

Trend Study 17R-9-01

Study site name: Emma Park Meadow .

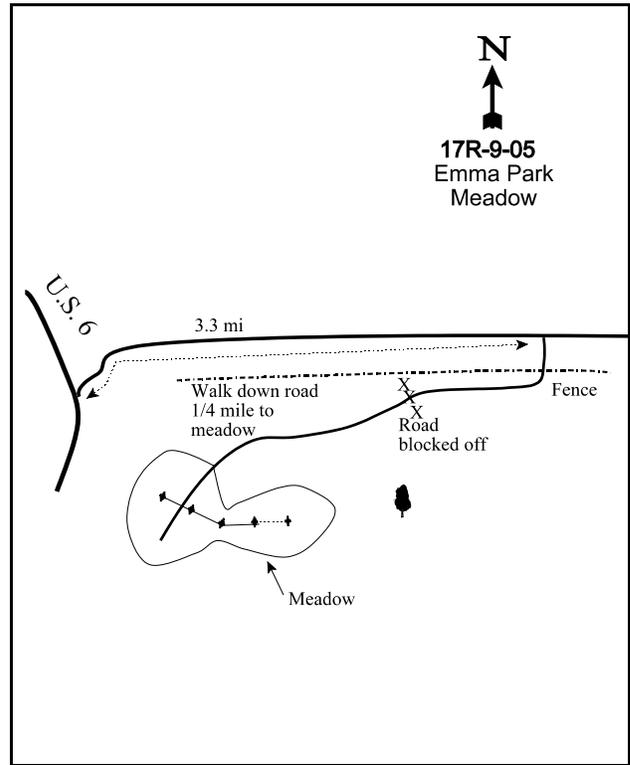
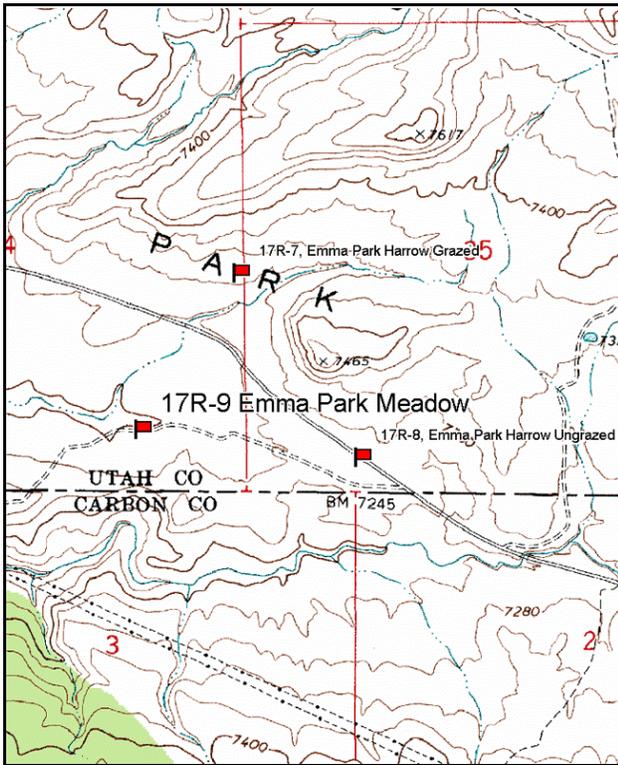
Vegetation type: Dry Meadow .

Compass bearing: frequency baseline 271 degrees magnetic.

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

LOCATION DESCRIPTION

From the Kyune turnoff on U.S. 6 travel 3.3 miles to a turnoff on the south side of the road. Continue on this road through a gate and head back to the west until the road is blocked off. From here walk down the old road 1/4 mile to a meadow. The 0-foot stake is on the east side of the meadow and marked by browse tag #430.



Map name: Kyune

Diagrammatic Sketch

Township 11S, Range 9E, Section 34

GPS: NAD 27, UTM 12S 4407006 N, 508648 E

DISCUSSION

Emma Park Meadow - Trend Study No. 17R-9

The Emma Park Meadow study is located just over 3 miles from the junction of Kyune and Highway 6 in Spanish Fork Canyon. Study 17R-8 is about a half mile to the east. This transect lies in a small depression and is best classified as a dry meadow. The BLM is attempting to convert this site to more of a wet meadow type by raising the water table with small check dams along the gullies that run through the area. This study was established in 2001 to monitor the changes in vegetation during this transition period. Site elevation is about 7,200 feet on terrain that slopes gently to the northwest. Wildlife and livestock use appears to be low. Pellet group data from 2001 was estimated at 4 deer, 3 elk and 2 cow days use/acre (10 ddu/ha, 8 edu/ha, and 5 cdu/ha). Grouse pellets were also noticed in the dry meadow type. Pellet group data from 2005 was estimated at 5 elk, 38 cow, and 2 horse days use/acre (13 edu/ha, 93 cdu/ha, 6 hdu/ha).

Soils are clay loam in texture with a soil reaction that is neutral (7.3 pH). Effective rooting depth is estimated at just under 15 inches. There is very little rock and pavement on the surface or within the profile. Vegetation cover is high at an estimated 55% average cover in 2001 and 46% in 2005. Litter cover was lower than anticipated in 2001 at 24%, but slightly increased in 2005 to 34%. Percent bare ground is moderately high at nearly 30% cover in both years. Cryptogams decreased from 6% cover in 2001 to less than 1% in 2005. A large gully to the north of the site displays signs of active cutting, although the thick herbaceous understory appears to be stabilizing the surrounding area.

Browse appears mainly on the edges of the meadow. However, mountain big sagebrush is fairly abundant and surrounds the site in all directions, except for several small meadows such as the one this study monitors. Mountain big sagebrush had an average cover of 2% and an estimated 1,240 plants/acre in 2001. Cover averaged slightly more than 2% in 2005 and density decreased to 620 plants/acre. Percent decadence was high in 2001 at 39%. It then increased to 77% in 2005. As most of the decadent plants occur on the meadow's edge, high decadence and poor vigor are likely due to the higher water table that exists within the meadow. Young plants were moderate numbers in 2001 at 200 plants/acre, but almost nonexistent in 2005. Other browse sampled included silver sagebrush, stickyleaf rabbitbrush, rubber rabbitbrush, and cinquefoil. Raising the water table has reduced the shrub component and is looking more like a wet meadow.

The site is dominated by low growing grasses and forbs, many of which are increasers. Perennial grasses averaged 16% cover in 2001 and 10% in 2005. Sandberg bluegrass, Kentucky bluegrass, western wheatgrass, Prairie junegrass, a sedge, and a rush are the most common grasses sampled. Perennial forbs averaged 33% cover in 2001 and 22% in 2005. *Aster*, yarrow, and yellow owlclover dominate the forb component, although both significantly decreased in nested frequency in 2005. In 2001, production was relatively low and seed stalks were in low numbers on herbaceous species.

2005 TREND ASSESSMENT

Soil trend is stable. The ratio of protective cover (vegetation, litter and cryptogams) to bare ground declined slightly, but appears adequate to protect the soil from erosion. Cryptogams decreased in 2005 and caused the slight decline in the ratio of protective cover to bare ground. Trend for browse mountain big sagebrush is down. Density decreased from 1,240 plants/acre in 2001 to 620 in 2005. Seventy-five percent of the population is decadent and 29% were classified as dying. Recruitment of the young age class is low and vigor is poor. Transition from a shrub community to a wet meadow appears to be working. Trend for herbaceous understory is stable. Sum of nested frequency for perennial grasses and forbs are relatively the same to 2001 observations. Although, perennial forb cover decreased from 33% in 2001 to 22% in 2005.

TREND ASSESSMENT

soil - stable (0)

browse - down (-2)

herbaceous understory - stable (0)

winter range condition (DC Index) - Not applicable

HERBACEOUS TRENDS --

Management unit 17R, Study no: 9

Type	Species	Nested Frequency		Average Cover %	
		'01	'05	'01	'05
G	Agropyron smithii	189	182	4.15	3.01
G	Bromus anomalus	-	3	-	.00
G	Carex sp.	_a 72	_b 144	1.58	2.57
G	Juncus sp.	_b 76	_a 32	1.27	.13
G	Koeleria cristata	_b 43	_a 13	.27	.12
G	Poa pratensis	23	53	.49	.40
G	Poa secunda	_b 332	_a 306	8.34	3.98
G	Stipa lettermani	_b 16	_a 3	.13	.01
Total for Annual Grasses		0	0	0	0
Total for Perennial Grasses		751	736	16.26	10.25
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F	Achillea millefolium	_b 327	_a 255	9.56	4.58
F	Antennaria rosea	_b 25	_a 12	.29	.22
F	Androsace septentrionalis (a)	-	2	-	.00
F	Aster chilensis	_b 432	_a 396	21.88	14.96
F	Astragalus sp.	31	18	.27	.11
F	Chenopodium album (a)	-	3	-	.00
F	Comandra pallida	-	1	-	.00
F	Collinsia parviflora (a)	_a -	_b 105	-	.64
F	Gayophytum ramosissimum(a)	-	2	-	.00
F	Gentiana sp.	_a -	_b 35	-	.33
F	Iva axillaris	-	4	-	.03
F	Machaeranthera canescens	-	4	-	.01
F	Orthocarpus luteus (a)	_a 235	_b 269	4.39	2.54
F	Penstemon sp.	_b 52	_a 3	.76	.00
F	Phlox austromontana	17	17	.48	.72
F	Phlox longifolia	4	-	.00	-
F	Polygonum douglasii (a)	_a -	_b 13	-	.07
F	Potentilla gracilis	_a 1	_b 11	.00	.11
F	Schoenocrambe linifolia	-	3	-	.00

Type	Species	Nested Frequency		Average Cover %	
		'01	'05	'01	'05
F	Taraxacum officinale	_a .11	_b .83	.10	1.12
F	Zigadenus paniculatus	-	3	-	.00
Total for Annual Forbs		235	394	4.39	3.27
Total for Perennial Forbs		900	845	33.37	22.23
Total for Forbs		1135	1239	37.76	25.50

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

BROWSE TRENDS --

Management unit 17R, Study no: 9

Type	Species	Strip Frequency		Average Cover %	
		'01	'05	'01	'05
B	Artemisia cana	2	4	-	.03
B	Artemisia tridentata vaseyana	26	17	1.82	2.48
B	Chrysothamnus nauseosus	6	8	.30	.53
B		1	1	-	-
B	Potentilla fruticosa	1	2	-	.03
Total for Browse		36	32	2.12	3.07

CANOPY COVER, LINE INTERCEPT --

Management unit 17R, Study no: 9

Species	Percent Cover
	'05
Artemisia cana	.25
Artemisia tridentata vaseyana	2.56
Chrysothamnus nauseosus	.96
Chrysothamnus viscidiflorus viscidiflorus	.10

BASIC COVER --

Management unit 17R, Study no: 9

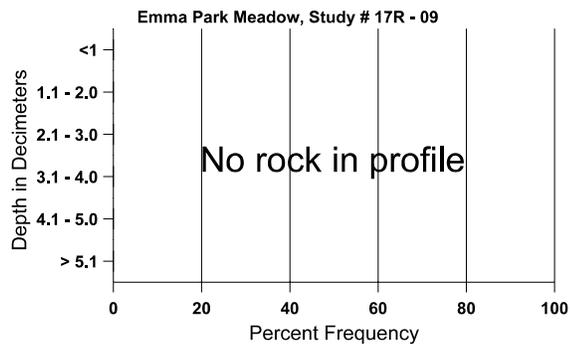
Cover Type	Average Cover %	
	'01	'05
Vegetation	55.73	45.95
Rock	.04	0
Pavement	.29	.35
Litter	23.79	33.73
Cryptogams	6.00	.46
Bare Ground	29.82	30.38

SOIL ANALYSIS DATA --

Herd Unit 17R, Study no: 09, Emma Park Meadow

Effective rooting depth (in)	Temp °F (depth)	PH	%sand	%silt	%clay	%OM	ppm P	ppm K	dS/m
14.7	52.4 (16.1)	7.3	23.9	38.4	37.7	4.3	6.7	214.4	1.1

Stoniness Index



PELLET GROUP DATA --

Management unit 17R, Study no: 9

Type	Quadrat Frequency		Days use per acre (ha)	
	'01	'05	'01	'05
Rabbit	50	8	-	-
Grouse	-	1	-	-
Elk	7	2	3 (8)	5 (13)
Deer	3	4	4 (10)	-
Horse	-	-	-	2 (6)
Cattle	9	16	2 (5)	38 (93)

BROWSE CHARACTERISTICS --
 Management unit 17R, Study no: 9

		Age class distribution (plants per acre)					Utilization					
Year	Plants per Acre (excluding seedlings)	Seedling	Young	Mature	Decadent	Dead	% moderate	% heavy	% decadent	% dying	% poor vigor	Average Height Crown (in)
<i>Artemisia cana</i>												
01	40	-	-	20	20	-	0	0	50	-	50	10/9
05	80	-	-	80	-	-	0	0	0	-	0	13/19
<i>Artemisia tridentata vaseyana</i>												
01	1240	-	200	560	480	240	0	2	39	18	39	15/19
05	620	-	20	120	480	680	26	0	77	29	29	17/23
<i>Chrysothamnus nauseosus</i>												
01	140	-	60	80	-	-	0	0	-	-	14	16/18
05	200	-	-	200	-	40	0	0	-	-	0	20/26
<i>Chrysothamnus viscidiflorus viscidiflorus</i>												
01	20	-	-	20	-	-	0	0	-	-	0	-/-
05	80	-	-	80	-	-	0	0	-	-	0	10/16
<i>Potentilla fruticosa</i>												
01	20	-	-	20	-	-	0	0	0	-	100	11/18
05	40	-	-	20	20	-	0	0	50	-	0	11/20