	-	-	-	1	-	-	-	20			1
X	98	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	20			1

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'98	00%	00%	00%	+92%
'00	00%	00%	00%	

Total Plants/Acre (excluding Dead & Seedlings)				
'98	20	Dec:		0%
'00	260			8%

Populus tremuloides																		
S	98	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	00	2	-	-	-	-	-	-	-	-	2	-	-	-	40			2
Y	98	-	-	-	1	-	-	-	-	-	1	-	-	-	20			1
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'98	00%	00%	00%	
'00	00%	00%	00%	

Total Plants/Acre (excluding Dead & Seedlings)			
'98	20	Dec:	-
'00	0		-

Sambucus racemosa																		
M	98	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	0	45	10	0

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'98	00%	00%	00%	
'00	00%	00%	00%	

Total Plants/Acre (excluding Dead & Seedlings)			
'98	0	Dec:	-
'00	0		-

Symphoricarpos oreophilus																		
M	98	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	0	26	23	0

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'98	00%	00%	00%	
'00	00%	00%	00%	

Total Plants/Acre (excluding Dead & Seedlings)			
'98	0	Dec:	-
'00	0		-