

Trend Study 25R-2-03

Study site name: Lower Meadow Estates.

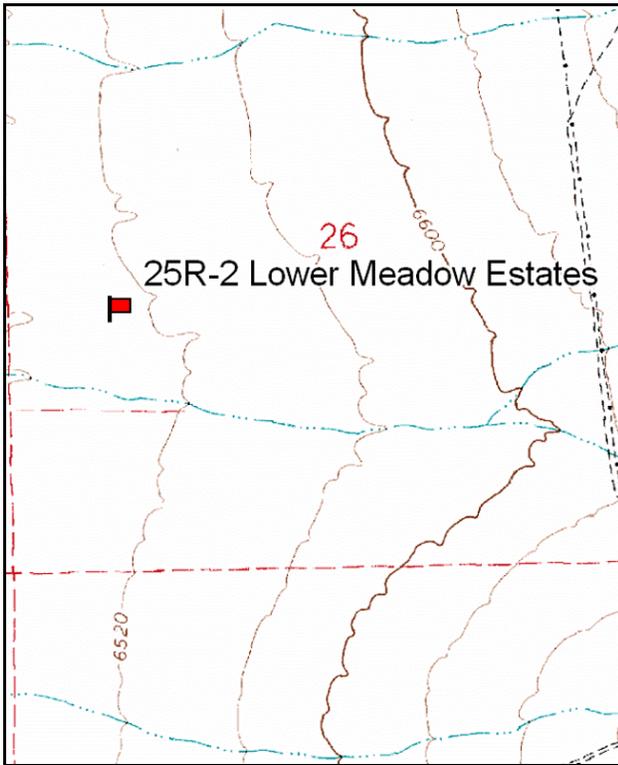
Vegetation type: Winter Fat.

Compass bearing: frequency baseline 62 degrees magnetic.

Frequency belt placement: line 1 (11ft), line 2 (34ft), line 3 (59ft), line 4 (71ft), line 5 (95ft). No rebar.

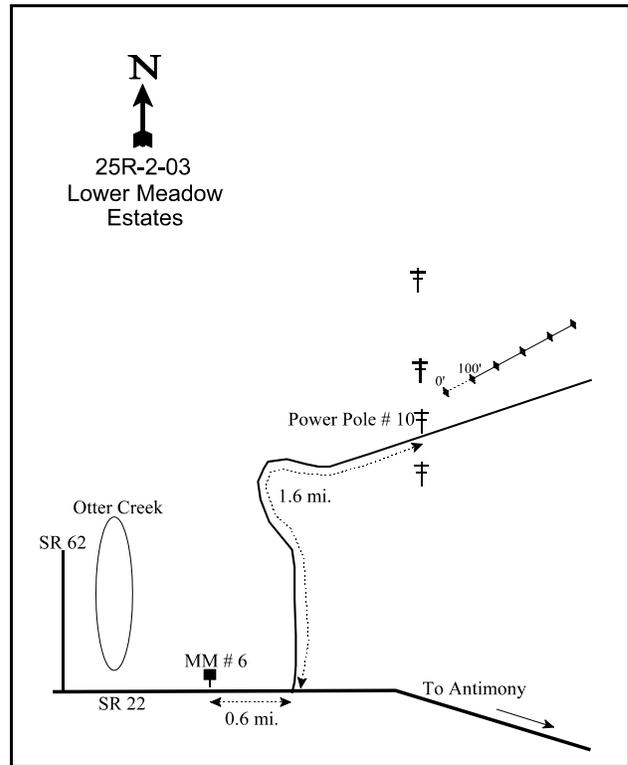
LOCATION DESCRIPTION

Starting from the junction of SR 22 and Highway 62, drive on SR 22 towards Antimony to mile marker #6. From mile marker #6, drive 0.6 miles to a road going left (north) off of SR 22. Drive on this road for 1.6 miles to power lines that cross over the road. Stop at power pole #10. From the power pole walk 20 paces at 334 degrees magnetic to the 0-foot stake.



Map Name: Angle

Township 30S, Range 2W, Section 26



Diagrammatic Sketch

GPS: NAD 27, UTM 12S 4224493 N, 413801 E

## DISCUSSION

### Lower Meadow Estates - Trend Study No. 25R-2

This study was established in 1997 to monitor winter range just north of Antimony. The area has a gentle slope of 2% to 4% and an elevation of 6,500 feet. The site slopes to the southwest. This area is used by wintering deer and elk and grazed by cattle. Two study sites were established in 1997, one at a lower elevation and another about 1 mile further east at a higher elevation. Both these sites were drill seeded sometime prior to the 1997 reading. The purpose of these studies were to monitor heavy elk use of this area in competition with livestock. Pellet group data from 1997 estimated 5 elk and 48 cow days use/acre (12 edu/ha and 119 cdu/ha). Pellet group data from 2003 did not encounter any elk pellet groups but cattle use was estimated at 27 days use/acre (66 cdu/ha). Pellet group data suggests that elk do not use this lower site significantly.

Soil at the site is deep with an effective rooting depth estimated at 16.6 inches. Texture is a sandy loam which is neutral in reaction. Organic matter is low at only 1%. Vegetation and litter cover are low with abundant bare ground exposed. Rock and pavement are concentrated on the surface and accounted for 33% of the ground surface in 1997 and 23% in 2003. However, erosion is not severe on this site due to the gentle terrain.

The site is dominated by winterfat (*Ceratoides lanata*) which accounted for 66% of the total browse cover in 1997 and 84% in 2003. The only other shrubs on the site consist of increasers, narrowleaf low rabbitbrush and broom snakeweed. Winterfat had a cover value of nearly 10% in 1997 with a density of 73,260 plants/acre. These plants were small with an average height of only 4 inches. Use was classified as moderate to heavy but vigor was good. Young recruitment was good with 12% of the population consisting of young plants. Cover of winterfat nearly doubled in 2003 to 18.8% and density increased slightly to 77,900 plants/acre. Winterfat again showed moderate to heavy use and good vigor in 2003. Young recruitment was down in 2003, but no decadent plants were sampled in either survey.

Narrowleaf low rabbitbrush has a stable population of about 3,000 plants/acre. Broom snakeweed had a density of 2,240 plants/acre in 1997 and 3,600 in 2003. Young recruitment was high in 2003 suggesting an expanding population. A few Wyoming big sagebrush and fourwing saltbush are scattered around the site.

The herbaceous understory is poor with low production of perennial grasses and forbs. Four perennial grasses were encountered in 1997 but only blue grama and sand dropseed were found more than occasionally. No seeded grasses were encountered. Total grass cover was estimated at ½ of 1%. Only blue grama and sand dropseed were sampled in 2003. Production remains poor but total grass cover increased to 1.6%. No perennial forbs are found on the site. Only a few annual species were sampled in 1997 and 2003. Slimleaf goosefoot and nodding eriogonum were the only common species found in 1997. In 2003, only halogeton and Russian thistle were encountered.

### 1997 APPARENT TREND ASSESSMENT

Soil conditions on this site are poor. There is poor vegetation and litter cover, leaving abundant bare ground exposed. The lack of significant slope is the only thing preventing accelerated erosion. Winterfat is the only common preferred browse on the site. It is abundant but very small is stature due to consistent heavy use. The herbaceous understory is very poor.

### 2003 TREND ASSESSMENT

Trend for soil is down slightly due to an 18% increase in cover of bare ground. Vegetation cover increased

while litter cover remained stable but very low at about 5%. The increase in bare ground comes from a decline in rock and pavement cover which suggests some overland soil movement. Erosion is not severe however, due to the gentle terrain. Trend for winterfat is stable. Density rose slightly while more plants were classified as lightly hedged. Vigor remains good but young recruitment has declined. Average height of mature winterfat has increased from 4 inches to 7 inches. Narrowleaf low rabbitbrush appears stable but broom snakeweed appears to be increasing. The herbaceous understory remains poor but sum of nested frequency of perennial grasses increased due primarily to a significant gain in the nested frequency of sand dropseed. Perennial forbs are still lacking with only Russian thistle and halogeton encountered.

**TREND ASSESSMENT**

soil - down slightly (2)

browse - stable (3)

herbaceous understory - up slightly but poor (4)

**HERBACEOUS TRENDS --**

Management unit 25R, Study no: 2

Type	Species	Nested Frequency		Average Cover %	
		'97	'03	'97	'03
G	<i>Bouteloua gracilis</i>	23	31	.40	1.02
G	<i>Oryzopsis hymenoides</i>	4	-	.01	-
G	<i>Sitanion hystrix</i>	3	-	.03	-
G	<i>Sporobolus cryptandrus</i>	<sub>a</sub> 7	<sub>b</sub> 28	.06	.58
Total for Annual Grasses		0	0	0	0
Total for Perennial Grasses		37	59	0.51	1.61
Total for Grasses		37	59	0.51	1.61
F	<i>Chenopodium fremontii</i> (a)	-	-	.00	-
F	<i>Chenopodium leptophyllum</i> (a)	<sub>b</sub> 31	<sub>a</sub> -	.32	-
F	<i>Eriogonum cernuum</i> (a)	<sub>b</sub> 233	<sub>a</sub> -	1.76	-
F	<i>Halogeton glomeratus</i> (a)	5	2	.03	.03
F	<i>Salsola iberica</i> (a)	<sub>a</sub> -	<sub>b</sub> 38	-	.10
Total for Annual Forbs		269	40	2.12	0.12
Total for Perennial Forbs		0	0	0	0
Total for Forbs		269	40	2.12	0.12

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

BROWSE TRENDS --

Management unit 25R, Study no: 2

Type	Species	Strip Frequency		Average Cover %	
		'97	'03	'97	'03
B	<i>Atriplex canescens</i>	0	1	-	-
B	<i>Ceratoides lanata</i>	99	100	9.72	18.76
B	<i>Chrysothamnus viscidiflorus stenophyllus</i>	41	42	3.53	2.02
B	<i>Gutierrezia sarothrae</i>	28	40	1.46	1.64
Total for Browse		168	183	14.73	22.43

CANOPY COVER, LINE INTERCEPT --

Management unit 25R, Study no: 2

Species	Percent Cover
	'03
<i>Ceratoides lanata</i>	19.18
<i>Chrysothamnus viscidiflorus stenophyllus</i>	2.04
<i>Gutierrezia sarothrae</i>	2.23

BASIC COVER --

Management unit 25R, Study no: 2

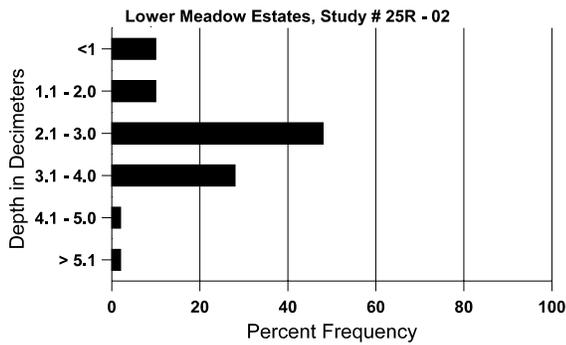
Cover Type	Average Cover %	
	'97	'03
Vegetation	15.75	22.29
Rock	6.74	5.88
Pavement	25.97	17.54
Litter	5.13	5.03
Cryptogams	1.81	.66
Bare Ground	47.18	55.87

SOIL ANALYSIS DATA --

Management unit 25R, Study no: 2, Study Name: Lower Meadow Estates

Effective rooting depth (in)	Temp °F (depth)	pH	% sand	% silt	% clay	% OM	PPM P	PPM K	ds/m
16.6	67.3 (16.1)	7.2	61.0	22.1	16.9	1.1	11.8	428.8	0.5

# Stoniness Index



## PELLET GROUP DATA --

Management unit 25R, Study no: 2

Type	Quadrat Frequency		Days use per acre (ha)	
	'97	'03	'97	'03
Rabbit	1	1	-	-
Elk	4	-	5 (12)	-
Cattle	12	13	48 (119)	27 (66)

## BROWSE CHARACTERISTICS --

Management unit 25R, Study no: 2

		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)
<b>Artemisia tridentata wyomingensis</b>											
97	<b>0</b>	-	-	-	-	20	0	0	-	0	-/-
03	<b>0</b>	-	-	-	-	-	0	0	-	0	-/-
<b>Atriplex canescens</b>											
97	<b>0</b>	-	-	-	-	-	0	0	-	0	-/-
03	<b>20</b>	-	-	20	-	-	0	0	-	0	10/19
<b>Ceratoides lanata</b>											
97	<b>73260</b>	40	8960	64300	-	-	66	33	0	0	4/6
03	<b>77900</b>	-	380	77260	260	600	21	36	0	.10	7/7
<b>Chrysothamnus viscidiflorus stenophyllus</b>											
97	<b>3100</b>	-	100	2840	160	40	4	.64	5	1	7/12
03	<b>2820</b>	-	300	2200	320	320	0	0	11	6	6/10
<b>Gutierrezia sarothrae</b>											
97	<b>2240</b>	-	-	2220	20	-	0	0	1	0	7/11
03	<b>3600</b>	40	1500	2060	40	400	0	1	1	1	7/10