

Trend Study 18A-28-97

Study site name: Condie Meadows.

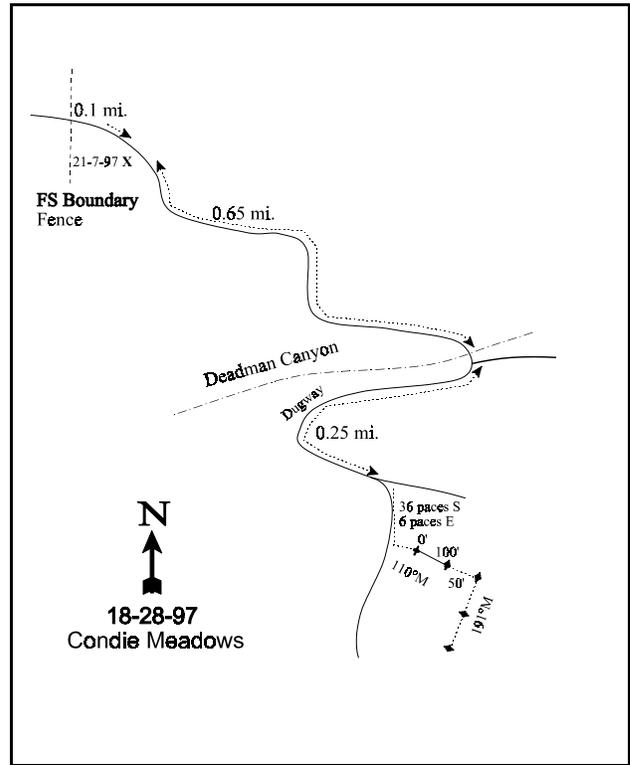
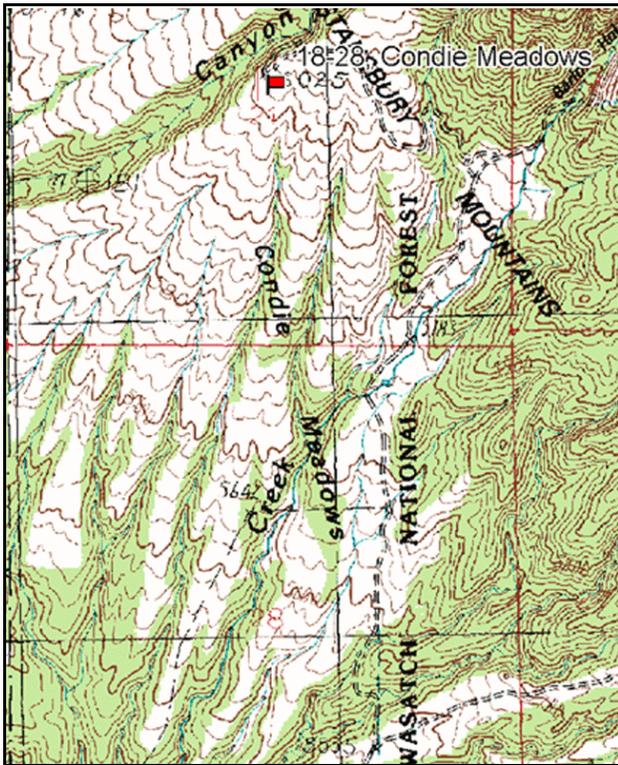
Vegetation type: Perennial Grass.

Compass bearing: frequency baseline 110 degrees magnetic (Lines 3 & 4 @ 191°M).

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

LOCATION DESCRIPTION

Although this study is easily accessed from the Johnson Pass road (U-199) to the south, directions are given from the nearby study 18-29. From that site in the chaining, continue southerly on the main road for 0.55 miles to a sharp bend in the bottom of Deadman Canyon. Go up the dugway out of the canyon for 0.25 miles to intersection in the burned area on top. From the intersection, the 0-foot baseline stake is 36 paces south down the road, then 6 paces east. The baseline stake is marked by browse tag #3906.



Map Name: Terra

Diagrammatic Sketch

Township 5S, Range 7W, Section 21

GPS: NAD 27, UTM 12S 4469705 N 360816 E

DISCUSSION

Condie Meadows - Trend Study No. 18-28

***SUSPENDED - This site was suspended in 2002. Text and tables from the 1997 report have been retained and are found below.

This study is located near the upper end of Condie Meadows. It is a large burned and seeded area lying between Deadman Canyon and Barlow Creek. The study is near the upper limit of the winter range at approximately 6,000 feet elevation. It has a gentle slope (7%) and a south-southwest facing aspect. Native and seeded perennial grasses, along with cheatgrass, comprise the dominant vegetative cover. Deer use is light because of a lack of browse forage. Initially cattle were present in large numbers and had utilized the grasses to a moderate degree. Currently use by livestock is light.

Soil is medium fine in texture and only slightly rocky. Soil textural analysis indicates a sandy clay loam with a neutral pH (6.7). The area appears to be an alluvial bench where soil depth is relatively deep but unconsolidated. Effective rooting depth is 12 inches with a soil temperature of 68° F at 15 inches. This relatively high temperature through the summer would be advantageous to cheatgrass's continued influence of the site. The fire that occurred shortly before 1983 was apparently hot enough to consume much of the soil organic matter. However, this is not a problem because the moderately dense grass cover has rapidly replenished organic content. Erosion is minimal and will continue to be so as the site develops through time.

Browse forage was initially in short supply. Originally, the site supported a mixed stand of juniper, pinyon, Stansbury cliffrose and mountain big sagebrush. However, the fire effectively eliminated all shrub and tree species. Isolated individuals of cliffrose, mountain big sagebrush, white-stemmed rubber rabbitbrush, antelope bitterbrush, and some transplanted seedlings of fourwing saltbush comprised the available browse composition in 1983. Overall density and production was low and although some slow increase can be expected, the area will probably continue to be a poor producer of browse forage unless a concerted effort to interseed or transplant shrubs is undertaken. The fourwing saltbush seedlings were originally transplanted with a transplanter. Although, establishment has been poor to fair and the surviving plants are closely hedged and some in poor vigor. Cliffrose, big sagebrush, and bitterbrush are probably better suited for this site than fourwing saltbush. Currently it appears that the white-stemmed rabbitbrush have increased significantly and show mostly light use. An important invader and increaser shrub to this site is broom snakeweed. Currently it is the most abundant species and continues to show increase, but white-stemmed rabbitbrush still produces most of the browse cover. Yet, all the browse cover together only makes up 8% of the total vegetative cover.

Seeded and native perennial grasses currently dominate the site by producing 55% of the grass cover, but cheatgrass by itself contributes the remaining grass cover (45%). Composition is mostly made up of two seeded species, crested and intermediate wheatgrass, which have sustained the heaviest grazing use in the past. There are five other native species that are perhaps more numerous but apparently are less preferred. Cheatgrass brome was very common in 1983, but was thought it would rapidly be suppressed by perennial grasses. This did not occur because of the extended drought which has allowed it to successfully compete with the perennial species.

Forbs occur infrequently and consist of only a few species. These include: yellow salsify, rose pussytoes and sego lily, none of which are commonly seeded. Currently the forbs only make up 8% of the total herbaceous cover. Surprisingly, no evidence of alfalfa was found. It is a valuable rangeland forb often included in seed mixtures.

1983 APPARENT TREND ASSESSMENT

Soil trend appears to be improving. The dense grass cover has effectively stabilized the site. Litter accumulation, vegetative cover, and soil organic content are continuing to build up. Vegetative trend also appears to be improving but more slowly than soil trend parameters. In fact, too slowly to provide satisfactory deer wintering habitat within a reasonable period. The most negative factor is the apparent increase of broom snakeweed. Transplanting and/or interseeding of desirable browse species is strongly recommended.

1989 TREND ASSESSMENT

Seeded and native perennial grasses still dominate this old burn in upper Condie Meadows. Production of browse forage continues to be very low. Crested wheatgrass has increased to be the most abundant grass on the frequency lines. Bluebunch and intermediate wheatgrass are also very abundant. The small natives, bottlebrush squirreltail and Sandberg bluegrass, show slight declines. Overall, the frequency of grass occurrence is the same between years. Only one individual forb, salsify, was encountered on the study. The only browse species encountered on the frequency lines was broom snakeweed, with an unchanged frequency. Snakeweed still makes up 97% of the browse composition, but decreased to less than 1,000 plants/acre. One rabbitbrush was counted on the density plots. The seeded four-wing saltbush seems to have been completely eliminated from the site. The few bitterbrush in the meadow are lightly used. Along the edges of the burn, there are some mountain big sagebrush, cliffrose, and juniper. The cover data detected a moderate reduction in the amount of bare soil to 28%. There was more vegetative cover, but also more rock and pavement in 1989. With the uniform and dense grass cover, there is very little erosion. The soil trend is stable. Shrubs have not responded or cannot compete with the dense grass cover on this old burn. There is virtually no sign of big game use. Any improvements as far as deer winter range is concerned will be very slow to occur. Shrub seed sources are far removed and seedling establishment would be hindered by the dense grass cover. The 1983 trend study report suggested direct intervention by transplanting or interseeding shrubs. Although, continued moderate to heavy cattle spring grazing should eventually have the same effect. Since the area is at the upper elevational limit for deer winter range, the composition could be considered a valuable transitional and spring forage source.

TREND ASSESSMENT

soil - stable (3)

browse - stable (3)

herbaceous understory - stable (3)

1997 TREND ASSESSMENT

The trend for soil has continued to improve with percent bare soil decreasing to 13% and the proportion of cover contributed by herbaceous species is still very high at 92%. The trend for browse is not of importance to this site because of such low numbers, but it has improved slightly. However, the density of white-stemmed rabbitbrush has increased to 540 plants/acre while showing light use. Broom snakeweed has also increased, but is now second to white-stemmed rabbitbrush in total cover and its percent mature age-class has increased to over 70%, indicating a future downward trend for this short-lived species. The herbaceous understory is showing a slightly downward trend for the perennial species with significant losses for both crested wheatgrass and bluebunch wheatgrass.

TREND ASSESSMENT

soil - slightly improved (4)

browse - slightly improved (4)

herbaceous understory - slightly down (2)

HERBACEOUS TRENDS --
Herd unit 18 , Study no: 28

T y p e	Species	Nested Frequency			Quadrat Frequency			Average Cover %
		'83	'89	'97	'83	'89	'97	'97
G	Agropyron cristatum	_a 19	_b 193	_a 7	8	60	4	.13
G	Agropyron intermedium	_b 158	_a 52	_b 166	53	21	56	8.59
G	Agropyron spicatum	_b 165	_b 131	_a 72	66	49	25	3.90
G	Aristida purpurea	-	-	2	-	-	1	.18
G	Bromus tectorum (a)	-	-	263	-	-	80	11.25
G	Oryzopsis hymenoides	12	18	7	6	9	5	.43
G	Poa secunda	6	9	6	4	5	3	.19
G	Sitanion hystrix	_b 46	_a 19	_a 10	25	11	8	.34
G	Stipa columbiana	-	-	2	-	-	1	.15
G	Stipa comata	-	-	4	-	-	2	.01
Total for Annual Grasses		0	0	263	0	0	80	11.25
Total for Perennial Grasses		406	422	276	162	155	105	13.94
Total for Grasses		406	422	539	162	155	185	25.20
F	Agoseris glauca	-	-	4	-	-	2	.01
F	Alyssum alyssoides (a)	-	-	292	-	-	87	1.45
F	Antennaria rosea	2	-	-	1	-	-	-
F	Argemone spp.	_a -	_a -	_b 7	-	-	5	.16
F	Astragalus spp.	-	-	2	-	-	1	.03
F	Calochortus nuttallii	_b 9	_a -	_b 11	5	-	6	.03
F	Helianthus annuus (a)	-	-	2	-	-	2	.01
F	Lactuca serriola	_a -	_a -	_b 8	-	-	4	.22
F	Salsola iberica (a)	-	-	2	-	-	1	.00
F	Taraxacum officinale	-	-	3	-	-	1	.00
F	Tragopogon dubius	_b 14	_a 1	_b 24	9	1	14	.21
Total for Annual Forbs		0	0	296	0	0	90	1.47
Total for Perennial Forbs		25	1	59	15	1	33	0.67
Total for Forbs		25	1	355	15	1	123	2.15

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

BROWSE TRENDS --

Herd unit 18 , Study no: 28

Type	Species	Strip Frequency	Average Cover %
		'97	'97
B	Chrysothamnus nauseosus albicaulis	14	1.19
B	Gutierrezia sarothrae	62	1.14
Total for Browse		76	2.33

BASIC COVER --

Herd unit 18 , Study no: 28

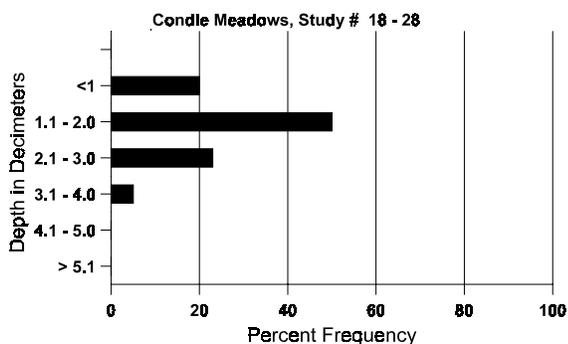
Cover Type	Nested Frequency	Average Cover %		
	'97	'83	'89	'97
Vegetation	372	1.25	6.00	32.70
Rock	139	1.00	6.00	1.74
Pavement	216	1.75	5.75	3.73
Litter	391	55.50	54.25	53.20
Cryptogams	13	0	0	.05
Bare Ground	233	40.50	28.00	13.29

SOIL ANALYSIS DATA --

Herd Unit 18, Study no: 28, Condie Meadows

Effective rooting depth (in)	Temp °F (depth)	pH	%sand	%silt	%clay	%OM	PPM P	PPM K	dS/m
11.7	65.8 (15.2)	7.7	66.4	11.4	22.2	2.4	6.3	176.0	.5

Stoniness Index



PELLET GROUP FREQUENCY --

Herd unit 18 , Study no: 28

Type	Quadrat Frequency
	'97
Rabbit	31
Deer	20
Cattle	2

BROWSE CHARACTERISTICS --

Herd unit 18 , Study no: 28

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>Chrysothamnus nauseosus albicaulis</i>																		
S	83	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	89	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	97	3	-	-	-	-	-	-	-	-	1	2	-	-	60		3	
Y	83	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	89	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	97	5	1	1	-	-	-	-	-	-	7	-	-	-	140		7	
M	83	2	-	-	-	-	-	-	-	-	2	-	-	-	66	19	30	2
	89	1	-	-	-	-	-	-	-	-	1	-	-	-	33	28	32	1
	97	19	-	-	-	-	-	-	-	-	19	-	-	-	380	25	37	19
D	83	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	89	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	97	1	-	-	-	-	-	-	-	-	-	-	-	1	20		1	
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'83		00%			00%			00%			-50%							
'89		00%			00%			00%			+94%							
'97		04%			04%			04%										
Total Plants/Acre (excluding Dead & Seedlings)											'83	66	Dec:	0%				
											'89	33		0%				
											'97	540		4%				
<i>Chrysothamnus viscidiflorus viscidiflorus</i>																		
M	83	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	89	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	97	-	-	-	-	-	-	-	-	-	-	-	-	-	0	18	31	0
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'83		00%			00%			00%										
'89		00%			00%			00%										
'97		00%			00%			00%										
Total Plants/Acre (excluding Dead & Seedlings)											'83	0	Dec:	-				
											'89	0		-				
											'97	0		-				
<i>Cowania mexicana stansburiana</i>																		
M	83	-	-	2	-	-	-	-	-	-	2	-	-	-	66	25	22	2
	89	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	97	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'83		00%			100%			00%										
'89		00%			00%			00%										
'97		00%			00%			00%										
Total Plants/Acre (excluding Dead & Seedlings)											'83	66	Dec:	-				
											'89	0		-				
											'97	0		-				

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				
Gutierrezia sarothrae																		
S	83	35	-	-	-	-	-	-	-	-	35	-	-	-	1166		35	
	89	-	-	-	1	-	-	-	-	-	1	-	-	-	33		1	
	97	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
Y	83	43	-	-	-	-	-	-	-	-	43	-	-	-	1433		43	
	89	2	-	-	-	-	-	-	-	-	-	-	2	66		2		
	97	18	-	-	-	-	-	-	-	-	17	-	-	360		18		
M	83	11	-	-	-	-	-	-	-	-	11	-	-	366	6	7	11	
	89	15	-	-	-	-	-	-	-	-	5	-	7	500	8	11	15	
	97	117	6	1	8	-	-	-	-	-	132	-	-	2700	9	14	135	
D	83	1	-	-	-	-	-	-	-	-	-	-	-	33		1		
	89	13	-	-	-	-	-	-	-	-	4	1	3	433		13		
	97	30	1	-	-	-	-	-	-	-	11	-	-	620		31		
X	83	-	-	-	-	-	-	-	-	-	-	-	-	0		0		
	89	-	-	-	-	-	-	-	-	-	-	-	-	0		0		
	97	-	-	-	-	-	-	-	-	-	-	-	-	1160		58		
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'83		00%			00%			02%			-45%							
'89		00%			00%			67%			+73%							
'97		04%			.54%			11%										
Total Plants/Acre (excluding Dead & Seedlings)												'83	1832	Dec:	2%			
												'89	999		43%			
												'97	3680		17%			