

HARTS POINT - TREND STUDY NO. 14-10-09

Vegetation Type: Wyoming Big Sagebrush

Range Type: Crucial Deer Winter

NRCS Ecological Site Description: [Upland Loam \(Basin Big Sagebrush\), R035XY306UT](#)

Land Ownership: BLM

Elevation: 6,400 ft (1,951 m)

Aspect: Northwest

Slope: 5%

Transect bearing: 165 degrees magnetic.

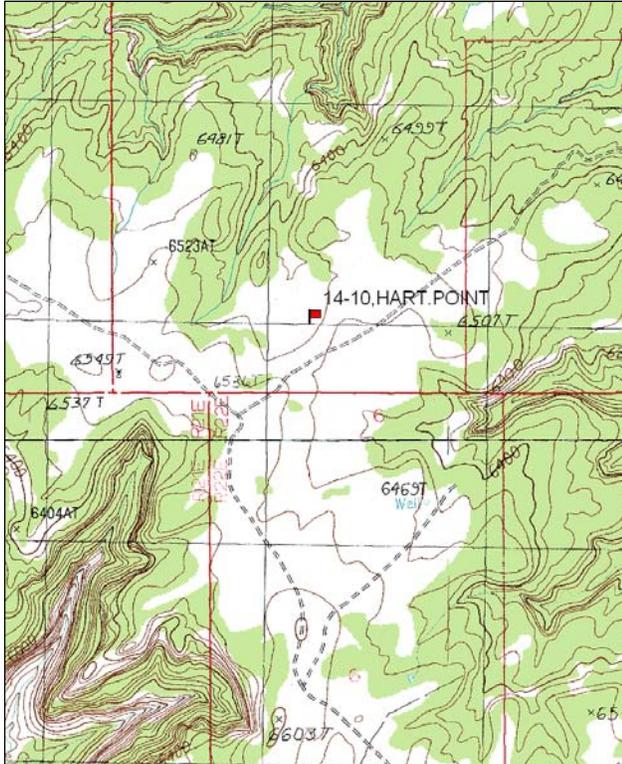
Belt placement: line 1 (11 & 95ft), line 2 (34ft), line 3 (59ft), line 4 (71ft)

Site Notes: No rebar on line 4, 0' lands in a two-track, put rebar on 20' mark.

Directions:

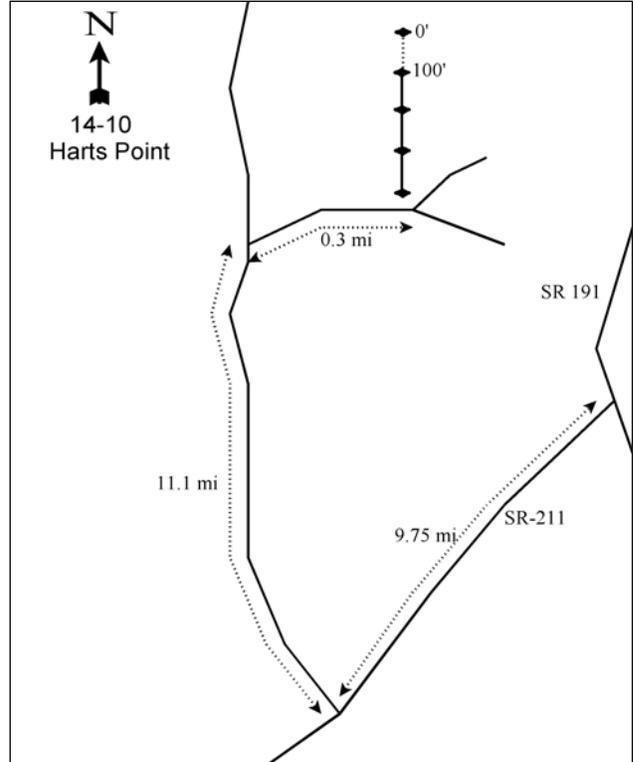
From the turnoff to the Needles District, Canyonlands National Park (onto SR-211 from SR-191), go west and south on the main paved road for 9.75 miles. At this point, just before the road drops down into Indian Creek Canyon, turn right onto the Harts Point Road. Go north on this road 11.1 miles. Turn right onto a small dirt road and go down 0.3 miles to a faint fork. The transect is north and west of these two roads. The last baseline stake is located approximately 30 feet from the fork. The start of the baseline is located 400 feet north and is marked by a fence post with browse tag #7820 attached.

Map Name: Harts Point North



Township: 30S, Range: 22E, Section: 31

Diagrammatic Sketch:



GPS: NAD 83, UTM 12S 627129 E 4221208 N

HARTS POINT - TREND STUDY NO. 14-10

Site Information

Site Description: The study is located on a Wyoming big sagebrush (*Artemisia tridentata* ssp. *wyomingensis*) flat surrounded by slickrock domes and Utah juniper (*Juniperus osteosperma*) covered hills. It is an arid site with a stock pond constructed in the area where a small drainage flows between two sandstone bluffs. The pond collects seasonal water in the spring time. Pellet group data has indicated moderate to heavy use by deer since 1999 with some minimal use by elk noted in 1999. Estimated cattle use has been fairly light since 1999 (Table - Pellet Group Data). Another principal use for this area is oil and gas exploration and extraction. A new pipeline was constructed across Harts Point in 1986.

Browse: Wyoming big sagebrush is the key species on this winter range with a small population of the preferred browse, winterfat (*Ceratoides lanata*), also scattered over the site. The sagebrush appears to have some of the characteristics of both mountain big sagebrush (*Artemisia tridentata* ssp. *vaseyana*) and Wyoming big sagebrush and is likely a hybrid between the two subspecies. All sagebrush on the site was classified as Wyoming big sagebrush. The sagebrush population is mostly mature with a moderate amount of decadence. Vigor has been mostly good in the population except for the 1994 sampling when plants displaying poor vigor increased to 60%. Recruitment of young sagebrush plants has decreased over the sample years with no young plants sampled in 2009. Utilization of sagebrush has been mostly light to moderate. The winterfat population has displayed very heavy use since 2004 (Table - Browse Characteristics).

Herbaceous Understory: Seven perennial grass species have been sampled on this site. Blue grama (*Bouteloua gracilis*) is the dominant grass on the site with sand dropseed (*Sporobolus cryptandrus*) and needle-and-thread (*Stipa comata*) also being fairly abundant. Galleta (*Hilaria jamesii*), Indian ricegrass (*Oryzopsis hymenoides*), and bottlebrush squirreltail (*Sitanion hystrix*) are also somewhat common, but not very abundant. Cheatgrass (*Bromus tectorum*) is present on the site and its abundance has been reflective of precipitation patterns. Forbs are sparse on the site with only one forb, lobeleaf groundsel (*Senecio multilobatus*) being sampled in 2009 (Table - Herbaceous Trends).

Soil: The soil is a sandy loam with a slightly alkaline pH and a fairly deep effective rooting depth. Phosphorus and potassium have limited availability for plant growth and development at 4.9 ppm and 38.4 ppm, respectively (Tiedemann and Lopez 2004) (Table - Soil Analysis Data). Bare ground cover is fairly high on the site with large open areas in the interspaces of shrubs. Cryptogam cover is quite high on the site with most cover occurring around shrubs (Table - Basic Cover). The soil erosion condition was classified as slight in 2004 and 2009 due primarily to pedastaling. There was a small gully beginning to form on the north end of the transect in 2009.

Trend Assessments

Browse:

- **1986 to 1994 - slightly down (-1):** Differences in density may be related to the larger sample area used in 1994; therefore, trend was determined using other parameters. The number of sagebrush plants displaying poor vigor increased from 9% to 60%. Recruitment of young sagebrush plants decreased substantially.
- **1994 to 1999 - slightly up (+1):** There was little change in the density of the primary browse species, Wyoming big sagebrush, but plants displaying poor vigor decreased to 4% and decadence decreased from 26% to 11%. Recruitment of young sagebrush plants increased from 6% of the population to 12%.
- **1999 to 2004 - slightly down (-1):** There was a slight decrease in the density of sagebrush, but cover increased from 12% to 14%. Decadence of sagebrush increased to 42% and recruitment of young plants decreased to 3% of the population.

- **2004 to 2009 - slightly up (+1):** There was an 11% increase in the density of Wyoming big sagebrush from 3,420 plants/acre to 3,800 plants/acre. Decadence of sagebrush decreased slightly to 31%, but is still fairly high. There was no new recruitment of young plants sampled in 2009.

Grass:

- **1986 to 1994 - stable (0):** There was little change in the sum of nested frequency of perennial grasses, though there was a significant decrease in the nested frequency of blue grama and a significant increase in the nested frequency of Indian ricegrass and sand dropseed.
- **1994 to 1999 - down (-2):** There was a 20% decrease in the sum of nested frequency of perennial grasses and cover decreased from 11% to 6%. There was a significant increase in the nested frequency of cheatgrass and cover increased from 3% to 4%.
- **1999 to 2004 - stable (0):** The sum of nested frequency of perennial grasses decreased slightly, but cover increased slightly to 8%. There was a significant decrease in the nested frequency of cheatgrass and cover fell to less than 0.1%. There was a significant increase in the nested frequency of sand dropseed and needle-and-thread.
- **2004 to 2009 - stable (0):** There was little change in the sum of nested frequency of perennial grasses, though cover increased to 12%.

Forb:

- **1986 to 1994 - down (-2):** Forbs are rare on the site. The sum of nested frequency of perennial forbs decreased due to a significant decrease in the nested frequency of low fleabane (*Erigeron pumilus*).
- **1994 to 1999 - slightly up (+1):** The sum of nested frequency of perennial forbs increased slightly and cover increased from less than 1% to over 2%.
- **1999 to 2004 - up (+2):** There was a two-fold increase in the sum of nested frequency of perennial forbs and cover increased to 6%. There was a significant increase in the nested frequency of lobeleaf groundsel.
- **2004 to 2009 - down (-2):** Lobeleaf groundsel was the only forb sampled on the site in 2009 and it decreased significantly in nested frequency. Total forb cover decreased to less than 0.1%.

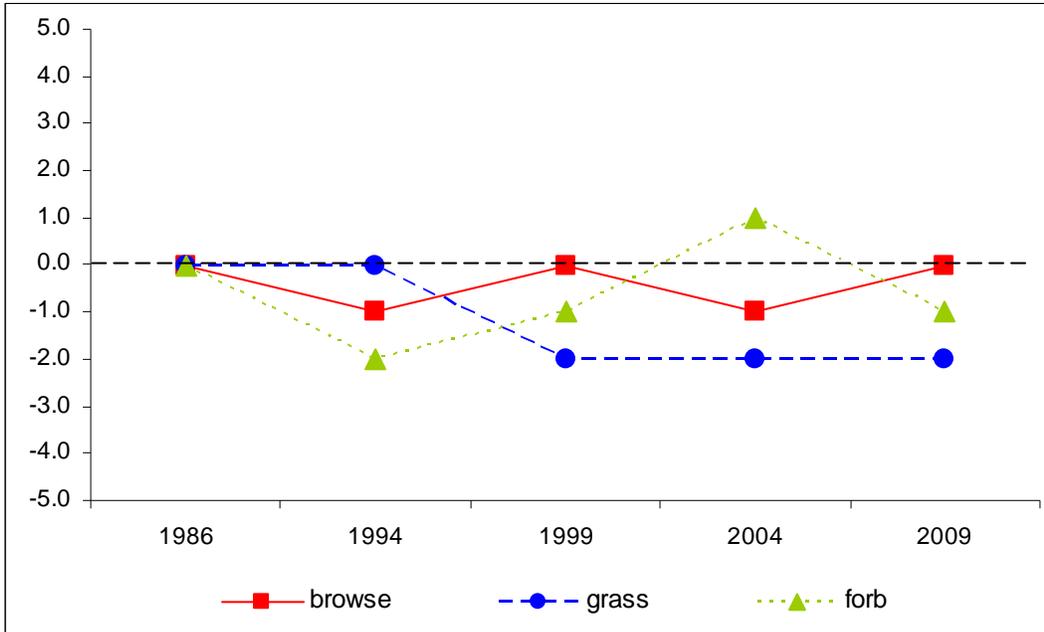
DEER DESIRABLE COMPONENTS INDEX - LOW POTENTIAL SCALE --

Management unit 14, study no: 10

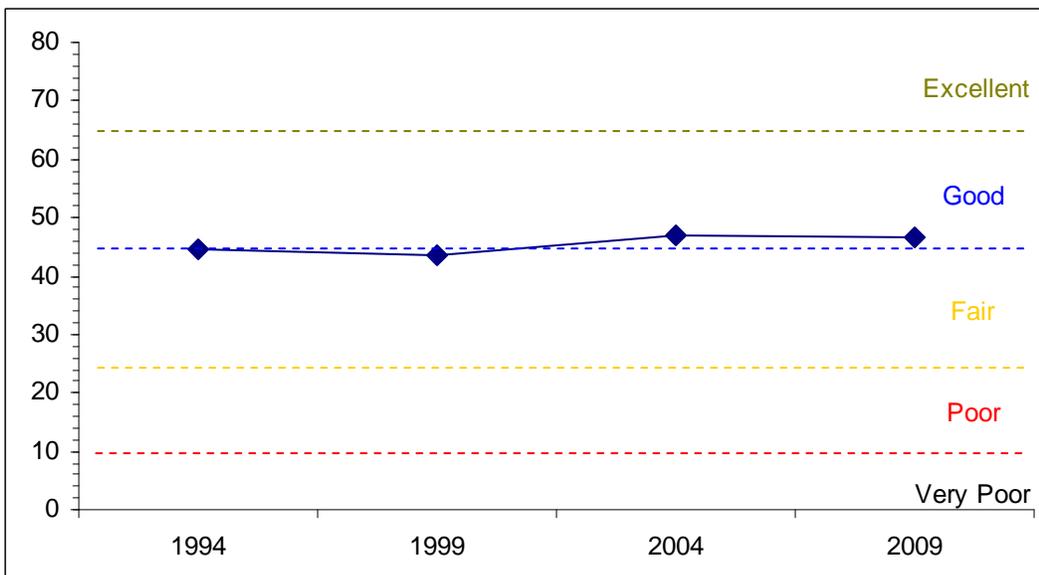
Year	Preferred Browse Cover	Preferred Browse Decadence	Preferred Browse Young	Perennial Grass Cover	Annual Grass Cover	Perennial Forb Cover	Noxious Weeds	Total Score	Ranking
94	14.4	7.2	3.0	22.2	-2.9	0.7	0.0	44.6	Fair-Good
99	14.6	11.7	6.0	12.0	-5.6	4.9	0.0	43.6	Fair-Good
04	17.9	2.5	1.5	16.0	-0.9	10.0	0.0	47.0	Fair-Good
09	18.5	5.7	0.0	23.5	-1.3	0.1	0.0	46.6	Fair-Good

Trend Summary

CUMULATIVE RANGE TREND ASSESSMENT--
Management unit 14, Study no: 10



DEER DESIRABLE COMPONENTS INDEX TREND, LOW POTENTIAL SCALE
Management unit 14, Study no: 10



HERBACEOUS TRENDS--
Management unit 14, Study no: 10

Type	Species	Nested Frequency					Average Cover %			
		'86	'94	'99	'04	'09	'94	'99	'04	'09
G	<i>Bouteloua gracilis</i>	c234	b168	ab159	a127	ab137	8.36	4.55	4.97	7.87
G	<i>Bromus tectorum</i> (a)	-	ab75	c270	a33	b70	2.93	4.39	.09	.96
G	<i>Hilaria jamesii</i>	abc31	bc45	c45	ab17	a14	.70	.42	.26	.11
G	<i>Oryzopsis hymenoides</i>	a7	b27	c64	a9	ab14	.09	.53	.18	.29
G	<i>Poa secunda</i>	-	-	1	1	2	-	.00	.00	.06
G	<i>Sitanion hystrix</i>	b27	b30	ab19	a7	ab13	.16	.11	.04	.28
G	<i>Sporobolus cryptandrus</i>	a-	b47	b20	c91	c71	.78	.15	1.73	2.00
G	<i>Stipa comata</i>	c110	bc88	a17	b56	b52	1.00	.23	.80	1.13
G	<i>Vulpia octoflora</i> (a)	-	c307	c299	b131	a93	.88	3.07	1.07	.74
Total for Annual Grasses		0	382	569	164	163	3.81	7.46	1.17	1.70
Total for Perennial Grasses		409	405	325	308	303	11.12	6.02	7.99	11.76
Total for Grasses		409	787	894	472	466	14.93	13.48	9.16	13.46
F	<i>Calochortus nuttallii</i>	6	-	3	2	-	-	.00	.00	-
F	<i>Cryptantha</i> sp.	-	6	-	-	-	.02	-	-	-
F	<i>Cymopterus</i> sp.	-	3	-	-	-	.15	-	-	-
F	<i>Delphinium nuttallianum</i>	a-	a-	a1	b7	a-	-	.00	.02	-
F	<i>Draba reptans</i> (a)	-	7	3	-	-	.02	.01	-	-
F	<i>Erigeron flagellaris</i>	-	1	3	-	-	.00	.00	-	-
F	<i>Erigeron pumilus</i>	b77	a1	a3	a-	-	.01	.18	-	-
F	<i>Gilia hutchinifolia</i> (a)	-	bc42	c70	b17	a-	.09	.87	.06	-
F	<i>Lappula occidentalis</i> (a)	-	1	2	-	3	.00	.00	-	.00
F	<i>Machaeranthera canescens</i>	1	-	-	-	-	-	-	-	-
F	<i>Oenothera</i> sp.	-	-	-	2	-	-	-	.00	-
F	<i>Plantago patagonica</i> (a)	-	c147	c160	b49	a-	.30	1.10	.19	-
F	<i>Ranunculus testiculatus</i> (a)	-	-	3	-	-	-	.03	-	-
F	<i>Senecio multilobatus</i>	a9	b42	b61	c137	a9	.16	2.25	5.80	.05
Total for Annual Forbs		0	197	238	66	3	0.42	2.02	0.25	0.00
Total for Perennial Forbs		93	53	71	148	9	0.35	2.45	5.82	0.05
Total for Forbs		93	250	309	214	12	0.77	4.47	6.08	0.05

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

BROWSE TRENDS--
Management unit 14, Study no: 10

Type	Species	Strip Frequency				Average Cover %			
		'94	'99	'04	'09	'94	'99	'04	'09
B	<i>Artemisia tridentata wyomingensis</i>	79	78	76	78	11.46	11.60	14.13	14.80
B	<i>Ceratoides lanata</i>	9	5	3	5	.04	.06	.15	.03
B	<i>Gutierrezia sarothrae</i>	2	1	0	0	.00	-	-	-
B	<i>Opuntia</i> sp.	3	2	1	0	.06	-	-	.01
Total for Browse		93	86	80	83	11.58	11.66	14.28	14.84

CANOPY COVER, LINE INTERCEPT--

Management unit 14, Study no: 10

Species	Percent Cover	
	'04	'09
Artemisia tridentata wyomingensis	21.66	20.60
Ceratoides lanata	.15	.11

KEY BROWSE ANNUAL LEADER GROWTH--

Management unit 14, Study no: 10

Species	Average leader growth (in)	
	'04	'09
Artemisia tridentata wyomingensis	4.2	1.3

BASIC COVER--

Management unit 14, Study no: 10

Cover Type	Average Cover %				
	'86	'94	'99	'04	'09
Vegetation	10.75	27.60	27.80	29.40	27.66
Rock	0	.00	0	.02	0
Pavement	0	0	.00	.02	0
Litter	45.75	19.87	18.33	19.85	29.15
Cryptogams	4.50	2.95	6.25	7.65	6.76
Bare Ground	39.00	49.35	43.04	54.29	48.17

SOIL ANALYSIS DATA --

Management unit 14, Study no: 10, Study Name: Harts Point

Effective rooting depth (in)	pH	sandy loam			%OM	PPM P	PPM K	ds/m
		%sand	%silt	%clay				
22.4	7.5	64.9	18.6	16.6	1	4.9	38.4	0.4

PELLET GROUP DATA--

Management unit 14, Study no: 10

Type	Quadrat Frequency			
	'94	'99	'04	'09
Rabbit	36	47	15	58
Elk	-	-	-	-
Deer	30	21	18	35
Cattle	6	7	6	4

Days use per acre (ha)		
'99	'04	'09
-	-	-
1 (3)	-	-
48 (119)	32 (79)	52 (129)
22 (54)	7 (16)	15 (38)

BROWSE CHARACTERISTICS--
Management unit 14, Study no: 10

		Age class distribution					Utilization			
Year	Plants per Acre (excluding seedlings)	% Young	% Mature	% Decadent	Seedling (plants/acre)	% moderate	% heavy	% poor vigor	Average Height Crown (in)	
<i>Artemisia tridentata wyomingensis</i>										
86	3732	20	57	23	999	18	64	9	17/22	
94	3560	6	67	26	20	13	9	60	37/49	
99	3580	12	77	11	-	30	11	4	25/36	
04	3420	3	56	42	40	43	0	18	26/40	
09	3800	0	69	31	-	39	19	9	22/35	
<i>Ceratoides lanata</i>										
86	0	0	0	0	-	0	0	0	-/-	
94	220	0	73	27	-	0	0	9	7/21	
99	180	0	100	0	-	0	11	0	6/8	
04	100	0	100	0	-	0	100	0	8/8	
09	260	0	100	0	-	8	69	0	13/10	
<i>Gutierrezia sarothrae</i>										
86	0	0	0	-	-	0	0	0	-/-	
94	40	0	100	-	-	0	0	0	8/10	
99	20	0	100	-	-	0	0	0	8/8	
04	0	0	0	-	-	0	0	0	-/-	
09	0	0	0	-	-	0	0	0	10/11	
<i>Juniperus osteosperma</i>										
86	66	0	100	-	-	0	0	0	69/70	
94	0	0	0	-	-	0	0	0	-/-	
99	0	0	0	-	-	0	0	0	-/-	
04	0	0	0	-	-	0	0	0	-/-	
09	0	0	0	-	-	0	0	0	-/-	
<i>Opuntia sp.</i>										
86	0	0	0	0	-	0	0	0	-/-	
94	60	0	67	33	20	0	0	33	8/9	
99	60	0	100	0	-	0	0	0	4/9	
04	20	0	100	0	-	0	0	0	6/9	
09	0	0	0	0	20	0	0	0	5/16	