

ROW OF PINES - TREND STUDY NO. 25A-9-09

Vegetation Type: Wyoming Big Sagebrush

Range Type: Crucial Deer Winter, Substantial Elk Winter

NRCS Ecological Site Description: Not Available

Land Ownership: BLM

Elevation: 8,400 ft (2,560 m)

Aspect: South

Slope: 0%-3%

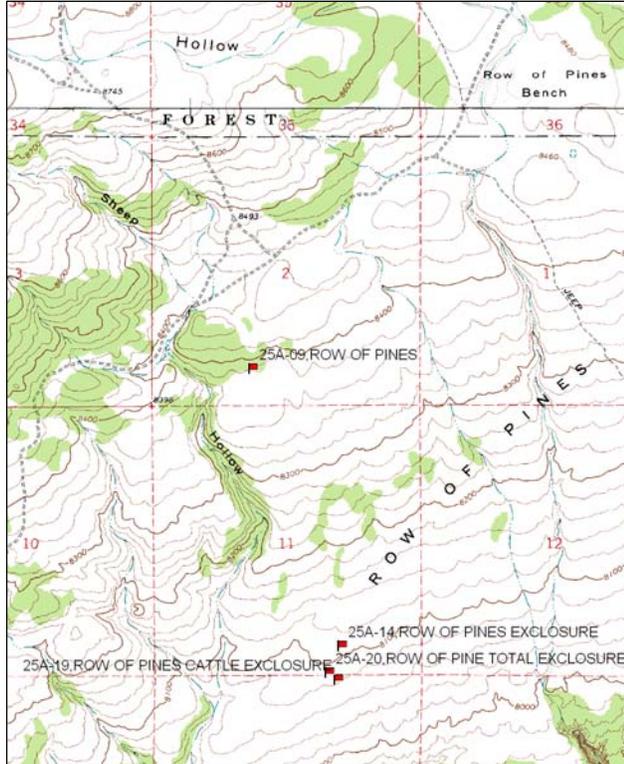
Transect bearing: 165 degrees magnetic

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

Directions:

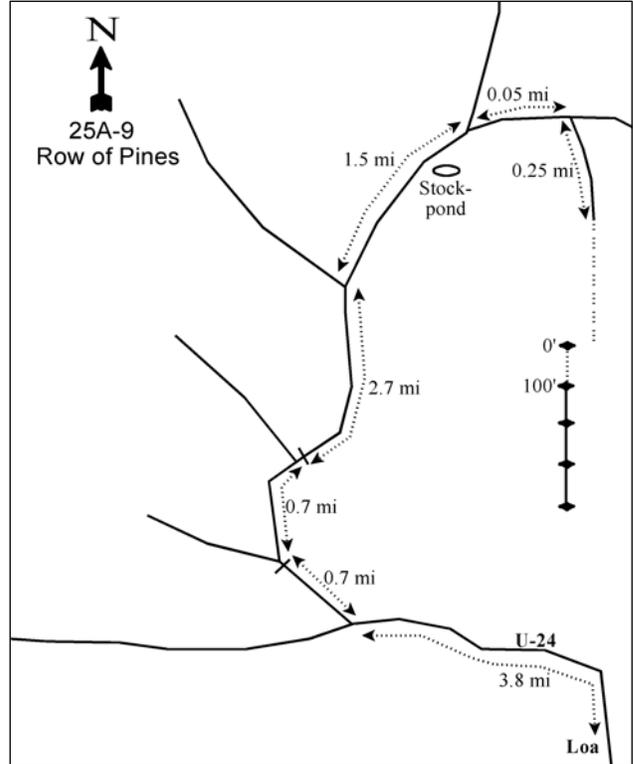
From Loa, proceed northwest on U-24 for 3.8 miles (0.9 miles beyond mile marker 49). Turn right and go 0.7 miles to a cattleguard. Just beyond the cattleguard turn right and go another 0.7 miles. Turn right and go across a cattleguard. Proceed 2.7 miles to an intersection, turn right and continue 1.3 miles to a stock pond on the east side of the road. Continue 0.2 miles to a fork, turn right and go 0.05 miles. Turn right and go 0.25 miles to the end of the road, where a pellet group transect begins. On the left side of the road is a gray fence post which marks the north end of the pellet transect. Count 16 stakes south through the belt of pinyon-juniper (the 16th stake is 25 feet from the trees). The beginning of the frequency baseline is 50 feet west of the 16th pellet group stake. Rebar (2-1/2 feet tall) is used to mark the transect, the 0-foot baseline stake has a red browse tag #7064 attached.

Map Name: Loa, Utah



Township: 27S, Range: 2E, Section: 2

Diagrammatic Sketch:



GPS: NAD 83, UTM 12S 442149 E 4259915 N

ROW OF PINES - TREND STUDY NO. 25A-9

Site Information

Site Description: This study is located on the gently sloping Row of Pines Bench, north of Loa. The area is a sagebrush-steppe with a few scattered trees. As part of the Seven Mile allotment, cattle graze the area for about 20 days in May on a deferred rotation system. Pellet group data has estimated varied use by deer depending on the year. Elk and cattle use has been consistently low (Table – Pellet Group Data).

Browse: Wyoming big sagebrush (*Artemisia tridentata* ssp. *wyomingensis*) is the key browse species. The average density since 1991 is over 7,000 plants/acre. Decadence has, historically, been high and recruitment of young has tended to be low. Broom snakeweed (*Gutierrezia sarothrae*) is the most abundant browse species but the population has varied between 500 and 11,000 plants/acre over the sample years (Table - Browse Characteristics).

Herbaceous Understory: Blue grama (*Bouteloa gracilis*) is the most abundant herbaceous species and provides little to no forage, especially as a warm season grass in a May allotment. Bottlebrush squirreltail (*Sitanion hystrix*) occurs with some frequency, though it has not provided much cover. Forbs are very rare on the site and have not provided over 1% cover since 1999 (Table - Herbaceous Trends).

Soil: The soil has been classified as a sandy clay loam with a neutral pH (6.9) (Table - Soil Analysis Data). The percent bare ground has ranged from 18% to 28% since 1985 (Table - Basic Cover). The soil erosion condition was classified as stable in 2004 and 2009.

Trend Assessments

Browse:

- **1985 to 1991 – stable (0):** Wyoming big sagebrush density was similar between years though decadence increased from 47% to 52%, it was already very high. Recruitment of young plants increased slightly from 6% to 10%.
- **1991 to 1999 – stable (0):** Differences in density may be related to the larger sample area used in 1999; therefore, trend was determined using other parameters. Wyoming big sagebrush decadence improved from 52% to 41%, but is still very high. Recruitment of young sagebrush plants also decreased and is low at 5%.
- **1999 to 2004 - down (-2):** Wyoming big sagebrush density decreased 19% from 7,100 to 5,760 plants/acre. Decadence increased to 50% and recruitment continued to decrease to 2%.
- **2004 to 2009 - up (+2):** Wyoming big sagebrush density increased 24% to 7,180 plants/acre. Decadence decreased to 38% and recruitment of young plants improved to 13% of the population.

Grass:

- **1985 to 1991 - stable (0):** The sum of nested frequency of perennial grasses remained similar to the past reading. Blue grama is the dominant grass with some bottlebrush squirreltail present.
- **1991 to 1999 - up (+2):** The sum of nested frequency of perennial grasses increased 63% and cover is at 7%. Blue grama accounted for 84% of grass cover.
- **1999 to 2004 - down (-2):** The sum of nested frequency of perennial grasses decreased 42% and cover decreased to 3%. Blue grama accounted for 71% of grass cover.
- **2004 to 2009 – slightly down (-1):** The sum of nested frequency of perennial grasses decreased 15% and cover is at 2%. Blue grama provides 82% of grass cover.

Forb:

- **1985 to 1991 – slightly down (-1):** The sum of nested frequency of perennial forbs decreased 10%. The forb community is not diverse or abundant.
- **1991 to 1999 – slightly up (+1):** The sum of nested frequency of perennial forbs increased 10%, though forb cover is less than 1%.
- **1999 to 2004 - down (-2):** The sum of nested frequency of perennial forbs decreased 25% and cover is still below 1%.
- **2004 to 2009 - down (-2):** The sum of nested frequency of perennial forbs decreased 80%. Only four forb species were sampled.

DEER DESIRABLE COMPONENTS INDEX - LOW POTENTIAL SCALE --

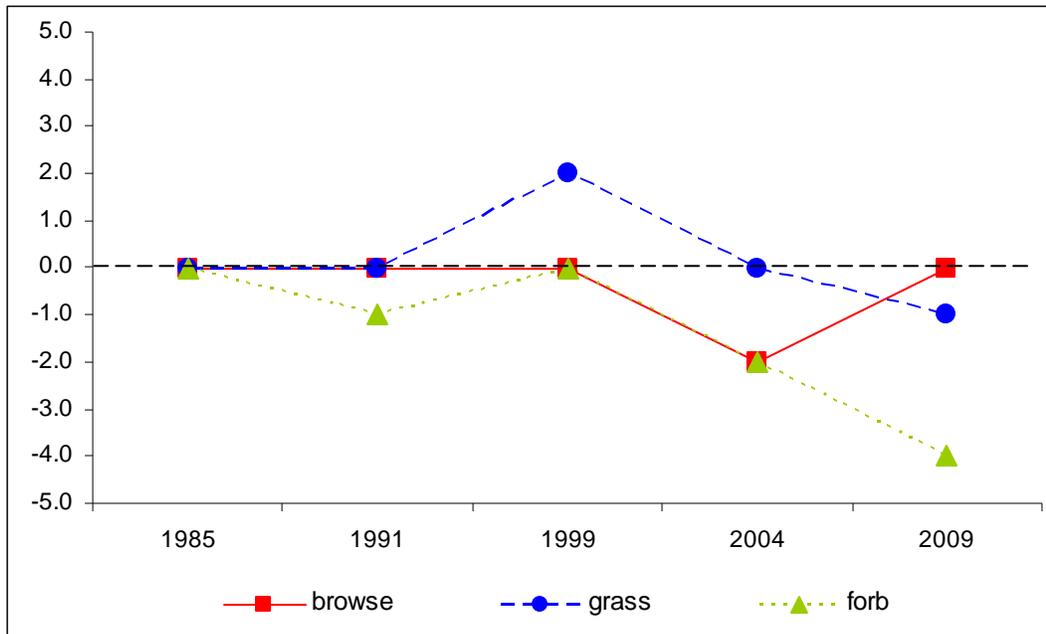
Management unit 25A, study no: 9

Year	Preferred Browse Cover	Preferred Browse Decadence	Preferred Browse Young	Perennial Grass Cover	Annual Grass Cover	Perennial Forb Cover	Noxious Weeds	Total Score	Ranking
99	30.0	3.7	2.5	13.3	0.0	1.1	0.0	50.6	Good
04	24.5	0.7	0.9	5.8	0.0	0.5	0.0	32.4	Fair
09	25.3	2.8	5.9	4.8	0.0	0.1	0.0	38.9	Fair

Trend Summary

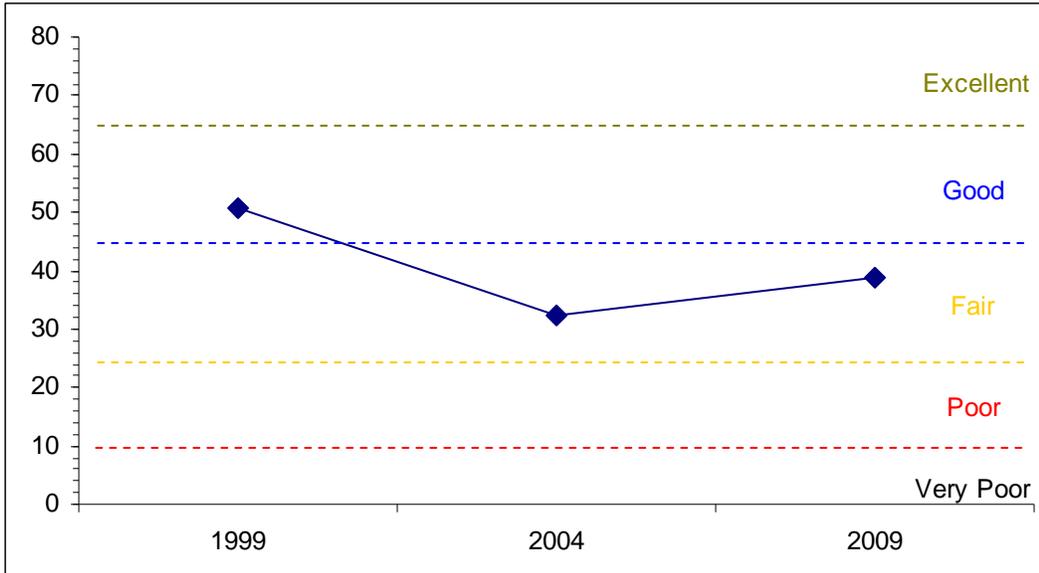
CUMULATIVE RANGE TREND ASSESSMENT--

Management unit 25A Study no: 9



DEER DESIRABLE COMPONENTS INDEX TREND, LOW POTENTIAL SCALE

Management unit 25A, Study no: 9



HERBACEOUS TRENDS--

Management unit 25A, Study no: 9

Type	Species	Nested Frequency					Average Cover %		
		'85	'91	'99	'04	'09	'99	'04	'09
G	Agropyron smithii	-	-	12	3	7	.07	.00	.01
G	Agropyron spicatum	-	-	6	-	-	.01	-	-
G	Bouteloua gracilis	ab100	ab102	b173	ab105	a93	5.55	2.06	1.97
G	Oryzopsis hymenoides	b31	a7	a10	a3	a8	.10	.04	.04
G	Poa secunda	-	-	2	-	-	.00	-	-
G	Sitanion hystrix	a58	ab82	b110	ab61	a47	.84	.74	.37
G	Stipa pinetorum	-	4	4	11	-	.03	.05	-
Total for Annual Grasses		0	0	0	0	0	0	0	0
Total for Perennial Grasses		189	195	317	183	155	6.63	2.90	2.40
Total for Grasses		189	195	317	183	155	6.63	2.90	2.40
F	Androsace septentrionalis (a)	-	-	c87	b11	a-	.44	.02	-
F	Arabis demissa	b22	ab12	a6	ab24	a-	.04	.05	-
F	Astragalus lentiginosus	b21	a3	a3	a7	a-	.01	.01	-
F	Chenopodium leptophyllum(a)	-	-	-	4	2	-	.01	.00
F	Cryptantha sp.	2	7	-	-	3	-	-	.01
F	Descurainia pinnata (a)	-	-	4	1	-	.01	.00	-
F	Erigeron pumilus	ab20	a-	b34	a6	a8	.23	.04	.02
F	Eriogonum ovalifolium	7	16	13	10	1	.19	.08	.00
F	Phlox longifolia	a8	b33	a-	a6	a-	.00	.01	-
F	Senecio multilobatus	a-	a1	b23	ab6	a-	.06	.04	-
Total for Annual Forbs		0	0	91	16	2	0.45	0.04	0.00
Total for Perennial Forbs		80	72	79	59	12	0.54	0.25	0.03
Total for Forbs		80	72	170	75	14	0.99	0.30	0.03

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

BROWSE TRENDS--

Management unit 25A, Study no: 9

Type	Species	Strip Frequency			Average Cover %		
		'99	'04	'09	'99	'04	'09
B	Artemisia frigida	6	4	1	.03	.00	.00
B	Artemisia nova	20	23	20	4.51	2.30	1.72
B	Artemisia tridentata wyomingensis	93	93	95	24.40	17.31	18.51
B	Chrysothamnus viscidiflorus stenophyllus	0	2	0	-	.03	-
B	Gutierrezia sarothrae	64	22	15	4.71	.18	.10
B	Opuntia fragilis	11	10	6	.06	.18	.03
B	Pediocactus simpsonii	1	5	0	.00	.00	-
B	Pinus edulis	0	0	1	-	-	.03
Total for Browse		195	159	138	33.74	20.03	20.40

CANOPY COVER, LINE INTERCEPT--

Management unit 25A, Study no: 9

Species	Percent Cover	
	'04	'09
Artemisia nova	2.33	1.25
Artemisia tridentata wyomingensis	21.43	19.45
Gutierrezia sarothrae	.51	.16
Opuntia fragilis	.06	-

KEY BROWSE ANNUAL LEADER GROWTH--

Management unit 25A, Study no: 9

Species	Average leader growth (in)	
	'04	'09
Artemisia tridentata wyomingensis	2.2	1.1

BASIC COVER--

Management unit 25A, Study no: 9

Cover Type	Average Cover %				
	'85	'91	'99	'04	'09
Vegetation	10.00	6.00	41.90	23.89	24.38
Rock	2.75	3.75	8.67	6.71	4.84
Pavement	31.75	34.75	33.29	27.15	23.90
Litter	34.50	24.50	22.44	32.81	29.05
Cryptogams	3.50	3.50	2.30	1.96	.51
Bare Ground	17.50	27.50	18.19	23.42	23.29

SOIL ANALYSIS DATA --

Management unit 25A, Study no: 9, Study Name: Row of Pines

Effective rooting depth (in)	pH	sandy clay loam			%OM	PPM P	PPM K	ds/m
		%sand	%silt	%clay				
12.7	6.9	51.3	23.4	25.3	1.1	9.1	192	0.5

PELLET GROUP DATA--

Management unit 25A, Study no: 9

Type	Quadrat Frequency			Days use per acre (ha)		
	'99	'04	'09	'99	'04	'09
Rabbit	28	49	49	-	-	-
Elk	-	-	2	1 (2)	-	11 (28)
Deer	15	30	16	13 (32)	49 (121)	21 (53)
Cattle	3	2	-	3 (7)	2 (5)	2 (5)

BROWSE CHARACTERISTICS--

Management unit 25A, Study no: 9

Year	Plants per Acre (excluding seedlings)	Age class distribution			Seedling (plants/acre)	Utilization		% poor vigor	Average Height Crown (in)
		% Young	% Mature	% Decadent		% moderate	% heavy		
<i>Artemisia frigida</i>									
85	0	0	0	0	-	0	0	0	-/-
91	0	0	0	0	-	0	0	0	-/-
99	240	8	83	8	-	17	42	0	3/4
04	100	20	80	0	-	0	0	0	5/6
09	20	0	100	0	-	0	0	0	7/2
<i>Artemisia nova</i>									
85	2665	17	40	43	266	53	0	0	10/13
91	2532	11	37	53	-	5	0	32	8/14
99	1600	5	76	19	-	69	5	8	10/17
04	1300	0	71	29	100	6	0	18	7/17
09	940	0	30	70	-	34	38	64	8/17
<i>Artemisia tridentata wyomingensis</i>									
85	8398	6	48	47	466	60	28	13	16/17
91	8265	10	38	52	-	19	5	10	16/19
99	7100	5	54	41	120	43	12	18	18/28
04	5760	2	48	50	1380	30	6	27	16/26
09	7180	13	50	38	380	17	11	30	14/22
<i>Chrysothamnus viscidiflorus stenophyllus</i>									
85	465	0	43	57	-	0	0	0	7/9
91	0	0	0	0	-	0	0	0	-/-
99	0	0	0	0	-	0	0	0	-/-
04	60	0	100	0	-	0	0	0	5/6
09	0	0	0	0	-	0	0	0	4/6
<i>Eriogonum microthecum</i>									
85	0	0	0	-	-	0	0	0	-/-
91	0	0	0	-	-	0	0	0	-/-
99	0	0	0	-	-	0	0	0	-/-
04	0	0	0	-	-	0	0	0	3/5
09	0	0	0	-	-	0	0	0	-/-

		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>Gutierrezia sarothrae</i>										
85	10732	32	65	3	1333	1	0	0	8/7	
91	1465	45	18	36	-	23	9	5	2/2	
99	11300	8	90	2	860	0	0	.88	8/9	
04	640	6	94	0	-	0	0	0	6/7	
09	500	0	100	0	-	0	0	4	6/7	
<i>Opuntia fragilis</i>										
85	0	0	0	-	-	0	0	0	-/-	
91	66	100	0	-	-	0	0	0	-/-	
99	260	15	85	-	20	0	0	0	3/9	
04	220	0	100	-	-	0	0	9	2/10	
09	160	0	100	-	-	0	0	0	2/9	
<i>Pediocactus simpsonii</i>										
85	0	0	0	-	-	0	0	0	-/-	
91	0	0	0	-	-	0	0	0	-/-	
99	20	0	100	-	-	0	0	0	1/2	
04	160	0	100	-	-	0	0	0	1/2	
09	0	0	0	-	-	0	0	0	-/-	
<i>Pinus edulis</i>										
85	0	0	0	-	-	0	0	0	-/-	
91	0	0	0	-	-	0	0	0	-/-	
99	0	0	0	-	40	0	0	0	-/-	
04	0	0	0	-	-	0	0	0	-/-	
09	20	100	0	-	40	0	0	0	-/-	