

Trend Study 21B-19-03

Study site name: Teeples Terrace.

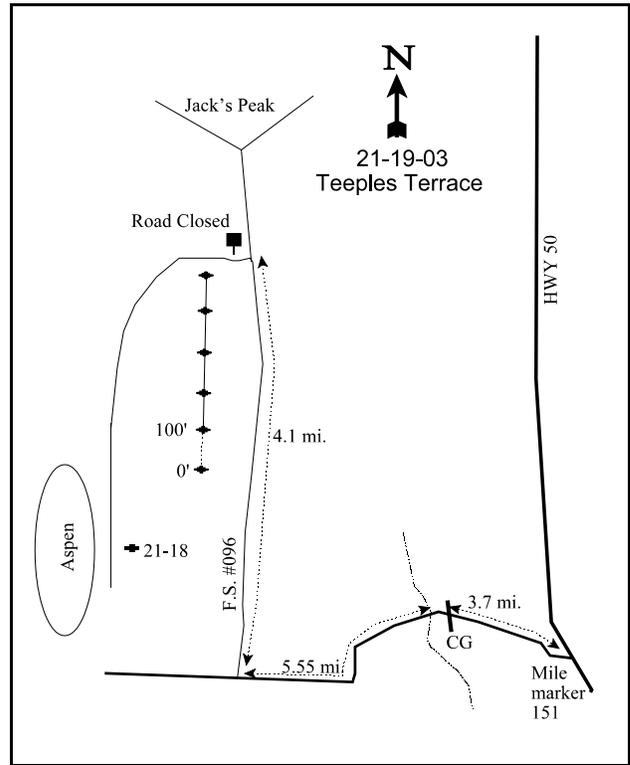
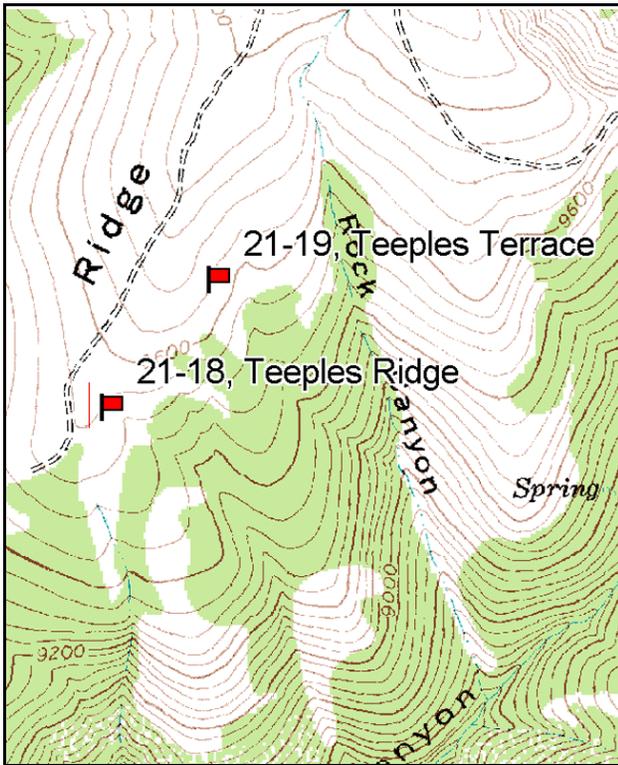
Vegetation type: Perennial grass/forb.

Compass bearing: frequency baseline approximately north (following terrace).

Frequency belt placement: Quadrats are read directly on transect. Even numbers read on the right, odd numbers on the left.

LOCATION DESCRIPTION

From Highway 50 at mile marker 151, drive west 3.7 miles to a cattlegaurd. Go another 0.75 miles across a stream to a gate. Go through the gate and drive 5.55 miles past the weather gauging station to a right turn. Turn right onto road # 096 and go 4.1 miles to a “road closed” sign on the left, just before Jack’s Peak. Walk down the closed road about 2/3 mile to a cluster of *Ribes*. Walk down eight terraces to a witness post. The 0-foot stake is just north of the witness post. The baseline runs along the terrace.



Map name: Mt. Catherine

Diagrammatic Sketch

Township 21S, Range 3W, Section 13

GPS: NAD 27, UTM 12S 4315407 N, 400908 E

## DISCUSSION

### Teeples Terrace - Trend Study No. 21-19

This study was established in conjunction with the Pioneer Peak and Teeples ridge studies (21-17 and 21-18) to monitor cattle and elk use on the Pahvant Plateau. It samples one of the watershed protection terraces on the east side of Teeples Ridge. There was concern voiced by grazing permittees that elk were causing degradation along these terraces. The general area slopes moderately (20-30%) to the east-southeast at an elevation of 9,600 feet. The watershed protection terraces are about 8 to 10 feet wide and follow the contour of the slope. Quadrats were placed along the baseline tape which extends 500 feet along one of these terraces. Cattle and wildlife use the terraces as trails to travel through the area. Cattle were on the area in both 1997 and 2003. A pellet group transect sampling use on the terraces estimated 44 cow and 19 elk days use/acre (109 cdu/ha and 47 edu/ha) in 1997 and 23 cow and 8 elk days use/acre (56 cdu/ha and 20 edu/ha) in 2003.

Soils are deep with an effective rooting depth estimated at nearly 21 inches. Rocks are rare on the surface and in the profile. Soil texture is a sandy clay loam and pH is strongly acidic at 5.0. Bare ground is much too high for a high elevation site, averaging over 40% in both 1997 and 2003. Litter cover is limited and much lower than it should be at 14% and 22% in 1997 and 2003 respectively. However, there is little erosion because of the effectiveness of the contoured terraces. Soils are stable.

Shrubs are not an important aspect of this site. Some mountain big sagebrush, mountain snowberry, and sticky leaf low rabbitbrush occur along the terraces but only in relatively small numbers. There are some aspen clones in the area which provide cover but little forage. These trees are all mature and unavailable to browsing.

The herbaceous understory is abundant and quite diverse. Herbaceous species provided a total of 37% average cover in 1997 and 42% in 2003. Smooth brome is by far the dominant herbaceous species as it provided more than one-half of the total vegetation cover in 2003. Smooth brome significantly increased in nested frequency in 2003 as did the less abundant grasses orchard grass and Kentucky bluegrass. Subalpine needlegrass and Letterman needlegrass are also present. The significant increase in subalpine needlegrass and corresponding significant decrease in Letterman needlegrass in 2003 is partly due to identification problems. The needlegrasses were present in intermediate forms that were difficult to distinguish between. Mountain brome and intermediate wheatgrass were less abundant in 2003. Although diverse, the forb component is composed almost entirely of increasers and weeds, an indication of heavy grazing in the past. The most common species in 1997 were western yarrow, silvery lupine, curly dock, and dandelion. These species all remained stable or increased in 2003 with the exception of curly dock which declined significantly.

### 1997 APPARENT TREND ASSESSMENT

Overall, the soil on the site appears stable due to the contoured terraces, however many of the terraces have cattle trails along the outer edge which leaves a considerable amount of bare ground exposed. The ratio of bare soil to protective ground cover is very poor for a site at this elevation. Browse are a minor aspect on this site and not important on a summer range. The herbaceous understory is abundant and diverse. Grasses consist entirely of perennial species with smooth brome providing 72% of the grass cover. Forb composition is poor and composed almost totally of increasers and weeds, a symptom of heavy grazing. Another indication of excessive grazing is the lack of any significant litter cover, which currently is only at 14%. Future improvements in the herbaceous understory will depend on reductions in nested frequency of these weedy species and increased frequency of more preferred forbs like penstemon and American vetch.

2003 TREND ASSESSMENT

Trend for soil is stable. Average cover of vegetation, litter, and bare ground show little change since 1997, and erosion is low because of the terracing. There is no browse trend as browse is insignificant on this site and unimportant on this summer range. Trend for the herbaceous understory is slightly up as perennial grasses, primarily smooth brome, increased in nested frequency. Perennial forbs also increased although the composition is poor and remains dominated by weedy increasers.

TREND ASSESSMENT

soil - stable (3)

browse - no trend (n/a)

herbaceous understory - slightly up (4)

HERBACEOUS TRENDS --

Management unit 21 , Study no: 19

Type	Species	Nested Frequency		Average Cover %	
		'97	'03	'97	'03
G	Agropyron intermedium	20	7	.51	.16
G	Bromus carinatus	<sub>b</sub> 55	<sub>a</sub> 9	2.73	.10
G	Bromus inermis	<sub>a</sub> 292	<sub>b</sub> 390	15.16	21.76
G	Carex spp.	3	-	.03	-
G	Dactylis glomerata	<sub>a</sub> 9	<sub>b</sub> 28	.18	.58
G	Poa pratensis	<sub>a</sub> 14	<sub>b</sub> 47	.59	1.35
G	Stipa columbiana	<sub>a</sub> -	<sub>b</sub> 83	-	1.79
G	Stipa lettermani	<sub>b</sub> 87	<sub>a</sub> 32	1.74	.37
Total for Annual Grasses		0	0	0	0
Total for Perennial Grasses		480	596	20.95	26.13
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F	Achillea millefolium	<sub>a</sub> 62	<sub>b</sub> 107	1.27	2.13
F	Agoseris glauca	32	43	.26	.29
F	Androsace septentrionalis (a)	-	4	-	.00
F	Arabis spp.	7	17	.02	.05
F	Artemisia dracunculus	1	-	.00	-
F	Aster chilensis	-	7	-	.03
F	Collomia linearis (a)	<sub>b</sub> 108	<sub>a</sub> 7	.63	.01
F	Epilobium paniculatum (a)	<sub>b</sub> 17	<sub>a</sub> -	.13	-
F	Erigeron eatonii	<sub>a</sub> 7	<sub>b</sub> 26	.02	.27
F	Erigeron flagellaris	5	4	.06	.01
F	Gayophytum ramosissimum(a)	<sub>a</sub> 15	<sub>b</sub> -	.08	-
F	Helianthella uniflora	-	5	-	.03
F	Lupinus argenteus	94	95	5.46	5.55

Type	Species	Nested Frequency		Average Cover %	
		'97	'03	'97	'03
F	<i>Machaeranthera canescens</i>	53	72	.70	.95
F	<i>Microsteris gracilis</i> (a)	3	-	.00	-
F	<i>Orthocarpus tolmiei</i> (a)	-	3	-	.03
F	<i>Penstemon</i> spp.	1	-	.00	-
F	<i>Polygonum douglasii</i> (a)	<sub>b</sub> 127	<sub>a</sub> 52	.96	.35
F	<i>Potentilla</i> spp.	-	2	-	.03
F	<i>Ranunculus</i> spp.	3	-	.15	-
F	<i>Rumex crispus</i>	<sub>b</sub> 60	<sub>a</sub> 18	3.60	.91
F	<i>Stellaria jamesiana</i>	<sub>b</sub> 44	<sub>a</sub> 28	.27	.13
F	<i>Taraxacum officinale</i>	<sub>a</sub> 112	<sub>b</sub> 156	2.58	4.53
F	<i>Tragopogon dubius</i>	-	3	-	.04
F	<i>Vicia americana</i>	20	13	.14	.16
F	<i>Viguiera multiflora</i>	3	6	.03	.04
Total for Annual Forbs		270	66	1.81	0.40
Total for Perennial Forbs		504	602	14.60	15.20
Total for Forbs		774	668	16.42	15.60

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

#### BROWSE TRENDS --

Management unit 21 , Study no: 19

Type	Species	Strip Frequency		Average Cover %	
		'97	'03	'97	'03
B	<i>Artemisia tridentata vaseyana</i>	2	2	.03	.00
B	<i>Chrysothamnus viscidiflorus lanceolatus</i>	2	0	-	-
B	<i>Symphoricarpos oreophilus</i>	0	1	-	.03
Total for Browse		4	3	0.03	0.03

BASIC COVER --

Management unit 21 , Study no: 19

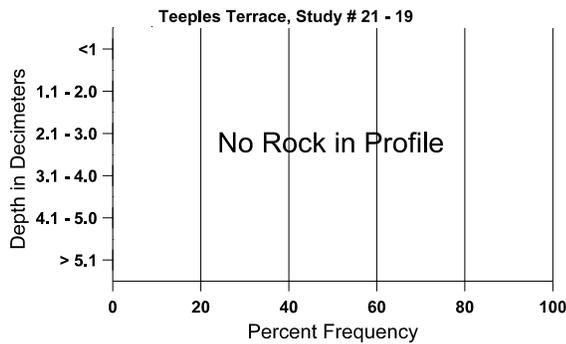
Cover Type	Average Cover %	
	'97	'03
Vegetation	38.49	39.74
Rock	2.25	4.46
Pavement	.47	.48
Litter	14.26	22.27
Cryptogams	3.31	0
Bare Ground	45.15	43.47

SOIL ANALYSIS DATA --

Management unit 21, Study no: 19, Study Name: Teeples Terrace

Effective rooting depth (in)	Temp °F (depth)	PH	%sand	%silt	%clay	%OM	PPM P	PPM K	dS/m
20.7	44.4 (17.7)	5.0	48.0	26.7	25.3	2.5	52.1	227.2	0.2

### Stoniness Index



PELLET GROUP DATA --

Management unit 21 , Study no: 19

Type	Quadrat Frequency		Days use per acre (ha)	
	'97	'03	'97	'03
Rabbit	-	1	-	-
Elk	4	6	61 (151)	8 (19)
Deer	1	1	2 (5)	-
Cattle	7	18	32 (79)	23 (56)

BROWSE CHARACTERISTICS --  
 Management unit 21 , Study no: 19

		Age class distribution (plants per acre)					Utilization				
Year	Plants per Acre (excluding seedlings)	Seedling	Young	Mature	Decadent	Dead	% moderate	% heavy	% decadent	% poor vigor	Average Height Crown (in)
<i>Artemisia tridentata vaseyana</i>											
97	40	-	20	-	20	-	0	0	50	0	17/38
03	40	-	20	20	-	-	0	0	0	0	14/13
<i>Chrysothamnus viscidiflorus lanceolatus</i>											
97	40	-	-	40	-	-	0	0	-	0	8/15
03	0	-	-	-	-	-	0	0	-	0	10/17
<i>Symphoricarpos oreophilus</i>											
97	0	-	-	-	-	-	0	0	-	0	-/-
03	20	-	20	-	-	-	0	0	-	0	-/-