

UPPER FISHER VALLEY - TREND STUDY NO. 13A-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: 5,800 ft (1,768 m)

Aspect: Flat

Slope: 0%-4%

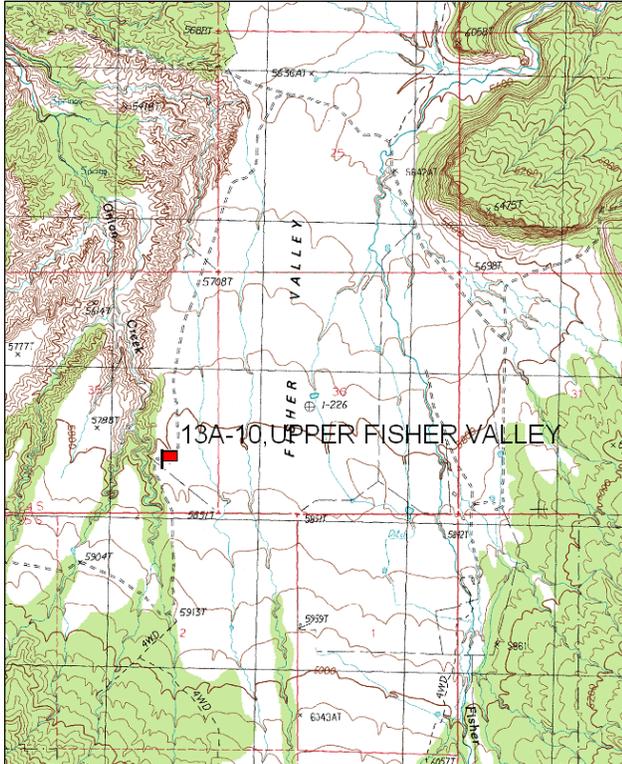
Transect bearing: 165 degrees magnetic

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

Directions:

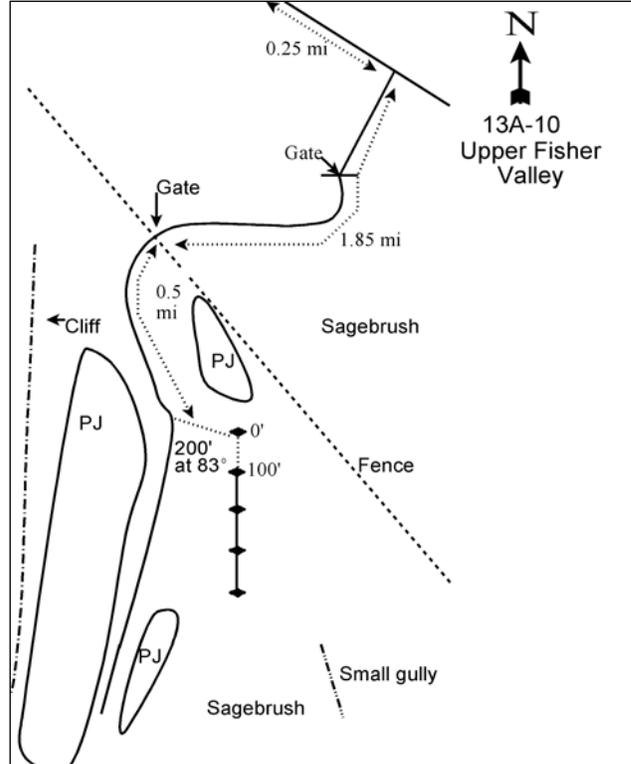
Leaving Moab on Route 128, drive northeast 0.1 miles past mile marker 20 (about 5 miles past the Castle Valley turnoff), and turn right onto the Fisher Valley Road. Go 8.7 miles up Onion Creek to a gate at the edge of the valley. Continue 0.25 miles to a dirt road that forks off to the right. Turn here and go 0.85 miles across an annual grass flat to a gate. Continue 1 mile to another fence. Go through the gate and 0.05 miles. The transect is located on the east side of the road about 200 feet out in the sagebrush. Study markers are 1-foot tall green fence posts. The 0-foot baseline stake is tagged #7861.

Map Name: Fisher Valley



Township: 24S, Range: 24E, Section: 35

Diagrammatic Sketch:



GPS: NAD 83, UTM 12S 653290 E 4281537 N

UPPER FISHER VALLEY - TREND STUDY NO. 13A-10

Site Information

Site Description: The study is located along the rim of Onion Creek in Upper Fisher Valley. This area is managed by the BLM and is part of the Fisher Valley grazing allotment. Much of the pinyon-juniper woodlands and sagebrush communities in this valley have been historically treated and seeded. The particular area of this study was two-way chained in 1960 and seeded to crested wheatgrass (*Agropyron cristatum*). Pellet group data has estimated decreasing deer use on the site since 1999 with only minimal elk use measured in one year. Cattle use on the site has been estimated to be moderately heavy (Table - Pellet Group Data).

Browse: Wyoming big sagebrush (*Artemisia tridentata* ssp. *wyomingensis*) is the dominant browse species on the site. Sagebrush has provided an average of 14% cover since 1994, but has decreased in cover over the same period (Table - Browse Trends). Density of sagebrush has also declined steadily since the outset of the study in 1987. Decadence of sagebrush has increased over the span of the study, but is still considered to be good. Recruitment of young sagebrush has decreased since 1987, with no young plants sampled in 2009. Browse use has been mostly moderate with some heavy browsing occurring (Table - Browse Characteristics).

Broom snakeweed (*Gutierrezia sarothrae*) is present on the site with fluctuating cover and density over the sample years (Tables - Browse Trends and Browse Characterization). There are also a few large, mature Utah juniper (*Juniperus osteosperma*) trees established on the flat.

Herbaceous Understory: A fair stand of crested wheatgrass was established, but has diminished over the years. Most crested wheatgrass plants are found growing near or under sagebrush. Sandberg bluegrass (*Poa secunda*) is the dominant grass, providing the most cover. Other common grasses include galleta (*Hilaria jamesii*), bottlebrush squirreltail (*Sitanion hystrix*), and cheatgrass (*Bromus tectorum*). Forbs are an insignificant source of forage on this site. There are several small species present, none of which are very abundant or provide significant cover (Table - Herbaceous Trends).

Soil: The soil is a reddish-brown sandy clay loam with an effective rooting depth of almost 14 inches. Soil pH is neutral (6.8), and phosphorous has marginal availability for plant growth and development at 7.8 ppm (Tiedemann and Lopez 2004) (Table - Soil Analysis Data). The soil is not rocky, but appears to have a carbonate layer at approximately 8-10 inches below the surface. Bare ground cover is high on this site occurring mostly in the interspaces of shrubs. Litter cover is good, but found mainly under shrubs (Table - Basic Cover). There are two well-defined natural gullies east of the transect that are still active. Due to the levelness of the terrain, erosion is not a serious problem, although there is some pedestaling of the grasses and some soil movement in the large bare interspaces. The soil erosion condition classification was rated as slight in 2004 and stable in 2009.

Trend Assessments

Browse:

- **1987 to 1994 - stable (0):** Differences in density may be related to the larger sample area used in 1994; therefore, trend was determined using other parameters. There was little change in decadence and vigor of the sagebrush population, though recruitment of young plants decreased markedly.
- **1994 to 1999 - down (-2):** Density of sagebrush decreased by 19% to 5,040 plants/acre, and cover decreased from 16% to 14%. Decadence and vigor of sagebrush improved slightly. Recruitment of young sagebrush plants continued to decrease.
- **1999 to 2004 - down (-2):** Density of sagebrush decreased again by 19% to 4,060 plants/acre, though cover remained similar. There was an increase in sagebrush decadence from 7% to 23%. There was no new recruitment of young sagebrush plants.
- **2004 to 2009 - slightly down (-1):** Density of sagebrush decreased by 12% to 3,560 plants/acre, and cover decreased to 12%. Recruitment of young sagebrush plants remained poor.

Grass:

- **1987 to 1994 - stable (0):** There was little change in grasses on this site.
- **1994 to 1999 - stable (0):** There was little change in grasses on this site.
- **1999 to 2004 - stable (0):** There has been a general decrease in the sum of nested frequency of perennial grasses since 1994, but cover has increased over the same period.
- **2004 to 2009 - stable (0):** There was little change in grasses on this site.

Forb:

- **1987 to 1994 - slightly down (-1):** Forbs are very rare on this site. There was a decrease in the sum of nested frequency of perennial forbs.
- **1994 to 1999 - stable (0):** There was little change in forbs on this site.
- **1999 to 2004 - stable (0):** There was little change in forbs on this site.
- **2004 to 2009 - stable (0):** There was little change in forbs on this site.

DEER DESIRABLE COMPONENTS INDEX - LOW POTENTIAL SCALE --

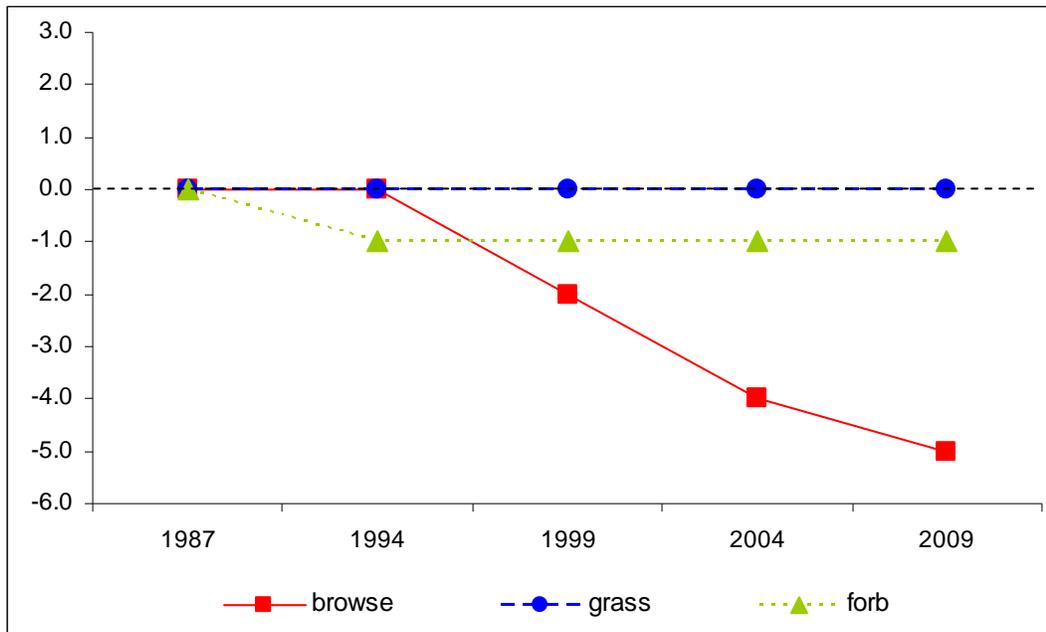
Management unit 13A, study no: 10

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	20	12	6	14	-1	2	0	53	Good
99	17	13	3	17	-1	2	0	50	Good
04	17	8	0	17	-1	1	0	43	Fair
09	15	7	0	16	-6	1	0	33	Fair

Trend Summary

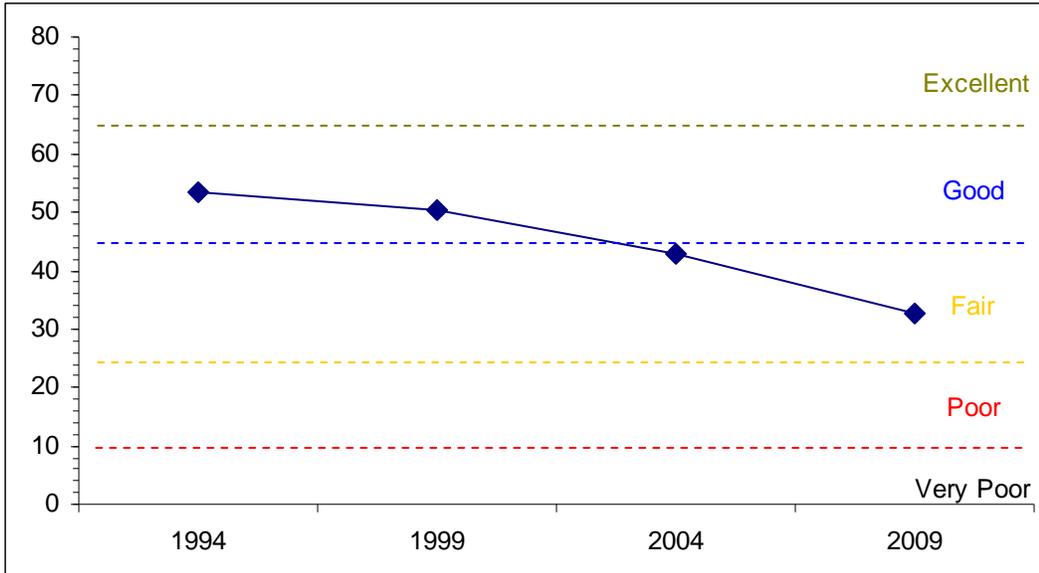
CUMULATIVE RANGE TREND ASSESSMENT--

Management unit 13A, Study no: 10



DESIRABLE COMPONENTS INDEX TREND, LOW POTENTIAL SCALE

Management unit 13A, Study no: 10



HERBACEOUS TRENDS--

Management unit 13A, Study no: 10

Type	Species	Nested Frequency					Average Cover %			
		'87	'94	'99	'04	'09	'94	'99	'04	'09
G	Agropyron cristatum	a63	b105	a72	ab75	ab94	2.48	.65	1.85	2.24
G	Agropyron intermedium	-	-	7	-	-	-	.04	-	-
G	Bouteloua gracilis	a-	a-	a7	b17	a2	-	.04	.18	.00
G	Bromus tectorum (a)	-	106	104	94	92	.88	.38	1.01	.56
G	Hilaria jamesii	b94	b93	ab79	ab75	a51	.96	.80	.98	.48
G	Poa secunda	ab224	bc246	c256	a174	ab229	3.77	6.50	4.48	5.03
G	Sitanion hystrix	ab24	a6	a7	b45	a12	.01	.21	1.02	.25
G	Sporobolus cryptandrus	-	-	-	3	-	-	-	.03	-
G	Stipa comata	7	-	-	-	5	-	-	-	.06
G	Vulpia octoflora (a)	-	b76	b61	a8	a-	.16	.55	.04	-
Total for Annual Grasses		0	182	165	102	92	1.03	0.94	1.06	0.56
Total for Perennial Grasses		412	450	428	389	393	7.23	8.25	8.55	8.07
Total for Grasses		412	632	593	491	485	8.27	9.19	9.61	8.64
F	Astragalus amphioxys	7	4	-	-	-	.01	-	-	-
F	Calochortus nuttallii	1	-	-	-	6	-	-	-	.01
F	Chenopodium fremontii (a)	-	-	-	3	-	-	-	.00	-
F	Cruciferae	1	-	-	-	-	-	-	-	-
F	Draba reptans (a)	-	b22	ab9	a-	a-	.04	.02	.00	-
F	Erigeron pumilus	6	10	12	1	6	.02	.05	.03	.06
F	Gilia sp. (a)	-	5	-	-	-	.01	-	-	-
F	Lesquerella sp.	-	-	1	-	-	-	.00	-	-
F	Leucelene ericoides	-	1	2	1	-	.00	.03	.03	-
F	Oenothera albicaulis (a)	1	-	-	-	-	-	-	-	-
F	Phlox austromontana	a21	ab21	b31	ab21	ab28	.81	.65	.27	.44

Type	Species	Nested Frequency					Average Cover %			
		'87	'94	'99	'04	'09	'94	'99	'04	'09
F	Phlox longifolia	a-	a-	a-	b18	a4	-	-	.13	.03
F	Ranunculus testiculatus (a)	-	b14	a-	a-	a1	.05	-	-	.00
F	Sphaeralcea coccinea	b62	a22	a5	a6	a7	.05	.01	.09	.02
F	Tragopogon dubius	4	-	-	-	-	-	-	-	-
F	Unknown forb-perennial	1	-	-	-	-	-	-	-	-
Total for Annual Forbs		1	41	9	3	1	0.10	0.01	0.00	0.00
Total for Perennial Forbs		103	58	51	47	51	0.90	0.75	0.56	0.56
Total for Forbs		104	99	60	50	52	1.01	0.77	0.57	0.57

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

BROWSE TRENDS--

Management unit 13A, Study no: 10

Type	Species	Strip Frequency				Average Cover %			
		'94	'99	'04	'09	'94	'99	'04	'09
B	Artemisia tridentata wyomingensis	85	78	83	77	15.69	13.69	13.94	11.82
B	Atriplex canescens	0	1	0	0	-	.00	-	-
B	Gutierrezia sarothrae	78	86	95	74	.85	3.98	4.90	2.91
B	Juniperus osteosperma	0	1	2	2	.88	.66	1.85	1.23
B	Opuntia sp.	0	0	4	4	-	-	.00	.03
B	Pinus edulis	0	0	1	1	-	-	.00	.00
Total for Browse		163	166	185	158	17.43	18.34	20.69	16.00

CANOPY COVER, LINE INTERCEPT--

Management unit 13A, Study no: 10

Species	Percent Cover		
	'99	'04	'09
Artemisia tridentata wyomingensis	-	19.25	18.68
Gutierrezia sarothrae	-	5.06	2.29
Juniperus osteosperma	.40	1.04	1.60

KEY BROWSE ANNUAL LEADER GROWTH--

Management unit 13A, Study no: 10

Species	Average leader growth (in)	
	'04	'09
Artemisia tridentata wyomingensis	2.3	0.7

BASIC COVER--

Management unit 13A, Study no: 10

Cover Type	Average Cover %				
	'87	'94	'99	'04	'09
Vegetation	8.00	23.64	25.24	34.15	28.52
Rock	0	.00	0	0	0
Pavement	0	.00	.00	.00	0
Litter	32.25	24.45	17.47	21.12	32.85
Cryptogams	1.00	1.28	10.75	5.93	1.01
Bare Ground	58.75	57.47	48.54	49.90	47.62

SOIL ANALYSIS DATA --

Management unit 13A, Study no: 10, Study Name: Upper Fisher Valley

Effective rooting depth (in)	pH	sandy clay loam			%OM	PPM P	PPM K	ds/m
		%sand	%silt	%clay				
13.9	6.8	58.9	15.8	25.3	1.6	7.8	73.6	0.4

PELLET GROUP DATA--

Management unit 13A, Study no: 10

Type	Quadrat Frequency				Days use per acre (ha)		
	'94	'99	'04	'09	'99	'04	'09
Rabbit	68	30	18	34	-	-	-
Elk	-	-	-	-	-	7 (17)	-
Deer	53	28	25	6	40 (99)	23 (56)	13 (31)
Cattle	1	11	5	10	26 (64)	26 (64)	38 (93)

BROWSE CHARACTERISTICS--

Management unit 13A, Study no: 10

Year	Plants per Acre (excluding seedlings)	Age class distribution			Seedling (plants/acre)	Utilization			Average Height Crown (in)
		% Young	% Mature	% Decadent		% moderate	% heavy	% poor vigor	
<i>Artemisia tridentata wyomingensis</i>									
87	6331	51	43	6	3133	40	1	2	21/25
94	6220	12	79	9	1360	7	0	11	17/27
99	5040	6	88	7	-	47	5	4	22/34
04	4060	0	77	23	-	60	12	9	19/30
09	3560	0	72	28	60	56	29	16	17/27
<i>Atriplex canescens</i>									
87	0	0	0	-	-	0	0	0	-/-
94	0	0	0	-	-	0	0	0	43/66
99	100	0	100	-	-	100	0	0	-/-
04	0	0	0	-	-	0	0	0	-/-
09	0	0	0	-	-	0	0	0	17/26

		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>										
87	13198	40	57	4	2599	.50	1	2	11/9	
94	5720	17	82	1	420	.34	0	.69	7/7	
99	13220	29	68	2	60	0	0	1	10/10	
04	20340	8	92	0	620	0	.19	.09	8/9	
09	4880	2	59	39	20	0	0	28	7/7	
<i>Juniperus osteosperma</i>										
87	0	0	0	-	-	0	0	0	-/-	
94	0	0	0	-	-	0	0	0	-/-	
99	20	0	100	-	20	0	0	0	-/-	
04	60	67	33	-	-	33	0	0	-/-	
09	80	75	25	-	-	0	0	25	-/-	
<i>Opuntia sp.</i>										
87	0	0	0	-	-	0	0	0	-/-	
94	0	0	0	-	-	0	0	0	6/16	
99	0	0	0	-	-	0	0	0	9/12	
04	80	50	50	-	-	25	0	0	7/22	
09	80	0	100	-	-	0	0	0	6/13	
<i>Pediocactus simpsonii</i>										
87	0	0	0	-	-	0	0	0	-/-	
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	5/4	
<i>Pinus edulis</i>										
87	0	0	0	-	-	0	0	0	-/-	
94	0	0	0	-	-	0	0	0	-/-	
99	0	0	0	-	20	0	0	0	-/-	
04	20	100	0	-	-	0	0	0	-/-	
09	20	100	0	-	-	0	0	0	-/-	