

EAST THOMPSON BENCH - TREND STUDY NO. 10-15-10

Vegetation Type: Pinyon-Juniper

Range Type: Crucial Deer Winter

NRCS Ecological Site Description: Not Available

Land Ownership: BLM

Elevation: 5790 ft. (1764 m)

Aspect: Northwest

Slope: 8%

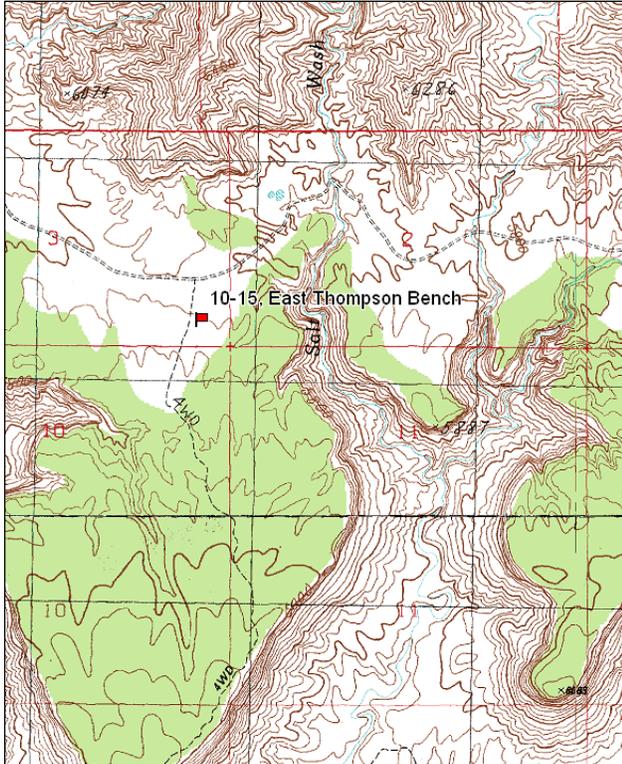
Transect bearing: 170° magnetic

Belt placement: line 1 (11 & 95ft), line 2 (34ft), line 3 (59ft), line 4 (71ft). No rebar marking belt placement on belts 1 and 4.

Directions:

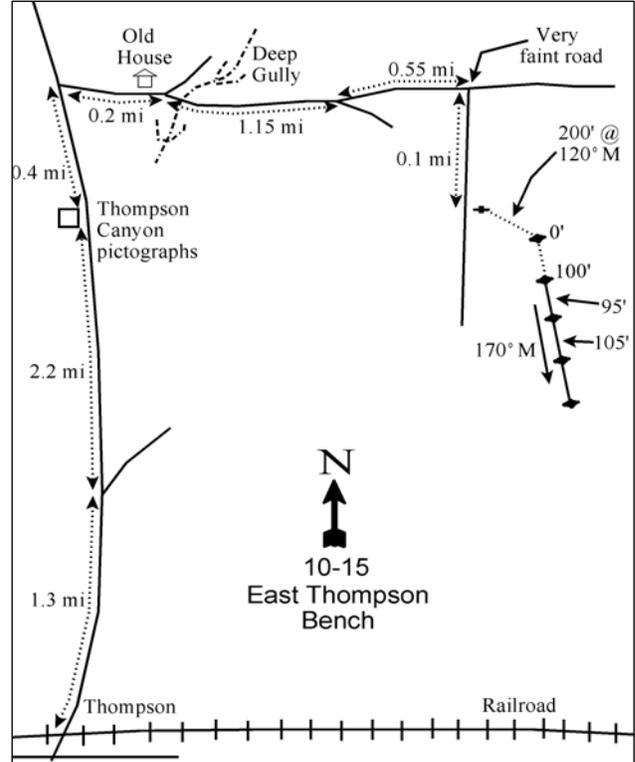
From the railroad crossing in the town of Thompson, travel 1.3 miles north up the main road to a fork. Stay left and go 2.2 miles to the Thompson Canyon pictographs. Continue 0.4 miles. Make a sharp right turn and go 0.2 miles past an old house and a railroad cut to a fork. Turn right across a deep gully and go 1.15 miles to a fork. Stay left and continue 0.55 miles to a very faint road on the right. Turn on this road and go 0.1 mile to a witness post (a steel rebar) on the left side of the road. The first baseline post is 200 feet away at a bearing of 120°M from the witness post.

Map Name: Sego Canyon



Township: 21S Range: 20E Section: 3

Diagrammatic Sketch:



GPS: NAD 83, UTM 12S 613672 E 4318449 N

EAST THOMPSON BENCH - TREND STUDY NO. 10-15

Site Information

Site Description: The study is located on a low lying bench east of Thompson Canyon. This broad flat bench is dominated by Utah juniper (*Juniperus osteosperma*) and intermixed with small openings of Wyoming big sagebrush (*Artemisia tridentata* ssp. *wyomingensis*). Water is limited in the area, but spring runoff flows through most of the intermittent washes in late winter or early spring. Grazing in the area is managed by the Bureau of Land Management (BLM) as part of the large Cisco allotment. In the past, the area was thought to be used heavily by deer, but pellet group data has indicated moderate deer use since 2000. Estimated elk use has been light since 2000 (Table - Pellet Group Data). Most of the deer pellet groups were sampled on the first 200 feet of the transect where the area is in a sagebrush opening. Pellet groups tend to decrease in frequency as you move into the pinyon pine (*Pinus edulis*) and juniper further down the transect baseline.

Browse: Utah juniper is the predominant browse species in cover and has increased in cover (Table - Browse Trends) and density since 1995. Most of the juniper trees are mature with over half of the sampled trees being over 8 feet tall since 2005 (Table - Point-Quarter Tree Data). Pinyon pine trees are present, but are much less abundant than juniper. The preferred key browse species is Wyoming big sagebrush which provides most of the remaining browse cover on the site, though cover has decreased steadily since 2000 (Table - Browse Trends). The sagebrush on the site consists of a decreasing population of mostly mature plants with high decadence and mostly poor vigor over the sample years. Recruitment of young sagebrush plants has also decreased markedly since 2000. Utilization of sagebrush has been a mixture of moderate to heavy use over the course of the study. Other browse species on this site include green ephedra (*Ephedra viridis*) and broom snakeweed (*Gutierrezia sarothrae*).

Herbaceous Understory: The herbaceous understory is meager on the site. Perennial grasses occur sporadically throughout the site and are in low abundance. Galleta (*Hilaria jamesii*) and bottlebrush squirreltail (*Sitanion hystrix*) are the most abundant perennial grass species. The sum of nested frequency for perennial grasses has slowly declined with each reading. Cheatgrass (*Bromus tectorum*) and sixweeks fescue (*Vulpia octoflora*) were common in 1995, but have decreased since then. Forbs are sparse and not significant on this site. The most abundant perennial forb is timber poisonvetch (*Astragalus convallarius*). Although considered palatable by all classes of livestock, this plant is in some instances toxic, and in others, a highly nutritious plant (high protein content). Other perennial forbs encountered include: longleaf phlox (*Phlox longifolia*), low fleabane (*Erigeron pumilus*) and sego lily (*Calochortus nuttallii*). Annual species dominated the scant forb understory in 1995 and 2005 due to the wet spring weather. Common pepperweed (*Lepidium densiflorum*) was very abundant in 2005 (Table - Herbaceous Trends).

Soil: The soil texture is a reddish, sandy clay loam with slightly alkaline soil reactivity (pH 7.5). Phosphorus and potassium may have limited availability for plant growth and development at 1.7 ppm and 48 ppm, respectively (Tiedemann and Lopez 2004). Organic matter is very low at less than 1% (Table - Soil Analysis Data). There is little soil protection from vegetation and litter in the shrub interspaces and bare ground cover is high. Cryptogam cover is relatively high (Table - Basic Cover). Most of the litter and cryptogams are located directly beneath the canopy of the Wyoming big sagebrush. Several small active gullies are present, but due to the gentle terrain, erosion is not severe. Soil movement is most evident on trails or where the soil has been disturbed. The soil erosion condition was classified as slight in 2005 and moderate in 2010.

Trend Assessments

Browse:

- **1986 to 1995 - stable (0):** Differences in density may be related to the larger sample area used in 1995; therefore trend was determined using other parameters. There was a slight decrease in decadence of sagebrush, but decadence remained high. Recruitment of young sagebrush plants decreased from 15% to 7% of the population.

- **1995 to 2000 - slightly down (-1):** The density of sagebrush increased 17% from 1,680 plants/acre to 1,960 plants/acre due to a large increase in the recruitment of young plants. However, the density of mature plants decreased by 51% and decadence increased slightly.
- **2000 to 2005 - down (-2):** There was a 53% decrease in the density of sagebrush to 920 plants/acre and cover decreased from 6% to 2%. Nearly all of the population was decadent at 96% and poor vigor increased to 89%. There was almost no new recruitment of young sagebrush at just 2%.
- **2005 to 2010 - stable (0):** Sagebrush density decreased by 13%, but decadence also decreased to 35% and poor vigor decreased to 3% of the population. Recruitment of young sagebrush plants remained low.

Grass:

- **1986 to 1995 - slightly down (-1):** The sum of nested frequency of perennial grasses decreased by 15% with a significant decrease in the nested frequency of galleta.
- **1995 to 2000 - slightly up (+1):** There was little change in the sum of nested frequency of perennial grasses, but cover increased slightly and there was a significant decrease in the nested frequency of cheatgrass and sixweeks fescue. Cover of the two annual species also decreased substantially.
- **2000 to 2005 - slightly down (-1):** There was a 15% decrease in the sum of nested frequency of perennial grasses, though cover increased from 3% to 5%.
- **2005 to 2010 - slightly down (-1):** The perennial grass sum of nested frequency decreased by 14% and cover decreased to 3%.

Forb:

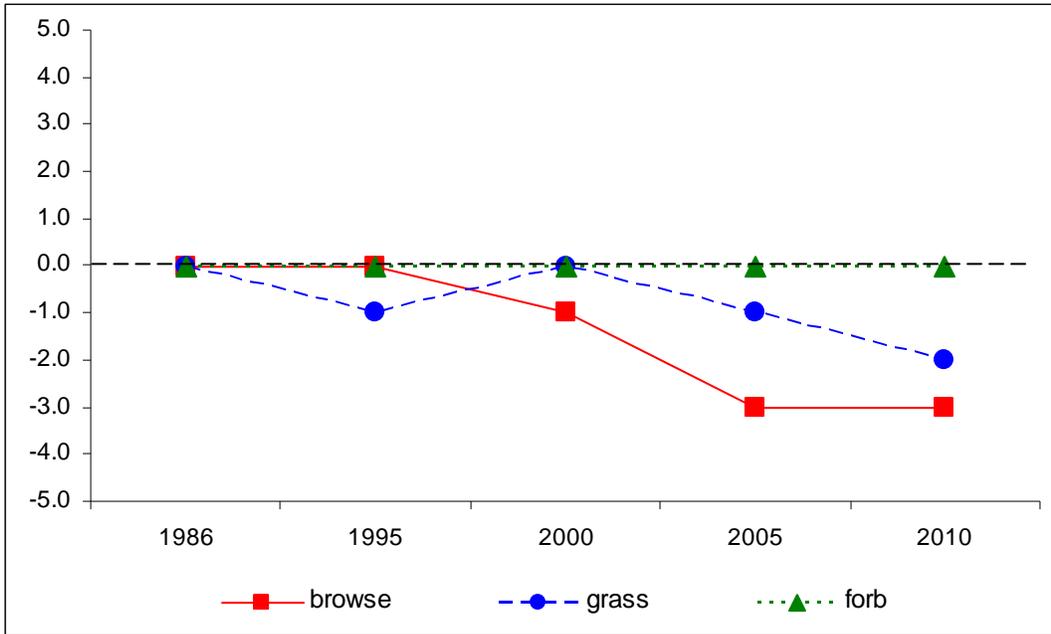
- **1986 to 1995 - stable (0):** Perennial forbs are very rare.
- **1995 to 2000 - stable (0):** Perennial forbs are very rare.
- **2000 to 2005 - stable (0):** Perennial forbs are very rare.
- **2005 to 2010 - stable (0):** Perennial forbs are very rare.

DEER DESIRABLE COMPONENTS INDEX - LOW POTENTIAL SCALE --
Management unit 10, study no: 15

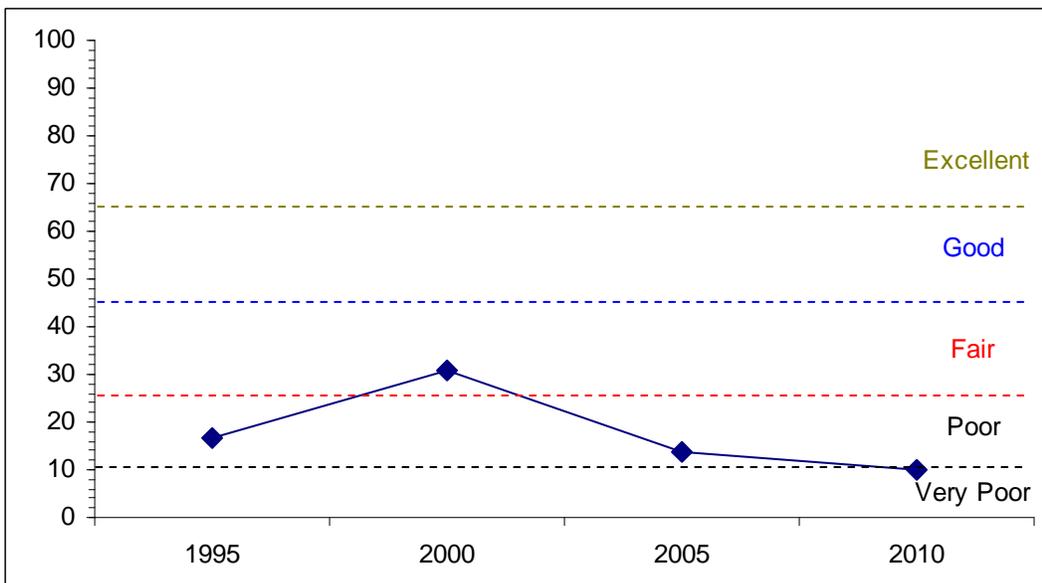
Year	Preferred Browse Cover	Preferred Browse Decadence	Preferred Browse Young	Perennial Grass Cover	Annual Grass Cover	Perennial Forb Cover	Noxious Weeds	Total Score	Ranking
95	6.5	2.4	3.5	4.5	-1.4	0.9	0.0	16.5	Poor
00	7.6	1.5	15.0	6.1	-0.1	0.6	0.0	30.7	Fair
05	2.6	0.0	0.0	9.3	-0.6	2.3	0.0	13.6	Poor
10	2.1	0.0	0.0	6.4	-0.1	1.6	0.0	9.9	Very Poor-Poor

Trend Summary

CUMULATIVE RANGE TREND ASSESSMENT--
 Management unit 10, Study no: 15



DEER DESIRABLE COMPONENTS INDEX TREND, LOW POTENTIAL SCALE--
 Management unit 10, Study no: 15



HERBACEOUS TRENDS--
Management unit 10, Study no: 15

Type	Species	Nested Frequency					Average Cover %			
		'86	'95	'00	'05	'10	'95	'00	'05	'10
G	Bromus tectorum (a)	-	c190	a33	b69	a40	1.41	.07	.33	.12
G	Elymus salina	a-	b29	b15	b16	b11	.63	.52	1.16	.24
G	Hilaria jamesii	c129	ab65	b83	ab60	a43	.74	1.97	2.26	.95
G	Oryzopsis hymenoides	14	1	4	9	6	.03	.17	.25	.67
G	Poa secunda	a-	b16	ab5	b16	b18	.03	.02	.19	.10
G	Sitanion hystrix	49	52	49	31	35	.83	.36	.76	1.24
G	Vulpia octoflora (a)	-	c186	a-	b75	a7	.44	-	.52	.04
Total for Annual Grasses		0	376	33	144	47	1.85	0.07	0.85	0.16
Total for Perennial Grasses		192	163	156	132	113	2.27	3.05	4.63	3.21
Total for Grasses		192	539	189	276	160	4.12	3.12	5.49	3.38
F	Astragalus convallarius	13	16	20	17	11	.27	.26	.99	.40
F	Astragalus sp.	-	5	5	4	-	.01	.01	.01	-
F	Calochortus nuttallii	a-	ab17	a1	b22	ab17	.04	.00	.06	.09
F	Castilleja linariaefolia	9	8	-	-	-	.04	-	-	-
F	Chenopodium fremontii (a)	-	1	-	4	-	.00	-	.03	-
F	Cryptantha sp.	a-	b14	a-	a2	a1	.03	-	.03	.03
F	Descurainia pinnata (a)	-	b26	a-	c34	a-	.05	-	.21	-
F	Draba sp. (a)	-	-	-	1	-	-	-	.00	-
F	Erigeron pumilus	2	6	5	-	5	.04	.01	.00	.18
F	Eriogonum cernuum (a)	-	3	-	-	-	.01	-	-	-
F	Euphorbia sp.	-	1	1	4	5	.00	.00	.01	.06
F	Gilia hutchinifolia (a)	-	c72	ab3	d125	b10	.20	.01	1.12	.02
F	Lappula occidentalis (a)	-	ab6	a-	c35	b13	.01	-	.22	.02
F	Lepidium densiflorum (a)	-	c139	a18	d178	b74	.51	.04	8.69	.17
F	Oenothera sp.	-	-	-	2	-	-	-	.00	-
F	Phlox longifolia	13	10	8	10	7	.01	.01	.04	.02
F	Ranunculus testiculatus (a)	-	-	1	-	-	-	.00	-	-
F	Schoenocrambe linifolia	-	2	-	-	-	.00	-	-	-
F	Sisymbrium altissimum (a)	-	5	-	6	-	.01	-	.01	-
F	Townsendia sp.	-	-	-	2	-	-	-	.00	-
F	Unknown forb-perennial	1	-	-	-	-	-	-	-	-
Total for Annual Forbs		0	252	22	383	97	0.81	0.05	10.31	0.22
Total for Perennial Forbs		38	79	40	63	46	0.47	0.31	1.17	0.78
Total for Forbs		38	331	62	446	143	1.28	0.36	11.48	1.01

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

BROWSE TRENDS--

Management unit 10, Study no: 15

Type	Species	Strip Frequency				Average Cover %			
		'95	'00	'05	'10	'95	'00	'05	'10
B	Artemisia tridentata wyomingensis	39	38	30	22	5.23	6.04	2.01	1.50
B	Chrysothamnus viscidiflorus stenophyllus	0	1	0	0	-	-	-	-
B	Ephedra viridis	3	2	3	1	.00	.00	.06	.15
B	Gutierrezia sarothrae	22	20	6	15	.43	.43	.51	.27
B	Juniperus osteosperma	0	12	17	12	11.85	13.11	12.87	18.75
B	Leptodactylon pungens	0	0	2	0	-	-	-	-
B	Opuntia sp.	2	2	1	2	.15	.00	-	-
Total for Browse		66	75	59	52	17.68	19.60	15.45	20.68

CANOPY COVER, LINE INTERCEPT--

Management unit 10, Study no: 15

Species	Percent Cover		
	'00	'05	'10
Artemisia tridentata wyomingensis	-	7.30	1.39
Gutierrezia sarothrae	-	-	.15
Juniperus osteosperma	14.19	15.89	29.36
Leptodactylon pungens	-	.06	-

KEY BROWSE ANNUAL LEADER GROWTH--

Management unit 10, Study no: 15

Species	Average leader growth (in)	
	'05	'10
Artemisia tridentata wyomingensis	1.7	1.6

POINT-QUARTER TREE DATA--

Management unit 10, Study no: 15

Species	Trees per Acre				Average diameter (in)			
	'95	'00	'05	'10	'95	'00	'05	'10
Juniperus osteosperma	108	84	136	183	4.17	3.0	3.9	8.8

BASIC COVER--

Management unit 10, Study no: 15

Cover Type	Average Cover %				
	'86	'95	'00	'05	'10
Vegetation	8.25	26.71	25.85	26.68	27.75
Rock	0	.68	.15	.06	0
Pavement	0	.10	.75	.78	.51
Litter	40.25	34.96	34.76	27.98	39.61
Cryptogams	4.25	9.87	13.65	5.19	4.87
Bare Ground	47.25	30.85	47.48	53.02	45.65

SOIL ANALYSIS DATA --

Management unit 10, Study no: 15, Study Name: East Thompson Bench

Effective rooting depth (in)	pH	loam			%OM	PPM P	PPM K	ds/m
		%sand	%silt	%clay				
17.2	7.5	50.0	28.0	22.0	0.7	1.7	48.0	0.6

PELLET GROUP DATA--

Management unit 10, Study no: 15

Type	Quadrat Frequency				Days use per acre (ha)		
	'95	'00	'05	'10	'00	'05	'10
Sheep	22	-	-	-	-	-	-
Rabbit	43	36	58	15	-	-	-
Elk	-	8	6	-	1 (2)	5 (12)	5 (13)
Deer	19	19	31	17	35 (88)	46 (112)	35 (86)
Cattle	-	-	-	2	-	-	-

BROWSE CHARACTERISTICS--

Management unit 10, Study no: 15

		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	898	15	33	52	33	26	74	19	18/20	
95	1680	7	51	42	540	43	24	19	20/31	
00	1960	34	21	45	40	48	7	29	21/29	
05	920	2	2	96	-	22	70	89	13/19	
10	800	5	60	35	-	35	18	3	13/23	
<i>Chrysothamnus viscidiflorus stenophyllus</i>										
86	0	0	0	-	-	0	0	0	-/-	
95	0	0	0	-	-	0	0	0	-/-	
00	20	100	0	-	-	0	0	0	-/-	
05	0	0	0	-	-	0	0	0	7/13	
10	0	0	0	-	-	0	0	0	6/7	
<i>Ephedra viridis</i>										
86	0	0	0	0	-	0	0	0	-/-	
95	80	25	75	0	-	0	0	0	16/16	
00	40	0	50	50	-	0	50	50	9/9	
05	60	0	67	33	-	0	33	33	21/19	
10	20	0	100	0	-	0	0	0	8/12	
<i>Gutierrezia sarothrae</i>										
86	3465	11	89	0	33	0	0	0	8/7	
95	1160	26	74	0	20	0	0	0	8/8	
00	860	14	58	28	-	0	0	7	6/8	
05	200	0	100	0	20	0	0	0	9/10	
10	940	4	96	0	-	0	0	0	5/6	

		Age class distribution					Utilization			
Year	Plants per Acre (excluding seedlings)	% Young	% Mature	% Decadent	Seedling (plants/acre)	% moderate	% heavy	% poor vigor	Average Height Crown (in)	
Juniperus osteosperma										
86	198	50	50	-	33	0	0	0	94/104	
95	0	0	0	-	-	0	0	0	-/-	
00	260	8	92	-	20	0	0	0	-/-	
05	340	41	59	-	-	0	0	0	-/-	
10	240	25	75	-	20	0	0	0	-/-	
Leptodactylon pungens										
86	0	0	0	-	-	0	0	0	-/-	
95	0	0	0	-	-	0	0	0	-/-	
00	0	0	0	-	-	0	0	0	-/-	
05	140	0	100	-	60	0	0	0	4/6	
10	0	0	0	-	-	0	0	0	5/6	
Opuntia sp.										
86	33	0	100	-	-	0	0	0	7/7	
95	40	0	100	-	-	0	0	0	6/12	
00	40	50	50	-	20	0	0	0	5/14	
05	20	0	100	-	-	0	0	0	7/31	
10	40	0	100	-	-	0	0	50	5/15	