

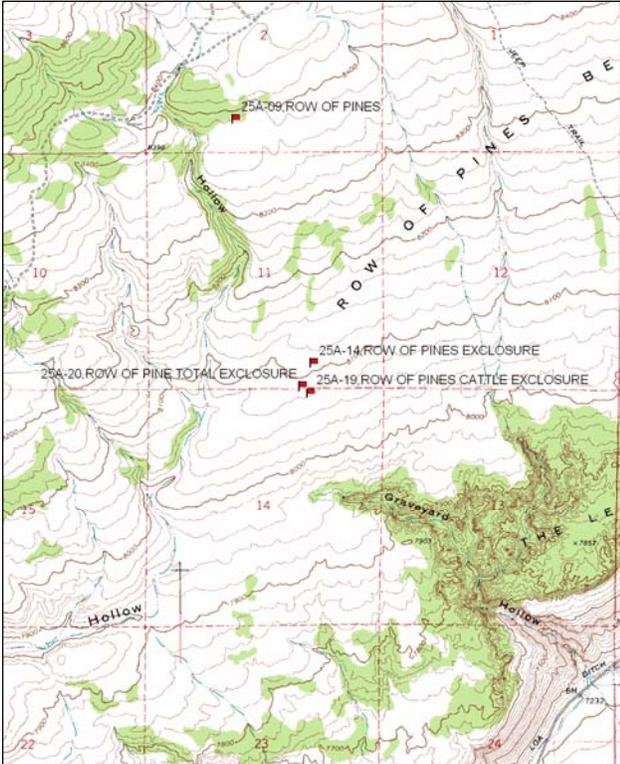
ROW OF PINES TOTAL EXCLOSURE - TREND STUDY NO. 25A-20-09

Vegetation Type: Wyoming Big Sagebrush
Range Type: Crucial Deer Winter, Substantial Elk Winter
NRCS Ecological Site Description: Not Available
Land Ownership: BLM
Elevation: 8,050 ft (2,454 m)
Aspect: Southeast
Slope: 3%-5%
Transect bearing: 205 degrees magnetic
Belt placement: line 1 (11 & 95ft), line 2 (34ft), line 3 (59ft), line 4 (71ft)

Directions:

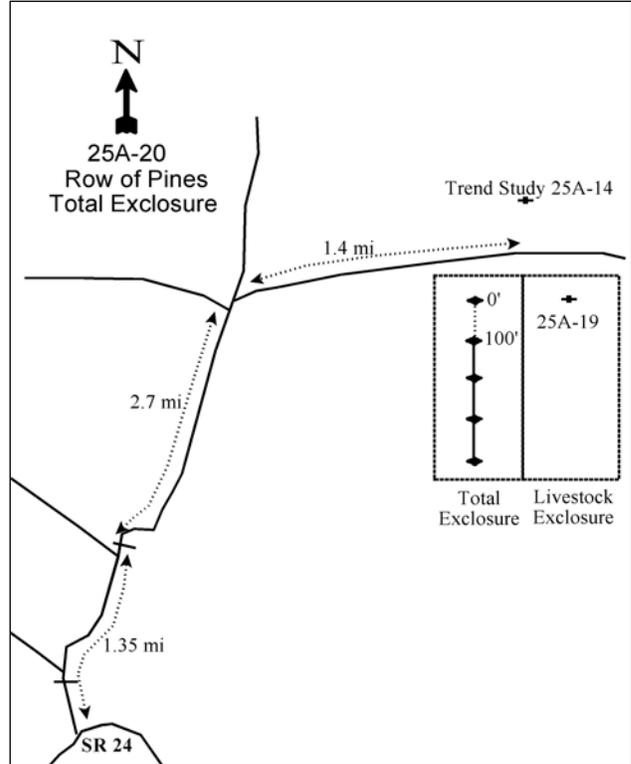
From the Chappell Cheese Factory northwest of Loa on SR 24, go west 2.6 miles to a side road on the north where the highway makes a sharp turn (0.95 miles west of mile marker #49). Take this road 0.65 miles and turn right after crossing a cattleguard. After 0.7 more miles, turn right at the fork and cross another cattleguard. Go 2.7 miles to another fork where you will again turn right. After ~60', turn right (east) and go 1.4 miles to an enclosure. The baseline runs down through the middle of the total enclosure (west side), with the 0 ft stake having browse tag #410 attached.

Map name: Loa, Utah



Township: 27S, Range: 2E, Section: 14

Diagrammatic Sketch:



GPS: NAD 83, UTM 12S 442593 E 4258092 N

ROW OF PINES TOTAL ENCLOSURE - TREND STUDY NO. 25A-20

Site Information

Site Description: The study was established in 1999 inside the Row of Pines livestock enclosure built in the late 1980's after the area was chained and seeded. Trend study 25A-14 is about 200 feet to the north of the enclosure. The area supports a sagebrush-grass community which is managed by the BLM as part of the Seven Mile allotment. The total enclosure excludes wildlife and livestock from grazing. The general area is used by deer and elk in the winter and early spring and by cattle in the spring and summer. One old cattle pat was encountered in 1999 within the total enclosure, but the fences appeared to be in good repair.

Browse: The key browse species is Wyoming big sagebrush (*Artemisia tridentata* ssp. *wyomingensis*) which provides nearly all of the browse cover inside the enclosure (Table - Browse Trends). The population of sagebrush is mostly mature and has displayed moderate to high decadence with moderately high poor vigor since 1999. Since the sagebrush is not utilized within the total enclosure, this high decadence is likely caused by drought or winter injury, or a combination of both. Seedlings of sagebrush have been rare and recruitment of young plants has been low since 1999. The only other browse species of note are the increaser species narrowleaf low rabbitbrush (*Chrysothamnus viscidiflorus* ssp. *stenophyllus*) and broom snakeweed (*Gutierrezia sarothrae*). Both of these species have decreased in density since 1999 and had fairly low densities in 2009 (Table - Browse Characteristics).

Herbaceous Understory: The total enclosure supports a similar perennial grass understory as the livestock enclosure. The seeded species crested wheatgrass (*Agropyron cristatum*) and Russian wildrye (*Elymus junceus*) are the most abundant grass species, while blue grama (*Bouteloua gracilis*) is the most abundant native grass, but not as abundant as it is in the livestock enclosure. Forbs are very rare and provide less than 1% cover. Low fleabane (*Erigeron pumilus*) is the most abundant forb, but declined significantly in 2004 (Table - Herbaceous Trends).

Soil: The soil texture is a sandy clay loam to a loam with a neutral pH (Table - Soil Analysis Data)). Soil parent material is basalt. Bare ground cover is fairly low with good protective cover provided primarily by pavement and rock cover (Table - Basic Cover). The soil erosion condition was classified as stable in 2004 and 2009.

Trend Assessments

Browse:

- **1999 to 2004 - stable (0):** The density of Wyoming big sagebrush increased from 6,160 plants/acre to 7,400 plants/acre, but decadence increased from 27% to 52% and poor vigor increased from 19% to 31%. Recruitment of young sagebrush plants remained poor at around 5% of the population.
- **2004 to 2009 - slightly down (-1):** Wyoming big sagebrush density decreased by 16% to 6,220 plants/acre and cover decreased from 13% to 9%. Decadence of sagebrush decreased slightly to 37% and poor vigor decreased slightly to 27%. Recruitment of young sagebrush plants decreased to just 1% of the population. The density of the two less desirable species, narrowleaf low rabbitbrush and broom snakeweed, have also decreased substantially since 1999.

Grass:

- **1999 to 2004 - down (-2):** Perennial grass sum of nested frequency decreased by 32%, though cover remained similar. There was a significant decrease in the nested frequency of bottlebrush squirreltail (*Sitanion hystrix*) and a significant increase in Russian wildrye.
- **2004 to 2009 - stable (0):** There was little change in the sum of nested frequency of perennial grasses, though cover increased from 8% to 11%.

Forb:

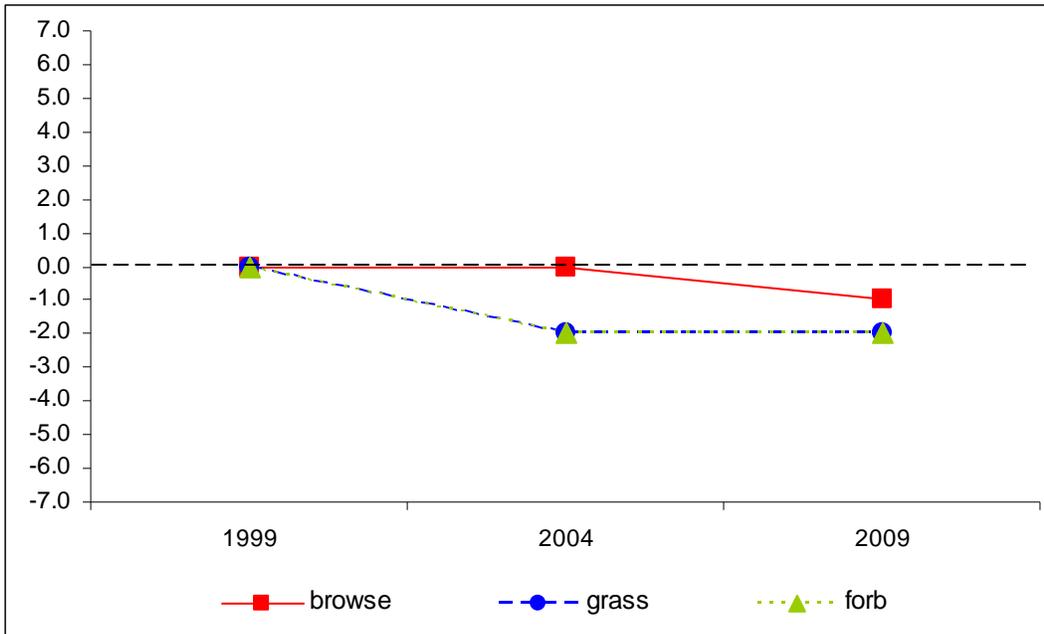
- **1999 to 2004 - down (-2):** The sum of nested frequency of perennial forbs decreased by 57% with a significant decrease in the nested frequency of low fleabane. Forbs are very rare on the site.
- **2004 to 2009 - stable (0):** Forbs remained very rare.

DEER DESIRABLE COMPONENTS INDEX - LOW POTENTIAL SCALE --
Management unit 25A, study no: 20

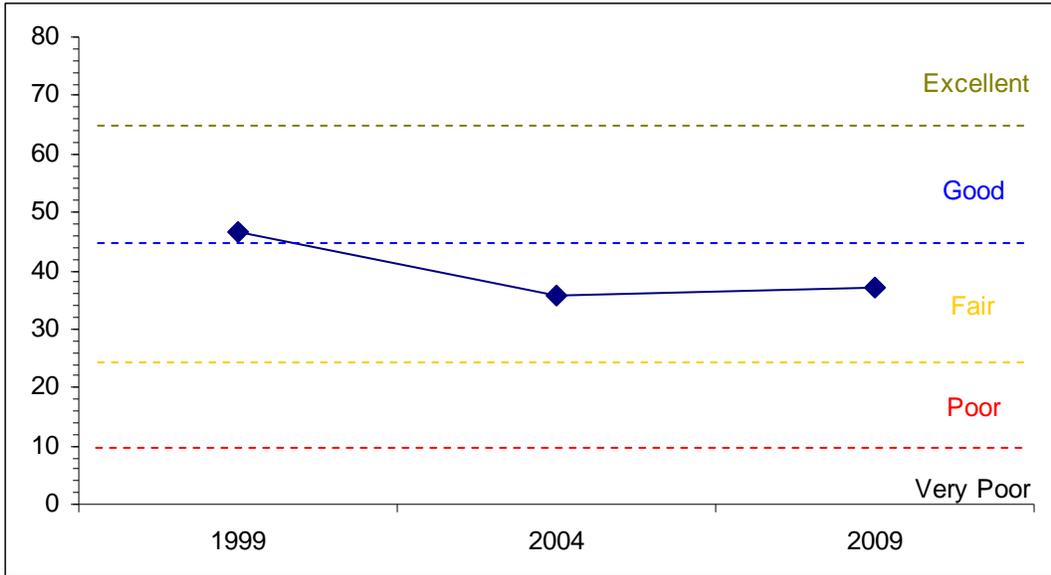
Year	Preferred Browse Cover	Preferred Browse Decadence	Preferred Browse Young	Perennial Grass Cover	Annual Grass Cover	Perennial Forb Cover	Noxious Weeds	Total Score	Ranking
99	17.5	6.9	2.5	18.0	0.0	1.9	0.0	46.7	Fair-Good
04	16.7	-0.6	2.5	16.8	0.0	0.4	0.0	35.7	Fair
09	11.3	3.9	0.5	21.1	0.0	0.3	0.0	37.1	Fair

Trend Summary

CUMULATIVE RANGE TREND ASSESSMENT--
Management unit 25A Study no: 20



DEER DESIRABLE COMPONENTS INDEX TREND, LOW POTENTIAL SCALE
 Management unit 25A, Study no: 20



HERBACEOUS TRENDS--
 Management unit 25A, Study no: 20

Type	Species	Nested Frequency			Average Cover %		
		'99	'04	'09	'99	'04	'09
G	Agropyron cristatum	99	58	89	2.69	1.43	4.94
G	Agropyron intermedium	2	-	-	.00	-	-
G	Bouteloua gracilis	49	50	42	1.08	1.02	1.01
G	Bromus inermis	4	-	-	.05	-	-
G	Elymus junceus	_a 63	_b 110	_{ab} 73	2.51	5.40	3.70
G	Oryzopsis hymenoides	18	24	18	.62	.51	.78
G	Sitanion hystrix	_b 125	_a 3	_a 9	2.01	.01	.10
Total for Annual Grasses		0	0	0	0	0	0
Total for Perennial Grasses		360	245	231	8.99	8.38	10.55
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F	Androsace septentrionalis (a)	5	-	-	.01	-	-
F	Astragalus sp.	-	2	-	-	.01	-
F	Castilleja sp.	3	-	-	.00	-	-
F	Chenopodium leptophyllum(a)	-	2	-	-	.03	-
F	Cryptantha sp.	-	-	3	-	-	.03
F	Erigeron pumilus	_b 54	_a 12	_a 26	.92	.07	.12
F	Phlox longifolia	-	3	1	-	.00	.00
F	Sphaeralcea coccinea	10	12	2	.02	.10	.00
Total for Annual Forbs		5	2	0	0.00	0.03	0
Total for Perennial Forbs		67	29	32	0.94	0.19	0.15
Total for Forbs		72	31	32	0.95	0.22	0.15

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

BROWSE TRENDS--

Management unit 25A, Study no: 20

Type	Species	Strip Frequency			Average Cover %		
		'99	'04	'09	'99	'04	'09
B	Artemisia tridentata wyomingensis	91	94	93	13.97	13.35	9.02
B	Chrysothamnus viscidiflorus stenophyllus	25	27	9	.25	.45	.07
B	Gutierrezia sarothrae	85	26	12	3.00	.10	.19
B	Opuntia fragilis	2	5	1	.00	.03	.00
B	Pediocactus simpsonii	0	0	1	-	-	.00
Total for Browse		203	152	116	17.23	13.94	9.29

CANOPY COVER, LINE INTERCEPT--

Management unit 25A, Study no: 20

Species	Percent Cover	
	'04	'09
Artemisia tridentata wyomingensis	12.58	14.03
Chrysothamnus viscidiflorus stenophyllus	.20	.18
Gutierrezia sarothrae	.18	.08

KEY BROWSE ANNUAL LEADER GROWTH--

Management unit 25A, Study no: 20

Species	Average leader growth (in)	
	'04	'09
Artemisia tridentata wyomingensis	1.0	0.6

BASIC COVER--

Management unit 25A, Study no: 20

Cover Type	Average Cover %		
	'99	'04	'09
Vegetation	28.20	22.57	21.54
Rock	9.11	15.25	9.67
Pavement	31.69	40.29	28.30
Litter	10.99	18.40	23.58
Cryptogams	0	.06	.26
Bare Ground	20.04	16.37	23.98

SOIL ANALYSIS DATA --

Management unit 25A, Study no: 20, Study Name: Row of Pines Total Exlosure

Effective rooting depth (in)	pH	sandy clay loam			%0M	PPM P	PPM K	ds/m
		%sand	%silt	%clay				
11.1	7	47.3	27.4	25.3	1.6	8.5	163.2	0.6

PELLET GROUP DATA--

Management unit 25A, Study no: 20

Type	Quadrat Frequency		
	'99	'04	'09
Rabbit	-	-	24
Cattle	1	-	-

BROWSE CHARACTERISTICS--

Management unit 25A, Study no: 20

		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>									
99	6160	5	68	27	-	0	0	19	11/21
04	7400	5	44	52	20	0	0	31	10/19
09	6220	1	62	37	80	0	3	27	12/21
<i>Chrysothamnus viscidiflorus stenophyllus</i>									
99	900	0	82	18	-	0	0	20	4/7
04	880	2	66	32	-	0	0	9	5/9
09	240	8	92	0	20	0	0	0	4/7
<i>Gutierrezia sarothrae</i>									
99	6320	4	96	1	-	0	0	2	7/9
04	620	13	84	3	-	0	0	0	5/7
09	320	13	88	0	20	0	0	0	6/6
<i>Opuntia fragilis</i>									
99	40	50	50	0	-	0	0	0	-/-
04	100	0	100	0	-	0	0	0	2/9
09	20	0	0	100	-	0	0	100	1/6
<i>Pediocactus simpsonii</i>									
99	0	0	0	-	-	0	0	0	-/-
04	0	0	0	-	-	0	0	0	-/-
09	20	0	100	-	-	0	0	0	1/5