Trend Study 19A-11-07

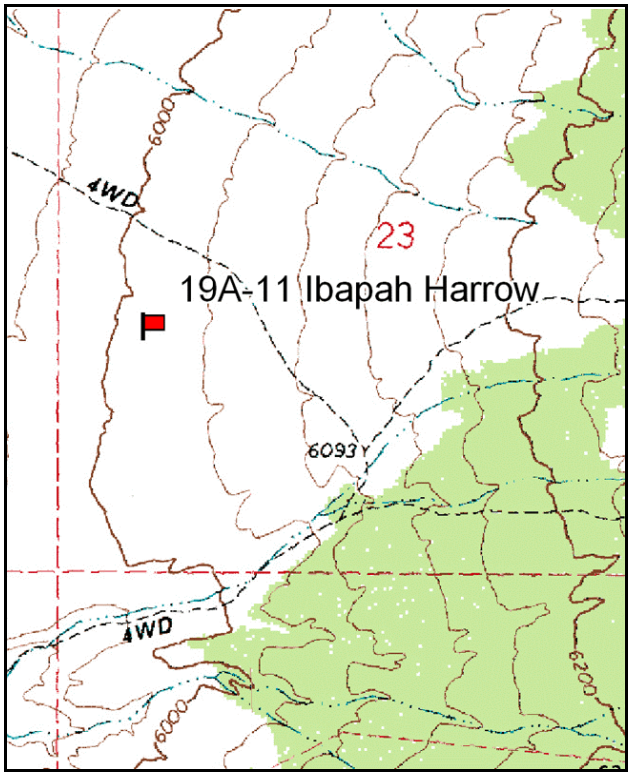
Study site name: Ibapah Harrow . Vegetation type: Wyoming Sagebrush .

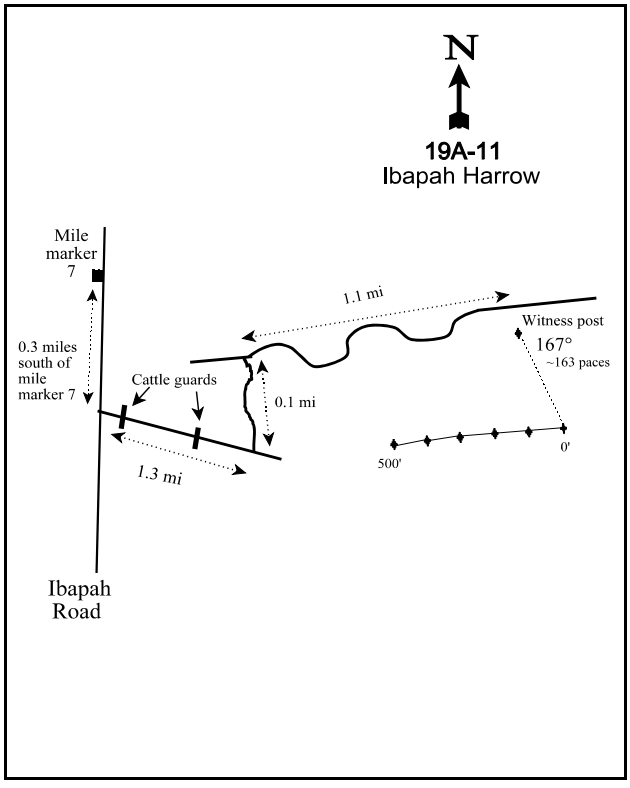
Compass bearing: frequency baseline 269 degrees magnetic.

Frequency belt placement: line 1 (11ft), line 2 (34ft), line 3 (59ft), line 4 (71ft), and line 5 (95ft). Rebar: none

LOCATION DESCRIPTION

From Ibapah, proceed south just past mile marker 6; turn right onto a road 0.3 miles south of mile marker 7. Drive east for 1.3 miles, crossing two cattle guards along the way. Turn left and go for 0.1 miles. Turn right and go for 1.1 miles to the witness post on the right side of the road. From the witness post, walk approximately 163 paces at 167 degrees magnetic to the 0-foot stake.





Map Name: Goshute

Diagrammatic Sketch

Township 10S , Range 19W , Section 23

GPS: NAD 83, UTM 12S 246911 E 4425299 N

DISCUSSION

Ibapah Harrow - Trend Study No. 19A-11

Study Information

This study was established in 2007 to monitor the effects of a Dixie harrow on Wyoming big sagebrush community, and is located on the west side of the Deep Creek Mountains [elevation: 6,020 feet (1,835 m), slope: 4%, aspect: west]. It receives winter big game use, primarily by elk. From the pellet group transect elk use was estimated at 17 days use/acre (41 edu/ha) in 2007. Deer use was estimated at 1 day use/acre (2 ddu/ha) in 2007. Elk and deer pellets were from winter and spring. Though not sampled, cattle pats from the previous summer were noted.

Soils

The soil is of the Hiko Peak series, which consist of very deep, well-drained soils that formed in alluvium and colluvium derived dominantly from igneous rocks, limestone, and quartzite (USDA-NRCS 2007). The soil has a loam texture and is mildly alkaline in reactivity (pH 7.5). The soil is light tan in color, with moderately abundant white rock on the surface and throughout the profile. The erosion condition was classified as slight in 2007. The soil showed moderate pedestalling and light soil and litter movement. Relative bare ground cover was moderate-high at 37% in 2007.

Browse

The dominant browse is Wyoming big sagebrush (*Artemisia tridentata* ssp. *wyomingensis*). It made up 68% of the total vegetative cover in 2007. Sagebrush density was estimated at 6,220 plants/acre (15,363 plants/ha), 55% of which were decadent and 41% were mature. Recruitment was low with only 4% being classified as young. Plants classified as dying made up 20% of the population, and those with poor vigor made up 28%. Annual leaders averaged approximately 1 inch (2.5 cm). Use was mostly light-moderate. Other sampled browse species were narrowleaf low rabbitbrush (*Chrysothamnus viscidflorus* ssp. *stenophyllus*) and broom snakeweed (*Gutierrezia sarothrae*).

Herbaceous Understory

The understory diversity is poor with few forage species. The dominant grass is Sandberg bluegrass (*Poa secunda*), which was in 95% of the quadrats sampled and accounted for 79% of the total grass cover. Other perennial grasses sampled include Indian ricegrass (*Oryzopsis hymenoides*) and crested wheatgrass (*Agropyron cristatum*). Nested frequency for cheatgrass (*Bromus tectorum*) was also very high and was sampled in 81% of the quadrats. Due to its small stature, cheatgrass made up only 15% of the total grass cover.

The forb component is sparse. It provided 2% of the total vegetation cover. Hoods phlox (*Phlox hoodii*) was the most abundant forb in 2007.

2007 PRE-TREATMENT ASSESSMENT

The winter range condition determined by the Desirable Components Index (DCI) score was fair. Browse cover was high. Wyoming big sagebrush provided 23% line-intercept cover. Fifty five percent of the population was decadent and the recruitment of young to the population was low at 4%. Plant use was light-moderate. The perennial grasses provided 7% average cover, and annual grass cover was 1%. Grasses provided 30 % of the total vegetation cover. Perennial forb cover was poor, providing less than 1% cover.

2007 winter range condition (DCI) - fair (41) Low potential scale

HERBACEOUS TRENDS --
Management unit 19A, Study no: 11

Type	Species	Nested Frequency '07	Average Cover % '07
G	Agropyron cristatum	8	.40
G	Agropyron spicatum	5	.00
G	Bromus tectorum (a)	267	1.31
G	Oryzopsis hymenoides	3	.03
G	Poa fendleriana	5	.03
G	Poa secunda	303	6.94
Total for Annual Grasses		267	1.31
Total for Perennial Grasses		324	7.41
Total for Grasses		591	8.73
F	Arabis sp.	3	.00
F	Castilleja flava	16	.16
F	Castilleja linariaefolia	1	.03
F	Calochortus nuttallii	4	.02
F	Cymopterus sp.	2	.00
F	Erigeron pumilus	6	.07
F	Phlox hoodii	21	.21
F	Phlox longifolia	34	.09
F	Ranunculus testiculatus (a)	27	.06
F	Tragopogon dubius	1	.03
F	Zigadenus paniculatus	1	.03
Total for Annual Forbs		27	0.06
Total for Perennial Forbs		89	0.66
Total for Forbs		116	0.72

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

BROWSE TRENDS --
Management unit 19A, Study no: 11

Type	Species	Strip Frequency '07	Average Cover % '07
B	Artemisia tridentata wyomingensis	92	19.94
B	Chrysothamnus viscidiflorus stenophyllus	37	1.93
B	Gutierrezia sarothrae	0	.03
Total for Browse		129	21.91

CANOPY COVER, LINE INTERCEPT --
Management unit 19A, Study no: 11

Species	Percent Cover '07
Artemisia tridentata wyomingensis	22.91
Chrysothamnus viscidiflorus stenophyllus	2.18

KEY BROWSE ANNUAL LEADER GROWTH --
Management unit 19A, Study no: 11

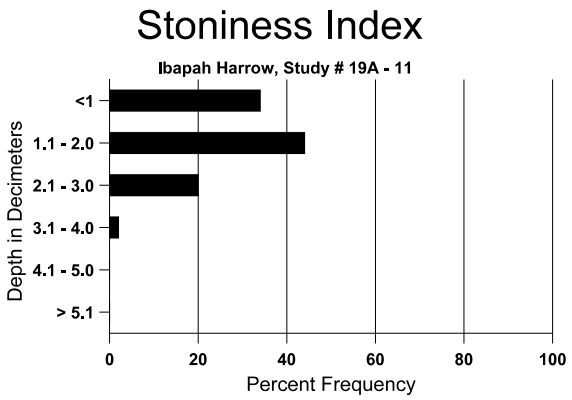
Species	Average leader growth (in) '07
Artemisia tridentata wyomingensis	0.8

BASIC COVER --
Management unit 19A, Study no: 11

Cover Type	Average Cover % '07
Vegetation	32.28
Rock	.88
Pavement	2.48
Litter	26.07
Cryptogams	6.70
Bare Ground	40.35

SOIL ANALYSIS DATA --
Herd Unit 19A, Study no: 11, Ibapah Harrow

Effective rooting depth (in)	Temp °F (depth)	pH	Loam			%0M	ppm P	ppm K	dS/m
			%sand	%silt	%clay				
-	-	7.5	27.4	26.6	46.0	1.5	9.2	249.6	.5



PELLET GROUP DATA --
Management unit 19A, Study no: 11

Type	Quadrat Frequency '07	Days use per acre (ha) '07
Rabbit	18	-
Elk	5	17 (41)
Deer	4	1 (2)

BROWSE CHARACTERISTICS --
Management unit 19A, Study no: 11

		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)
Artemisia tridentata wyomingensis												
07	**6220**	380	260	2560	3400	1240	36	0	55	20	28	19/31
Cercocarpus ledifolius												
07	**0**	-	-	-	-	-	0	0	-	-	0	39/54
Chrysothamnus viscidiflorus stenophyllus												
07	**1160**	-	20	620	520	40	2	0	45	14	19	11/16
Gutierrezia sarothrae												
07	**0**	-	-	-	-	-	0	0	-	-	0	7/6