

Trend Study 13A-12-04

Study site name: Below Polar Rim .

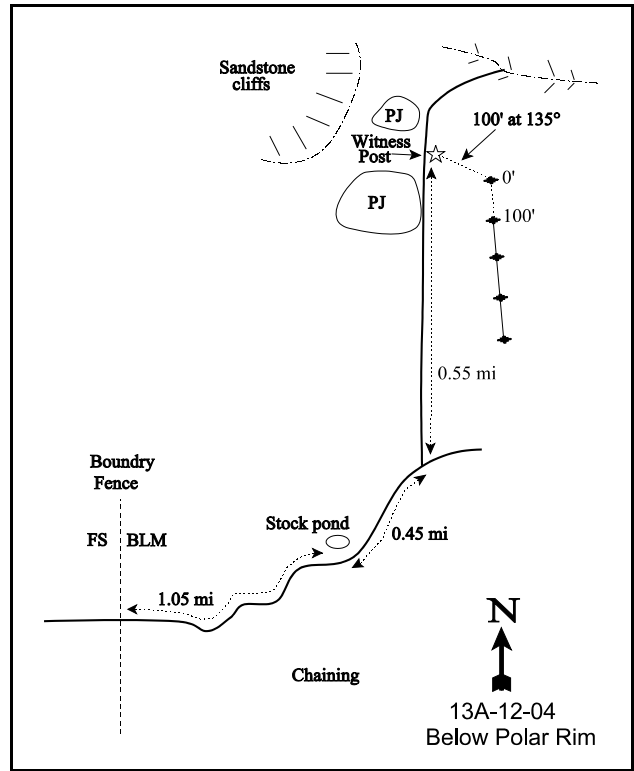
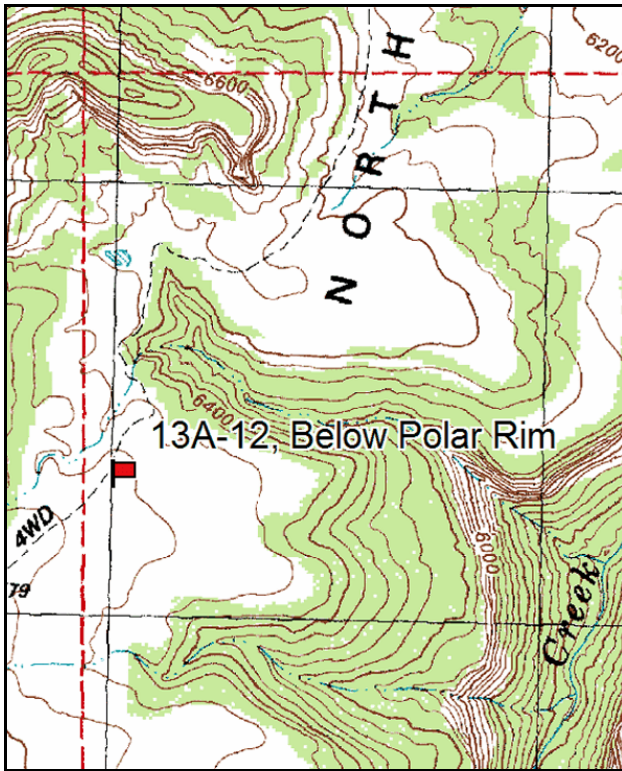
Vegetation type: Chained, Seeded P-J .

Compass bearing: frequency baseline 165 degrees magnetic.

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

LOCATION DESCRIPTION

From the intersection of La Sal Mountain Loop and Gateway roads, travel east towards Gateway, Colorado for 7.7 miles to the North Beaver Mesa turnoff. Turn left and go 4.2 miles to the Polar Mesa/Fisher Valley road. Continue straight through this fork, over a cattle guard and 0.85 miles to a stock pond and study 13A-12-87. Continue 0.45 miles to a fork by another stock pond. Turn right, go 0.35 miles to an intersection. Turn left and proceed 0.6 miles to a boundary fence. Continue on the road 1.05 miles, winding through the large chaining, to a stock pond. Cross the pond and continue 0.45 miles to a fork. Keep left on the main road and continue 0.55 miles to a fence post on the right side of the road. The 0-foot baseline stake, tagged #7857, is 100 feet away at 135°.



Map Name: Dolores Point North

Diagrammatic Sketch

Township 25S , Range 25E , Section 1

GPS: NAD 27, UTM 12S 4280295 N, 665003 E

DISCUSSION

Below Polar Rim - Trend Study No. 13A-12

The Below Polar Mesa Rim range trend study samples a large chaining on lower Beaver Mesa. The 1,540 acre treatment of this pinyon-juniper covered mesa was two-way-chained and seeded in 1969. The site is on a bench that slopes gently south towards the rim of Beaver Canyon with an elevation of 6,500 feet. The site currently supports a population of Wyoming big sagebrush and a few pinyon trees. This BLM land is part of the Taylor allotment and is grazed by cattle from winter to spring. It is thought to be used almost equally by deer and elk in the winter. The pellet group data from 1999 estimated 13 deer (32 ddu/ha), 94 elk (232 edu/ha), and 52 cow days use/acre (128 cdu/ha). Pellet group data from 2004 estimated 19 deer (46 ddu/ha), 34 elk (83 edu/ha), and 31 cow days use/acre (75 cdu/ha). Deer and elk use is winter/early spring while cattle use was from last season.

The soil is a sandy clay loam which has a neutral (6.7 pH) soil reaction and has no rock or gravel on the surface. The effective rooting depth is 15 inches. Percent organic matter is quite low (1.6 %) and amount of phosphorous in the soil could be limiting with only 6.5 ppm. Values below 10 ppm may limit normal plant growth and development. Percent bare ground has stayed fairly consistent between 35 and 40% through the years. The herbaceous species provide some protective cover from erosion, but the lack of significant slope is also helpful. The erosion condition class was determined to be stable in 2004.

The key browse species on this chaining is Wyoming big sagebrush. It has consistently made up 31 to 32% of the total vegetative cover since 1994. Percent decadence has always been below 10%, although in 2004 it increased to 12%. Percent dead within the population has been less than 4% for all readings, although the number of dead plants to every live plant has increased to 1:7 in 2004 versus 1:91 in 1999. The percent young age class has varied greatly, however on average it has been 28% through all readings. Most of the population shows only light to moderate use. There are a few scattered fourwing saltbush and ephedra plants. Other woody plants on the site are increasers like broom snakeweed, pricklypear cactus, and pinyon pine. Their populations are currently low, providing less than 1% of the total plant cover, except for pinyon pine which is 13% of the total vegetation. Point quarter data for 2004 estimated 47 pinyon pine trees/acre with an average diameter of 4.4 inches.

A fair stand of crested wheatgrass has been a major component of the herbaceous understory, but has decreased from 18% of the grass cover in 1994 and 1999 to 7% in 2004. The most common native, blue grama, provides on average almost 55% of the grass cover and provides excellent soil protection, although it produces little forage. The larger grasses such as crested wheatgrass, needle-and-thread, galleta, and sand dropseed provide more readily available forage. Forbs, although fairly diverse, are not as important in terms of forage production as they only contribute on average about 8% of the total vegetative cover.

1994 TREND ASSESSMENT

Soil trend for this site has slightly improved with less bare soil and an excellent herbaceous cover. The browse trend is slightly improved with increased density, lower percent decadency, and good vigor for Wyoming big sagebrush. The herbaceous understory is good, even with the extended drought conditions. Trend is stable for the perennial herbs. The Desirable Components Index rated this site as excellent with a score of 66 due to good shrub cover, high perennial grass cover, but had a low amount of young shrubs.

TREND ASSESSMENT

soil - slightly up (4)

browse - slightly up (4)

herbaceous understory - stable (3)

winter range condition (DC Index) - 66 (excellent) Wyoming big sagebrush type

1999 TREND ASSESSMENT

Soil trend for this site has shown little change with good herbaceous cover. The browse trend is stable with continued low percent decadency and good vigor for Wyoming big sagebrush. The herbaceous understory is good, however with the continued dry conditions, there is a slight decline in the sum of nested frequency values for the perennial species and even for the annual species. Trend is slightly down. The Desirable Components Index rated this site as excellent with a score of 81 due to good shrub cover, high perennial grass cover, and a high amount of young shrubs.

TREND ASSESSMENT

soil - stable (3)

browse - stable (3)

herbaceous understory - slightly down (2)

winter range condition (DC Index) - 81 (excellent) Wyoming big sagebrush type

2004 TREND ASSESSMENT

Trend for soil is stable. Percent bare ground has stayed fairly consistent between 35 and 40% through the years. Protective cover has remained fairly stable, some fluctuation in vegetation cover due to drought conditions. Trend for key browse, Wyoming big sagebrush, is stable. Densities overall have changed little, most change is due to fluctuation in the young age class. Utilization continues to be light to moderate and vigor is good. Trend for the herbaceous understory is down. Nested frequency for crested wheatgrass, needle-and-thread, sand dropseed, and bottlebrush squirreltail all decreased significantly. Several of these species (crested wheatgrass) provided much of the herbaceous forage. Forbs are diverse, but provide little vegetation cover or forage. The Desirable Components Index rated this site as good with a score of 53 due to good shrub cover, fair perennial grass cover, and no young shrubs.

TREND ASSESSMENT

soil - stable (3)

browse - stable (3)

herbaceous understory - down (1)

winter range condition (DC Index) - 53 (good) Wyoming big sagebrush type

HERBACEOUS TRENDS --

Management unit 13A, Study no: 12

T y p e	Species	Nested Frequency				Average Cover %		
		'87	'94	'99	'04	'94	'99	'04
G	Agropyron cristatum	_b 139	_b 145	_b 126	_a 56	3.17	3.07	.69
G	Bouteloua gracilis	_b 212	_a 177	_{ab} 201	_{ab} 202	6.89	9.97	6.67
G	Bromus tectorum (a)	-	53	40	22	.32	.50	.08
G	Hilaria jamesii	_b 22	_b 22	_{ab} 13	_a -	.09	.13	.00

Type	Species	Nested Frequency				Average Cover %		
		'87	'94	'99	'04	'94	'99	'04
G	<i>Poa secunda</i>	104	112	92	125	.97	2.25	1.71
G	<i>Sitanion hystrix</i>	_c 35	_b 17	_b 15	_a -	.08	.13	-
G	<i>Sporobolus cryptandrus</i>	-	6	4	4	.18	.18	.04
G	<i>Stipa comata</i>	_c 183	_c 201	_b 101	_a 38	3.44	1.04	.67
G	<i>Vulpia octoflora</i> (a)	-	_c 168	_b 80	_a 8	.44	1.30	.02
Total for Annual Grasses		0	221	120	30	0.75	1.80	0.10
Total for Perennial Grasses		695	680	552	425	14.84	16.78	9.80
Total for Grasses		695	901	672	455	15.60	18.59	9.90
F	<i>Astragalus cicer</i>	_{ab} 39	_b 52	_{ab} 43	_a 18	.24	.21	.18
F	<i>Astragalus convallarius</i>	-	5	2	3	.01	.03	.00
F	<i>Calochortus nuttallii</i>	_b 46	_{ab} 4	_a -	_{ab} 3	.01	-	.01
F	<i>Castilleja</i> spp.	_a -	_b 25	_a -	_a -	.10	-	-
F	<i>Draba reptans</i> (a)	-	_b 139	_a -	_a 1	.30	-	.00
F	<i>Erigeron pumilus</i>	_c 67	_b 38	_{bc} 58	_a -	.22	.92	-
F	<i>Gilia</i> spp. (a)	-	_c 85	_a -	_b 18	.20	-	.03
F	<i>Lappula occidentalis</i> (a)	-	-	-	4	-	-	.01
F	<i>Lomatium</i> spp.	3	-	-	-	-	-	-
F	<i>Medicago sativa</i>	6	4	2	-	.18	.21	-
F	<i>Microsteris gracilis</i> (a)	-	_b 49	_a 4	_a 17	.10	.00	.04
F	<i>Oenothera albicaulis</i> (a)	5	-	-	-	-	-	-
F	<i>Phlox longifolia</i>	_b 76	_b 71	_a 22	_a 17	.18	.09	.07
F	<i>Plantago patagonica</i> (a)	-	_{ab} 96	_a 73	_b 120	.20	.53	.40
F	<i>Potentilla gracilis</i>	_a -	_b 38	_a -	_a -	.26	-	-
F	<i>Sphaeralcea coccinea</i>	_b 135	_b 131	_b 110	_a 75	1.12	1.60	.92
F	<i>Tragopogon dubius</i>	_{ab} 10	_a 9	_a -	_b 10	.01	-	.05
Total for Annual Forbs		5	369	77	160	0.81	0.53	0.49
Total for Perennial Forbs		382	377	237	126	2.37	3.07	1.24
Total for Forbs		387	746	314	286	3.18	3.61	1.73

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

BROWSE TRENDS --

Management unit 13A, Study no: 12

Type	Species	Strip Frequency			Average Cover %		
		'94	'99	'04	'94	'99	'04
		B	Artemisia tridentata wyomingensis	92	88	84	9.97
B	Atriplex canescens	1	2	1	1.00	.03	-
B	Eriogonum microthecum	7	4	7	.07	.03	.03
B	Gutierrezia sarothrae	5	4	9	.15	.00	.36
B	Opuntia spp.	20	20	21	.29	.05	.25
B	Pediocactus simpsonii	0	0	8	-	-	.05
B	Pinus edulis	0	4	6	1.27	5.05	3.89
B	Sclerocactus whipplei	0	8	0	.00	.03	-
Total for Browse		125	130	136	12.77	17.25	17.93

CANOPY COVER, LINE INTERCEPT --

Management unit 13A, Study no: 12

Species	Percent Cover	
	'99	'04
Artemisia tridentata wyomingensis	-	18.63
Eriogonum microthecum	-	.28
Gutierrezia sarothrae	-	.35
Opuntia spp.	-	.30
Pinus edulis	3.40	5.50

KEY BROWSE ANNUAL LEADER GROWTH --

Management unit 13A, Study no: 12

Species	Average leader growth (in)
	'04
Artemisia tridentata wyomingensis	1.1

POINT-QUARTER TREE DATA --

Management unit 13A, Study no: 12

Species	Trees per Acre	
	'99	'04
Juniperus osteosperma	20	-
Pinus edulis	71	47

Average diameter (in)	
'99	'04
1.0	-
3.3	4.4

BASIC COVER --

Management unit 13A, Study no: 12

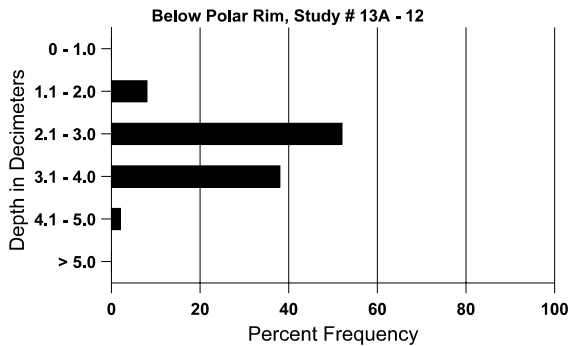
Cover Type	Average Cover %			
	'87	'94	'99	'04
Vegetation	12.25	34.09	36.44	29.85
Rock	0	.00	0	0
Pavement	0	0	.01	.00
Litter	42.25	30.93	31.25	34.56
Cryptogams	5.00	1.81	4.96	4.73
Bare Ground	40.50	38.21	38.89	44.86

SOIL ANALYSIS DATA --

Management unit 13A, Study no: 12, Study Name: Below Polar Rim

Effective rooting depth (in)	Temp °F (depth)	pH	%sand	%silt	%clay	%OM	PPM P	PPM K	ds/m
15.1	66.3 (10.9)	6.7	58.9	19.8	21.3	1.6	6.5	60.8	0.3

Stoniness Index



PELLET GROUP DATA --

Management unit 13A, Study no: 12

Type	Quadrat Frequency		
	'94	'99	'04
Rabbit	30	22	30
Horse	-	2	-
Elk	39	37	18
Deer	8	18	8
Cattle	-	6	7

Days use per acre (ha)	
'99	'04
-	-
-	1 (2)
94 (232)	33 (83)
13 (32)	19 (46)
52 (128)	31 (75)

BROWSE CHARACTERISTICS --
 Management unit 13A, Study no: 12

		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 tridentata wyomingensis</i>												
87	7732	533	5466	1933	333	-	21	7	4	-	.86	20/31
94	13800	-	220	13100	480	100	2	0	3	.72	10	15/21
99	10900	380	4400	5520	980	120	47	14	9	.73	.91	18/31
04	6580	160	20	5760	800	920	58	10	12	4	4	18/27
<i>Atriplex canescens</i>												
87	0	-	-	-	-	-	0	0	-	-	0	-/-
94	40	20	-	40	-	-	100	0	-	-	0	20/24
99	80	-	-	80	-	-	0	0	-	-	0	21/13
04	20	-	-	20	-	-	0	100	-	-	0	17/14
<i>Eriogonum microthecum</i>												
87	0	-	-	-	-	-	0	0	-	-	0	-/-
94	360	-	-	360	-	-	0	0	-	-	0	4/10
99	120	-	60	60	-	-	0	0	-	-	0	11/8
04	200	-	-	200	-	-	10	70	-	-	0	8/7
<i>Gutierrezia sarothrae</i>												
87	0	-	-	-	-	-	0	0	0	-	0	-/-
94	100	-	-	80	20	20	0	0	20	-	0	8/9
99	140	-	60	80	-	-	0	0	0	-	0	8/12
04	340	-	20	320	-	20	0	0	0	-	0	8/10
<i>Opuntia spp.</i>												
87	1266	200	400	733	133	-	0	0	11	-	21	3/13
94	620	20	-	600	20	-	10	0	3	-	0	3/9
99	560	20	180	320	60	-	0	0	11	11	11	4/9
04	600	-	60	520	20	-	0	0	3	3	3	5/12
<i>Pediocactus simpsonii</i>												
87	0	-	-	-	-	-	0	0	-	-	0	-/-
94	0	-	-	-	-	-	0	0	-	-	0	-/-
99	0	-	-	-	-	-	0	0	-	-	0	-/-
04	200	-	20	180	-	-	0	0	-	-	0	1/3
<i>Pinus edulis</i>												
87	0	133	-	-	-	-	0	0	-	-	0	-/-
94	0	-	-	-	-	-	0	0	-	-	0	-/-
99	100	-	20	80	-	-	0	0	-	-	0	-/-
04	120	-	40	80	-	20	0	0	-	-	17	-/-

		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)
Sclerocactus whipplei												
87	0	-	-	-	-	-	0	0	-	-	0	-/-
94	0	-	-	-	-	-	0	0	-	-	0	1/4
99	200	40	140	60	-	-	0	0	-	-	0	1/2
04	0	-	-	-	-	-	0	0	-	-	0	-/-