

Trend Study 23R-4-03

Study site name: Plateau Native.

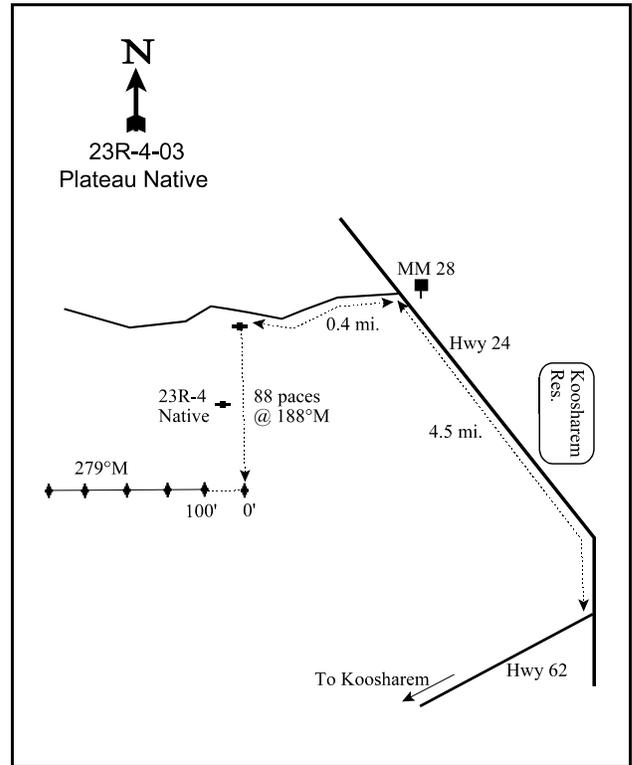
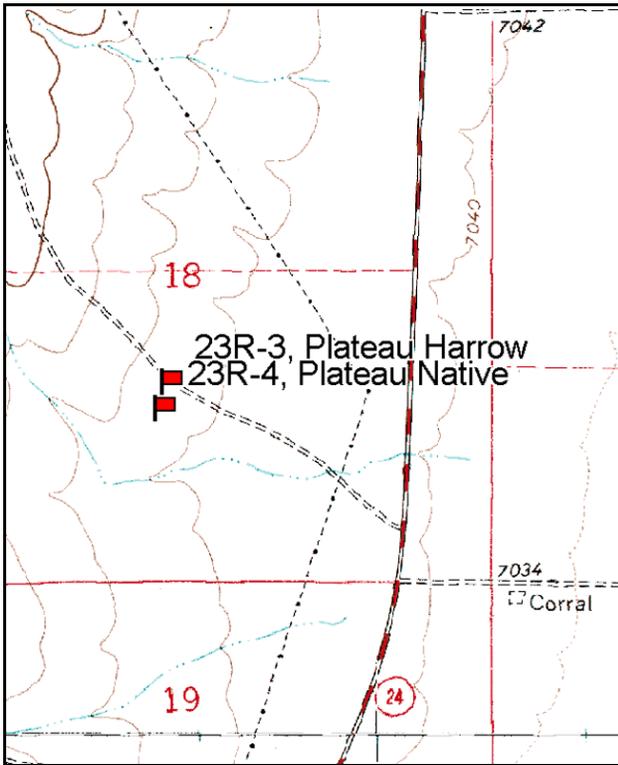
Vegetation type: Wyoming Big Sagebrush.

Compass bearing: frequency baseline 279 degrees magnetic.

Frequency belt placement: line 1 (11ft), line 2 (34ft), line 3 (59ft), line 4 (71ft), line 5 (95ft).

LOCATION DESCRIPTION

Start at highway 62 and highway 24 in Koosharem. Drive north on Hwy 24 for 4.5 miles to mile marker 28. Near mile marker 28, turn on to a road going west. Travel 0.4 mile to the witness on the left side of the road. From the witness post, walk 88 paces at 188 degrees magnetic to the 0' stake.



Map name: Boobe Hole Reservoir

Diagrammatic Sketch

Township 25S, Range 1E, Section 18

GPS: NAD 27, UTM 12S 4276062 N, 426919 E

DISCUSSION

Plateau Native - Trend Study No. 23R-4

This trend study samples an untreated Wyoming big sagebrush site which is paired with previous harrowed trend study, 23R-3. These sites are located about 5 miles north of Koosharem Reservoir and about ½ of a mile west of Highway 62. Elevation is 7,100 feet with an eastern aspect. The area is high elevation winter and spring/summer range for deer and elk. Pellet group data from 1997 found very few deer and elk pellet groups and no pellet groups were encountered in 2003. This area has been grazed by sheep in the past by the land owner but it does not appear that grazing has resumed as of the 2003 reading.

Soil at the site is deep for a Wyoming big sagebrush site. Effective rooting depth is estimated at nearly 14 inches. It has a sandy loam texture which is neutral in reactivity. There was little noted horizon development in the soil profile and organic matter is low at 1.5%. Phosphorus was marginal at 10.8 ppm. Vegetation and litter cover are abundant but concentrated under shrubs leaving shrub interspaces mostly bare. Pavement is concentrated on the soil surface, especially in the shrub interspaces, with a high cover value of 31% in 2003. There is little erosion occurring however. The erosion condition class was determined as stable in 2003.

The site supports a rather dense stand of Wyoming big sagebrush which had an estimated line intercept cover value of 24% in 2003. Population density was estimated at 1,920 plants/acre in 1999. Use was estimated to be moderate to heavy in 1999, but due to the lack of wildlife pellet groups, use was likely overestimated because of the poor annual leader growth that year. Density increased slightly to 2,000 plants/acre by 2003. Use was mostly light, vigor good, with 27% of the stand classified as decadent. Seed production was good in 2003 and annual leader growth was marginal averaging 1.4 inches. The only other shrubs on the site consist of a few prickly phlox and prickly pear cactus.

The herbaceous understory is diverse and fairly abundant but most plants are concentrated under the protection of sagebrush canopies. Total grass cover was estimated at 11% in 1999 and 10% in 2003. Composition is similar to the harrowed site, but needle-and-thread grass is not quite as dominant here without the disturbance. It provided 53% of the total grass cover in 1999 and 65% in 2003. Bluebunch wheatgrass, Indian ricegrass, Sandberg bluegrass, bottlebrush squirreltail, and Letterman needlegrass are also found on the site. Cheatgrass was common in 1999, producing 26% of the grass cover, but it declined significantly in 2003. Several forbs were encountered but only a few are common. The most abundant perennial forbs include stoneseed, Utah deervetch, redroot eriogonum, and lupine. Total forb cover was estimated at 7% in 1999 and 6% in 2003.

1999 APPARENT TREND ASSESSMENT

Soil conditions are marginal. There is good vegetation and litter cover on the site but it is concentrated under sagebrush canopies leaving shrub interspaces mostly bare. Cover of bare ground was estimated at 20%. There is little erosion occurring however, primarily due to the gentle terrain. The sagebrush population appears stable. Use is mostly moderate, vigor good, and decadence low. The herbaceous understory is diverse but not particularly abundant. Most plants are found growing within sagebrush canopies.

2003 TREND ASSESSMENT

Trend for soil is up slightly. Vegetation and litter cover increased slightly, and cover of bare ground declined from 20% in 1999 to 10% in 2003. One reason for the change is the increase in pavement cover (30% to 40%). There is still a lot of bare ground within the shrub interspaces but most is protected by pavement. Trend for the Wyoming big sagebrush is stable. Density has remained similar. Utilization is mostly light, vigor good, and percent decadence remains about what would be expected for a Wyoming big sagebrush site at 27%. Trend for the herbaceous understory is stable. Sum of nested frequency for perennial grasses has

increased slightly, while frequency of perennial forbs has declined slightly. Nested frequency of the most abundant perennial grass, needle-and-thread, has remained stable. However, nested frequency of annual cheatgrass has declined significantly. Nested frequency of Utah deervetch declined significantly, while all other forbs remained stable or increased significantly.

TREND ASSESSMENT

soil - up slightly (4)

browse - stable (3)

herbaceous understory - stable (3)

HERBACEOUS TRENDS --

Management unit 23R, Study no: 4

Type	Species	Nested Frequency		Average Cover %	
		'99	'03	'99	'03
G	Agropyron spicatum	_b 63	_a 22	1.26	.50
G	Bromus tectorum (a)	_b 248	_a 81	2.67	.64
G	Oryzopsis hymenoides	_b 32	_a 17	.87	.46
G	Poa secunda	_a 2	_b 8	.03	.16
G	Sitanion hystrix	_a 2	_b 54	.03	1.18
G	Stipa comata	165	153	5.58	6.16
G	Stipa lettermani	_a -	_b 27	-	.41
Total for Annual Grasses		248	81	2.67	0.64
Total for Perennial Grasses		264	281	7.77	8.88
Total for Grasses		512	362	10.45	9.53
F	Agoseris glauca	2	-	.00	-
F	Alyssum alyssoides (a)	_b 368	_a 5	1.87	.01
F	Arabis spp.	9	-	.04	-
F	Astragalus convallarius	_a 7	_b 31	.02	.38
F	Cryptantha spp.	_a -	_b 13	-	.14
F	Eriogonum racemosum	44	35	.42	.29
F	Linum lewisii	4	-	.01	-
F	Lithospermum ruderales	69	56	2.77	3.51
F	Lotus utahensis	_b 54	_a 16	.70	.09
F	Lupinus argenteus	22	19	1.20	1.33
F	Penstemon comarrhenus	5	-	.00	-
F	Phlox longifolia	-	8	-	.01
F	Streptanthus cordatus	2	-	.00	-
F	Tragopogon dubius	-	-	.00	-
F	Trifolium spp.	-	3	-	.00

Type	Species	Nested Frequency		Average Cover %	
		'99	'03	'99	'03
	Total for Annual Forbs	368	5	1.87	0.01
	Total for Perennial Forbs	218	181	5.19	5.77
	Total for Forbs	586	186	7.06	5.79

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

BROWSE TRENDS --

Management unit 23R, Study no: 4

Type	Species	Strip Frequency		Average Cover %	
		'99	'03	'99	'03
B	<i>Artemisia tridentata wyomingensis</i>	62	63	16.89	22.17
B	<i>Leptodactylon pungens</i>	4	3	.18	.15
B	<i>Opuntia</i> spp.	1	4	-	-
	Total for Browse	67	70	17.07	22.32

CANOPY COVER, LINE INTERCEPT --

Management unit 23R, Study no: 4

Species	Percent Cover
	'03
<i>Artemisia tridentata wyomingensis</i>	23.51

KEY BROWSE ANNUAL LEADER GROWTH --

Management unit 23R, Study no: 4

Species	Average leader growth (in)
	'03
<i>Artemisia tridentata wyomingensis</i>	1.4

BASIC COVER --

Management unit 23R, Study no: 4

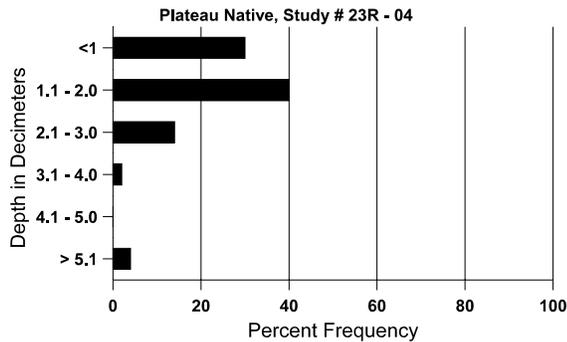
Cover Type	Average Cover %	
	'99	'03
Vegetation	31.04	33.57
Rock	.59	.85
Pavement	30.20	39.80
Litter	22.84	30.55
Cryptogams	4.03	.93
Bare Ground	20.36	10.06

SOIL ANALYSIS DATA --

Management unit 23R, Study no: 4, Study Name: Plateau Native

Effective rooting depth (in)	Temp °F (depth)	pH	%sand	%silt	%clay	%OM	PPM P	PPM K	ds/m
13.5	62.3 (11.2)	7.1	63.6	19.8	16.6	1.6	10.9	198.4	0.5

Stoniness Index



PELLET GROUP DATA --

Management unit 23R, Study no: 4

Type	Quadrat Frequency		Days use per acre (ha)	
	'99	'03	'99	'03
Rabbit	35	86	-	-
Elk	5	-	1 (2)	-
Deer	2	-	1 (3)	-

BROWSE CHARACTERISTICS --
 Management unit 23R, Study no: 4

		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 wyomingensis</i>											
99	1920	-	100	1420	400	240	40	29	21	15	35/50
03	2000	-	-	1460	540	80	30	1	27	9	36/47
<i>Leptodactylon pungens</i>											
99	140	-	-	140	-	-	0	0	-	0	6/11
03	140	-	-	140	-	-	0	43	-	0	4/6
<i>Opuntia spp.</i>											
99	20	-	-	20	-	-	0	0	-	0	3/16
03	120	-	-	120	-	-	0	0	-	0	6/12