

Trend Study 16A-23-07

Study site name: Fountain Green Plateau .

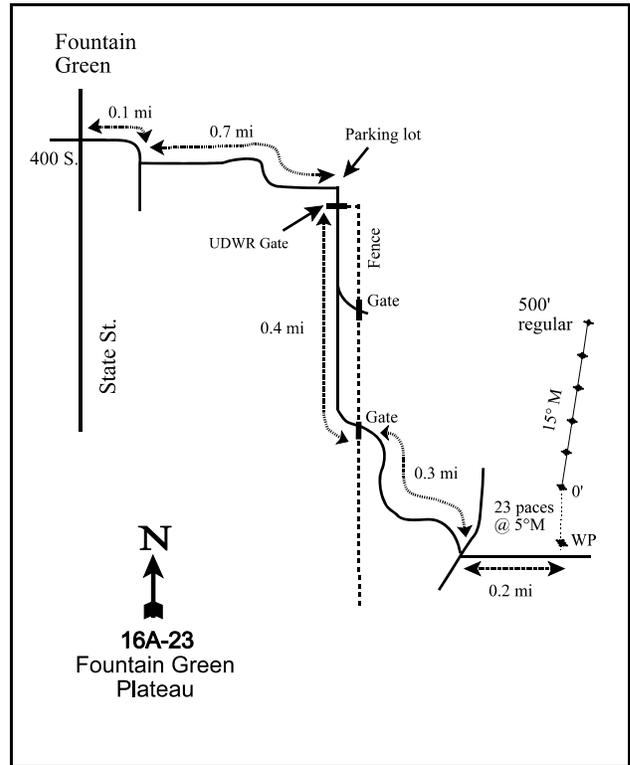
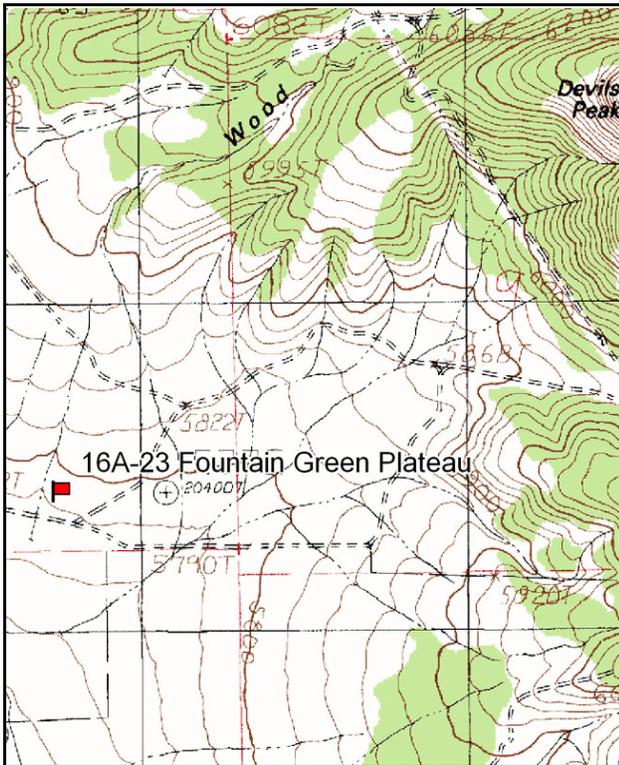
Vegetation type: Wyoming Big Sagebrush.

Compass bearing: frequency baseline 15 degrees magnetic.

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

LOCATION DESCRIPTION

From Fountain Green travel south on State St. Turn left on 400 South and travel 0.1 mile to an intersection. Take the left fork and go 0.7 mile to a parking lot in front of a DWR gate. Turning right, go through the gate and travel 0.4 miles to another gate, passing a gate on the side on your way. Go through the gate and go 0.3 mile to an intersection. Turn left and continue east 0.2 mile to a witness post on the left side of the road. From the witness post, the 0-foot baseline stake is 23 paces at 5 degrees magnetic. The 0-stake is marked by browse tag #193.



Map Name: Moroni

Diagrammatic Sketch

Township 13S, Range 1E, Section 14

GPS: NAD 83, UTM 12S 447673 E 4384595 N

DISCUSSION

Fountain Green Plateau - Trend Study No. 16A-23

Study Information

This study is located approximately 1.9 miles (3.1 km) southeast of Fountain Green within the North Nebo WMA, Fountain Green Unit [elevation: 5,800 feet (1,768 m), slope: 5%, aspect: southwest]. It was established in 2007 to monitor a Plateau® treatment to eliminate cheatgrass (*Bromus tectorum*). The vegetative cover consists of Wyoming big sagebrush (*Artemisia tridentata* ssp. *wyomingensis*) intermixed with a smaller density of basin big sagebrush (*Artemisia tridentata* ssp. *tridentata*), and a cheatgrass understory. The area is used by deer and elk as wintering habitat, and grazed by sheep in the summer. Use was estimated at 22 deer days use/acre (55 ddu/ha), 1 elk day use/acre (3 edu/ha), and 65 sheep days use/acre (160 sdu/ha). Two deer carcasses were also found.

Soil

The soil is classified within the Snake Hollow series (USDA-NRCS 2007). The soils in this series are very deep, and formed in alluvium from coarse-grained acid and intermediate igneous rocks. The soil texture is a sandy loam, and the pH is neutral (7.0). Soil phosphorus and potassium are high at 12 ppm and 486 ppm, respectively. Soil organic matter is 1.6%. Bare ground is relatively high at 18%, while vegetation and litter provide 78% cover. The soil erosion condition was classified as stable.

Browse

Wyoming big sagebrush is the preferred browse species, and appears to be hybridizing with the few basin big sagebrush plants that are present. Wyoming big sagebrush density was 1,180 plants/acre (2,916 plants/ha). Decadence was high at 68% of the population, and almost half of the sampled plants were classified as dying. The density of dead plants was 1,020 plants/acre (2,520 plants/ha). No young plants were sampled. Fifty-six percent of the population displayed poor vigor, and use was mostly heavy. Annual leader growth averaged 0.9 inches (2.3 cm).

Herbaceous Understory

The understory is dominated by grasses, mostly cheatgrass. This species accounted for 93% of the total grass cover and 80% of the total herbaceous cover. Total grass cover was 29%. Western wheatgrass (*Agropyron smithii*) was also fairly abundant, with a quadrat frequency of 70%.

Total forb cover averaged 5%, but was dominated by annual species. The majority of the forb cover was provided by pale alyssum (*Alyssum alyssoides*) and storksbill (*Erodium cicutarium*). Storksbill has been shown to outcompete and prevent the establishment of native species (Kimball and Schiffman 2003).

2007 PRE-TREATMENT ASSESSMENT

The winter range condition, determined by the Desirable Components Index (DCI), is very poor. Preferred browse cover was low, and the majority of the population was decadent. Approximately half of the sampled plants were classified as dying, and there was a large density of dead plants. There was no indication of sagebrush reproduction. Vigor was poor on most plants, and use was heavy. The average cover of perennial grasses and forbs was low, and the understory was largely dominated by cheatgrass. It appears as though the cheatgrass is preventing the establishment of sagebrush seedlings.

winter range condition (DCI) - very poor (-11) Low potential scale

HERBACEOUS TRENDS --

Management unit 16A, Study no: 23

Type	Species	Nested Frequency	Average Cover %
		'07	'07
G	<i>Agropyron smithii</i>	202	1.19
G	<i>Agropyron spicatum</i>	10	.27
G	<i>Bromus tectorum</i> (a)	475	27.20
G	<i>Poa secunda</i>	4	.06
G	<i>Secale cereale</i> (a)	11	.09
G	<i>Sitanion hystrix</i>	8	.09
G	<i>Stipa comata</i>	10	.27
G	<i>Vulpia octoflora</i> (a)	3	.00
Total for Annual Grasses		489	27.30
Total for Perennial Grasses		234	1.89
Total for Grasses		723	29.20
F	<i>Alyssum alyssoides</i> (a)	376	2.01
F	<i>Erodium cicutarium</i> (a)	103	1.70
F	<i>Lappula occidentalis</i> (a)	1	.00
F	<i>Ranunculus testiculatus</i> (a)	160	.49
F	<i>Sisymbrium altissimum</i> (a)	2	.03
F	<i>Sphaeralcea coccinea</i>	77	.37
Total for Annual Forbs		642	4.25
Total for Perennial Forbs		77	0.36
Total for Forbs		719	4.61

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

BROWSE TRENDS --

Management unit 16A, Study no: 23

Type	Species	Strip Frequency	Average Cover %
		'07	'07
B	<i>Artemisia tridentata tridentata</i>	1	-
B	<i>Artemisia tridentata wyomingensis</i>	45	3.45
B	<i>Chrysothamnus viscidiflorus</i>	0	-
B	<i>Opuntia</i> sp.	15	1.11
Total for Browse		61	4.55

CANOPY COVER, LINE INTERCEPT --
 Management unit 16A, Study no: 23

Species	Percent Cover
	'07
Artemisia tridentata tridentata	.60
Artemisia tridentata wyomingensis	3.09
Opuntia sp.	.78

KEY BROWSE ANNUAL LEADER GROWTH --
 Management unit 16A, Study no: 23

Species	Average leader growth (in)
	'07
Artemisia tridentata wyomingensis	0.9

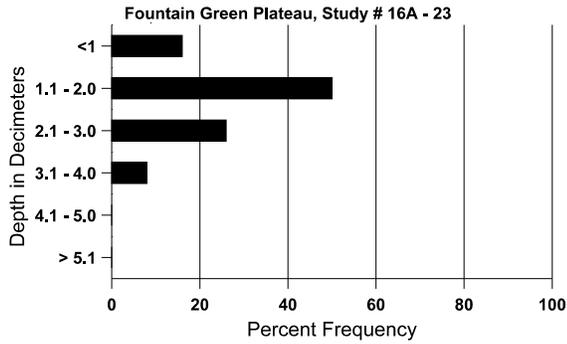
BASIC COVER --
 Management unit 16A, Study no: 23

Cover Type	Average Cover %
	'07
Vegetation	42.00
Rock	2.22
Pavement	.47
Litter	44.88
Cryptogams	1.80
Bare Ground	19.69

SOIL ANALYSIS DATA --
 Herd Unit 16A, Study no: 23, Fountain Green Plateau

Effective rooting depth (in)	Temp °F (depth)	pH	Loam			%OM	ppm P	ppm K	dS/m
			%sand	%silt	%clay				
-	-	7.0	56.2	19.8	24	1.6	12.3	486.4	.6

Stoniness Index



PELLET GROUP DATA --

Management unit 16A, Study no: 23

Type	Quadrat Frequency	Days use per acre (ha)
	'07	'07
Sheep	31	65 (160)
Rabbit	60	-
Elk	5	1 (3)
Deer	26	22 (55)

BROWSE CHARACTERISTICS --

Management unit 16A, Study no: 23

		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)
07	20	-	-	-	20	-	0	100	100	-	0	55/60
<i>Artemisia tridentata wyomingensis</i>												
07	1180	-	-	380	800	1020	12	86	68	49	56	28/39
<i>Chrysothamnus viscidiflorus</i>												
07	0	-	-	-	-	-	0	0	-	-	0	21/49
<i>Opuntia sp.</i>												
07	440	-	-	400	40	-	0	0	9	-	0	8/20