

Trend Study 10R-6-00

Study site name: Sweetwater Canyon .

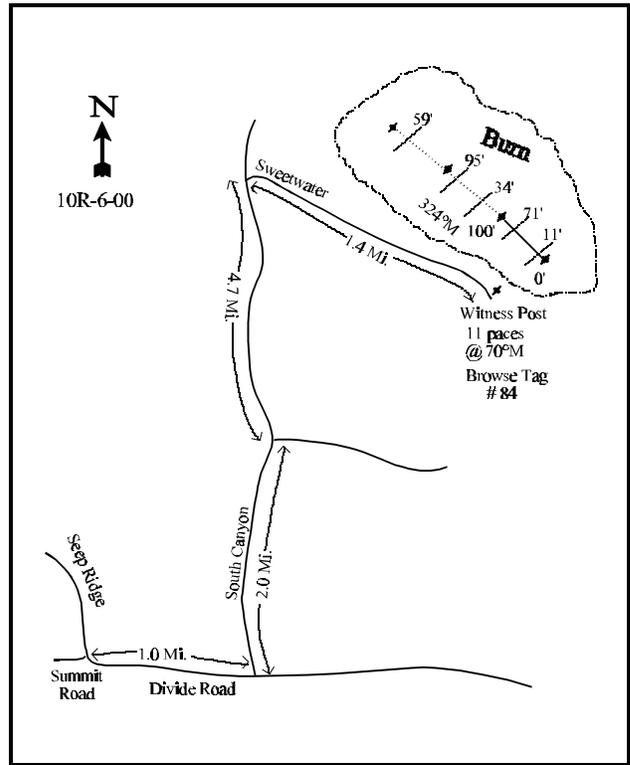
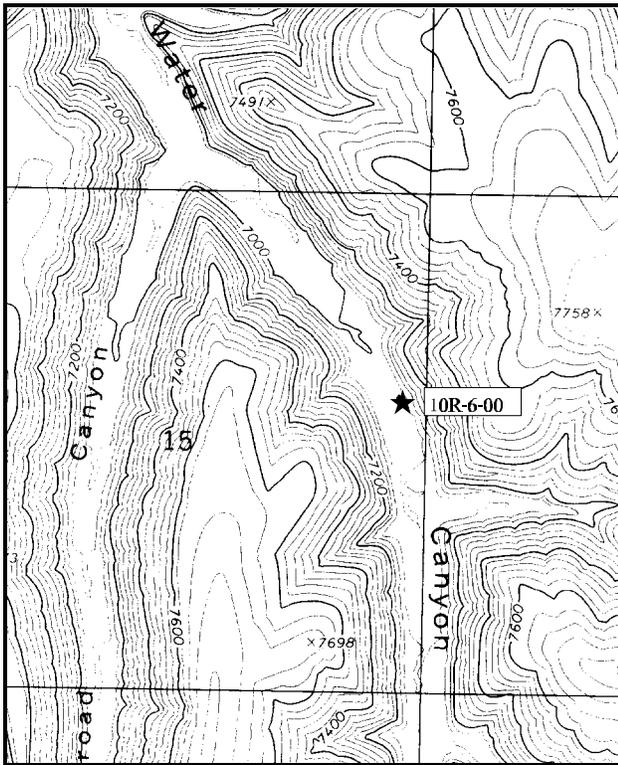
Range type: Burned-Seeded Grass

Compass bearing: frequency baseline 324°M.

Footmark (first frame placement) 5 feet. Frequency belt placement; line 1 (11 & 71ft), line 2 (34 & 95ft), line 3 (59ft).

LOCATION DESCRIPTION

From the intersection of Seep Ridge Road, Summit Road and Divide Road, take Divide Road 1 mile to South Canyon. Turn left and drive 2.0 miles to an intersection. Go straight 4.7 miles to another intersection. Turn right and travel 1.4 miles up Sweetwater Canyon to a witness post on the left (north) side of the road. From the witness post walk 11 paces at 70°M to the 0-foot stake. The study is marked with green, steel fenceposts and the 0-foot stake is marked with browse tag # 84.



Map name: Tom Patterson Canyon

Diagrammatic Sketch

Township 15S, Range 24E, Section 15

UTM 4375016.455 N, 654114.363 E

DISCUSSION

Trend Study 10R-6

The Sweetwater Canyon study is located in the bottom of the canyon in an area that was previously dominated by basin big sagebrush then burned and seeded. The canyon has very steep sides covered mostly with conifers. Slope at the study site is 3-5% with a northwest aspect at an elevation of 6,800 feet. The burned area is small, about 350 feet x 100 feet. At the time the study was established in June of 1997, some water was running down the canyon with the main channel about 300 feet away. Grazing will likely be concentrated in this burn due to the lack of any significant understory in the surrounding basin big sagebrush. Pellet group data from 1997 estimated 25 elk days/acre and 135 cow days/acre (62 edu/ha and 333 cdu/ha). Data from 2000 estimate 19 elk days use/acre (47 edu/ha) which appeared to be from the previous winter. Some cattle pats were observed (23 cow days use/acre, 57 cdu/ha), but all appeared to be from the previous summer. This area is within the Sweetwater allotment which permits cattle grazing from June through September on a deferred rest rotation basis.

The soil is relatively deep and sandy with an effective rooting depth (see methods) of nearly 37 inches. It has a sandy clay loam texture and a slightly alkaline soil reaction (pH of 7.4). There were no rocks encountered in the profile and the upper 4-6 inch layer had a thick mat of roots. Due to abundant vegetative and litter cover and the lack of bare ground, erosion is not a concern.

The most abundant browse is fringed sagebrush with an estimated density of 3,200 plants/acre in 1997 and 3,180 in 2000. These plants are scattered throughout the burn and average less than a foot in height. In contrast, basin big sagebrush was encountered mostly around the edges of the burn where the fire was not as intense. It has a moderate density of around 2,500 plants/acre and it provides most of the shrub cover (75% in 1997, 85% in 2000). Sagebrush is vigorous and mostly unutilized. During the 2000 reading, several mature sagebrush were apparently girdled by voles and most of the dead plants sampled were girdled. Rubber rabbitbrush was also encountered but is in low abundance and similarly distributed like basin big sagebrush, being sampled mostly around the edges of the burn.

Perennial seeded and native grasses dominate the burned area. Seventy-nine percent to 85% of the total vegetative cover is contributed by four grass species; crested and thickspike wheatgrass, smooth brome, and Kentucky bluegrass. Other perennial species include: Russian wildrye, needle-and-thread grass, Sandberg bluegrass, and basin wildrye. A few forbs are present in very small numbers due to the thick grass cover. All forbs combined produced only about 2% cover in 1997 and less than 1% in 2000.

1997 APPARENT TREND ASSESSMENT

This deep soil is well protected by a dense stand of grass and the associated litter. There is no current erosion evident. The fringed sagebrush density is not high at this time with the very competitive grass cover. Biotic potential for fringed sagebrush is low with very few seedling sampled. Basin big sagebrush was encountered around the edges of the burn where the fire was not as intense. Eighty-five percent of this population was classified as young and only one burned stump was encountered in the burn itself. This site has an excellent stand of mixed grasses. Smooth brome and Kentucky bluegrass are known to compete extremely well with other plants and may eventually dominate the site. The mixture at this site will likely keep it from being dominated by any one species. The most abundant forbs are weedy increasers that will also most likely be crowded out by this dense stand of perennial grasses.

2000 TREND ASSESSMENT

Trend for soil is stable with abundant herbaceous vegetation and litter cover to prevent any noticeable erosion. Trend for browse is stable for fringed and basin big sagebrush. These are vigorous and mostly unutilized. Young plants are not as numerous as 1997 estimates, but they are still abundant. Trend for the herbaceous understory is stable with similar sum of nested frequencies of perennial grasses and forbs compared to 1997. Composition of the grasses has changed with a significant decline in the frequency of thickspike wheatgrass and a significant increase in smooth brome and crested wheatgrass. Perennial forbs are still limited and produce little cover.

TREND ASSESSMENT

soil - stable (3)

browse - stable (3)

herbaceous understory - stable (3)

HERBACEOUS TRENDS --

Herd unit 10R, Study no: 6

Type	Species	Nested Frequency		Quadrat Frequency		Average Cover %	
		'97	'00	'97	'00	'97	'00
G	Agropyron cristatum	278	*359	80	92	15.14	18.80
G	Agropyron dasystachyum	252	*91	67	35	6.51	2.19
G	Bromus inermis	108	*163	32	44	6.04	9.76
G	Bromus tectorum (a)	20	*-	7	-	.11	-
G	Elymus cinereus	1	4	1	2	.04	.17
G	Elymus junceus	13	15	6	5	.39	.36
G	Poa fendleriana	-	7	-	2	-	.18
G	Poa pratensis	109	67	35	21	4.51	1.50
G	Poa secunda	20	14	8	6	.33	.10
G	Stipa comata	21	18	8	8	.38	.55
Total for Annual Grasses		20	0	7	0	0.10	0
Total for Perennial Grasses		802	738	237	215	33.38	33.64
Total for Grasses		822	738	244	215	33.49	33.64
F	Artemisia ludoviciana	3	5	1	2	.03	.06
F	Astragalus spp.	-	-	-	-	.03	-
F	Balsamorhiza sagittata	1	-	1	-	.00	-
F	Descurainia pinnata (a)	8	*-	4	-	.02	-
F	Lappula occidentalis (a)	114	*3	46	3	.79	.01
F	Penstemon spp.	-	2	-	1	-	.00
F	Potentilla pennsylvanica	12	*6	7	3	.11	.04
F	Senecio multilobatus	-	5	-	2	-	.01
F	Taraxacum officinale	60	48	24	18	.91	.63

T y p e	Species	Nested Frequency		Quadrat Frequency		Average Cover %	
		'97	'00	'97	'00	'97	'00
F	Tragopogon dubius	18	18	9	8	.07	.04
	Total for Annual Forbs	122	3	50	3	0.81	0.01
	Total for Perennial Forbs	94	84	42	34	1.16	0.79
	Total for Forbs	216	87	92	37	1.98	0.81

* Indicates significant difference at % = 0.10

BROWSE TRENDS --

Herd unit 10R, Study no: 6

T y p e	Species	Strip Frequency		Average Cover %	
		'97	'00	'97	'00
B	Artemisia frigida	49	46	.56	.89
B	Artemisia tridentata tridentata	38	40	1.92	5.42
B	Chrysothamnus nauseosus hololeucus	6	9	.07	.07
	Total for Browse	93	95	2.56	6.38

BASIC COVER --

Herd unit 10R, Study no: 6

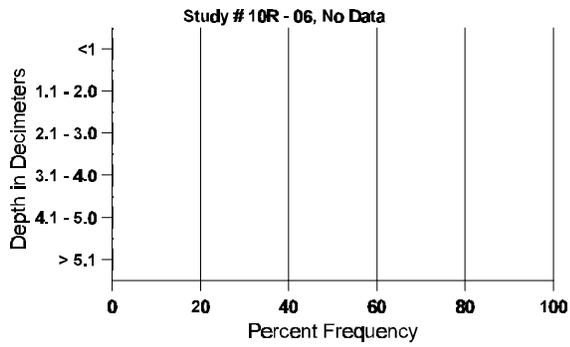
Cover Type	Nested Frequency		Average Cover %	
	'97	'00	'97	'00
Vegetation	462	444	41.25	48.75
Rock	23	10	.08	.05
Pavement	116	56	1.18	.26
Litter	500	489	61.65	67.43
Cryptogams	54	13	.45	.26
Bare Ground	209	230	7.31	15.60

SOIL ANALYSIS DATA --

Herd Unit 10R, Study no: 06

Effective rooting depth (inches)	Temp °F (depth)	PH	%sand	%silt	%clay	%OM	PPM P	PPM K	dS/m
36.7	61.5 (17.7)	7.4	53.6	32.2	14.2	2.43	11.31	230.4	0.51

Stoniness Index



PELLET GROUP FREQUENCY --

Herd unit 10R, Study no: 6

Type	Quadrat Frequency		Pellet Transect			
	'97	'00	Pellet Groups per Acre		Days Use per Acre (ha)	
			'97	'00	'97	'00
Rabbit	-	17	-	618	-	N/A
Elk	9	20	322	252	25 (62)	19 (48)
Deer	1	-	-	9	-	1 (2)
Cattle	27	17	922	270	135 (334)	23 (56)

BROWSE CHARACTERISTICS --

Herd unit 10R, Study no: 6

A G E	Y R	Form Class (No. of Plants)									Vigor Class				Plants Per Acre	Average (inches) Ht. Cr.		Total
		1	2	3	4	5	6	7	8	9	1	2	3	4		7	8	
Artemisia frigida																		
S	97	10	-	-	-	-	-	-	-	-	10	-	-	-	200			10
	00	1	-	-	-	-	-	-	-	-	1	-	-	-	20			1
Y	97	49	-	-	-	-	-	-	-	-	49	-	-	-	980			49
	00	17	-	-	3	-	-	-	-	-	20	-	-	-	400			20
M	97	111	-	-	-	-	-	-	-	-	111	-	-	-	2220	10	7	111
	00	126	11	-	2	-	-	-	-	-	139	-	-	-	2780	7	8	139
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>				<u>% Change</u>						
'97		00%			00%			00%				- 1%						
'00		07%			00%			00%										
Total Plants/Acre (excluding Dead & Seedlings)												'97	3200	Dec:	-			
												'00	3180		-			

A G R E	Y R	Form Class (No. of Plants)									Vigor Class				Plants Per Acre	Average (inches) Ht. Cr.		Total
		1	2	3	4	5	6	7	8	9	1	2	3	4				
<i>Artemisia tridentata tridentata</i>																		
S	97	44	-	-	-	-	-	-	-	-	44	-	-	-	880		44	
	00	6	-	-	-	-	-	-	-	-	6	-	-	-	120		6	
Y	97	94	-	-	-	-	-	-	-	-	94	-	-	-	1880		94	
	00	44	-	-	-	-	-	-	-	-	43	1	-	-	880		44	
M	97	16	-	-	-	-	-	-	-	-	16	-	-	-	320	42	37	
	00	93	-	-	-	-	-	-	-	-	91	2	-	-	1860	33	26	
D	97	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	00	1	-	-	-	-	-	-	-	-	1	-	-	-	20		1	
X	97	-	-	-	-	-	-	-	-	-	-	-	-	-	20		1	
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	60		3	
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'97		00%			00%			00%			+20%							
'00		00%			00%			00%										
Total Plants/Acre (excluding Dead & Seedlings)												'97	2200	Dec:	0%			
												'00	2760		1%			
<i>Chrysothamnus nauseosus hololeucus</i>																		
S	97	1	-	-	-	-	-	-	-	-	1	-	-	-	20		1	
	00	1	-	-	-	-	-	-	-	-	1	-	-	-	20		1	
Y	97	8	-	-	-	-	-	-	-	-	8	-	-	-	160		8	
	00	2	-	-	-	-	-	-	-	-	2	-	-	-	40		2	
M	97	1	-	-	-	-	-	-	-	-	1	-	-	-	20	30	25	
	00	2	3	-	1	-	-	-	-	-	6	-	-	-	120	37	39	
D	97	1	-	-	-	-	-	-	-	-	1	-	-	-	20		1	
	00	-	2	-	-	-	-	2	-	-	2	-	-	2	80		4	
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'97		00%			00%			00%			+17%							
'00		42%			00%			17%										
Total Plants/Acre (excluding Dead & Seedlings)												'97	200	Dec:	10%			
												'00	240		33%			
<i>Symphoricarpos oreophilus</i>																		
M	97	-	-	-	-	-	-	-	-	-	-	-	-	-	0	18	38	
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'97		00%			00%			00%										
'00		00%			00%			00%										
Total Plants/Acre (excluding Dead & Seedlings)												'97	0	Dec:	-			
												'00	0		-			