

UPPER WESTWATER-DOLORES - TREND STUDY NO. 13B-2-10

Vegetation Type: Basin Big Sagebrush

Range Type: Crucial Deer Winter

NRCS Ecological Site Description: Not Available

Land Ownership: BLM

Elevation: 4600 ft. (1402 m)

Aspect: West

Slope: 4%-6%

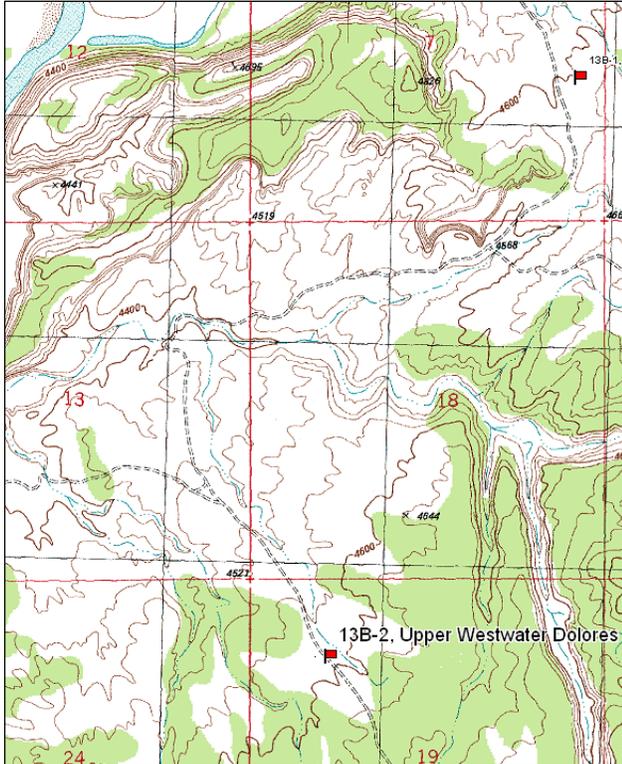
Transect bearing: 165° magnetic

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

Directions:

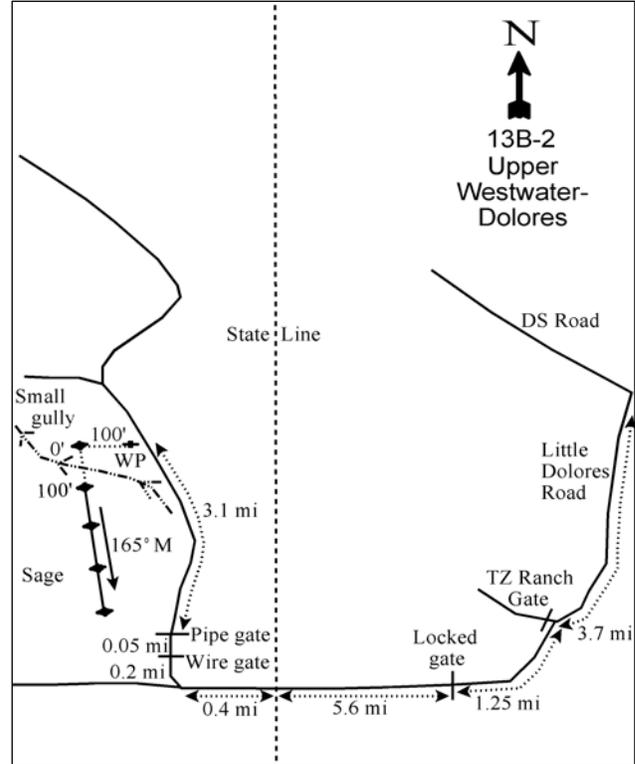
From the intersection of the DS Road and A Road west of Glade Park, Colorado, go down A Road 3.7 miles to the TZ Ranch gate. Turn left and go 1.25 miles to a locked gate (necessary to obtain permission and key). Continue 5.6 miles through the valley to the state line. Proceed 0.4 miles to a cabin, turn right and go along the edge of a field 0.2 miles to a wire gate. Go 0.05 miles to a locked pipe gate, and then 3.1 miles on the main road to the transect. There is a witness post (rebar) off the left side of the road 10-15 feet. The 0-foot baseline stake, a rebar tagged #7867, is 100 feet due west of the witness post.

Map Name: Westwater



Township: 20S Range: 26E Section: 19

Diagrammatic Sketch:



GPS: NAD 83, UTM 12S 665683 E 4324751 N

## UPPER WESTWATER DOLORES - TREND STUDY NO. 13B-2

### Site Information

Site Description: The study is in the northeast portion of the Dolores Triangle with the Colorado River approximately 1.5 miles to the west. When this site was established in 1986 it sampled a basin big sagebrush (*Artemisia tridentata* ssp. *tridentata*) flat surrounded by Utah juniper (*Juniperus osteosperma*) woodland. A fire burned the site between 1986 and 1995, likely as part of the Snyder 3 wildfire, which burned 1200 acres of the area in 1986. The wildfire left the site as an annual grassland. It is also likely that the site has burned again since 1995. Grazing in the area is managed by the Bureau of Land Management (BLM) as part of the Buckhorn allotment. The number of deer pellet groups found at the site has been low and estimated use light since 2000. The estimated cattle use has been moderately heavy since 2000 (Table - Pellet Group Data).

Browse: At the outset of the study in 1986, basin big sagebrush was the dominant browse species on the site. Sometime between the 1986 and 1995 readings, the sagebrush population was lost to a wildfire. Annual species then dominated the site. The fire appears to have burned very hot with the fine fuels provided by annual species leaving very little sign that sagebrush once dominated the site. There is no indication that the sagebrush population is going to return in the future. Other associated browse species, fourwing saltbush (*Atriplex canescens*) and spiny hopsage (*Grayia spinosa*), were also removed, though a limited number of spiny hopsage remain around the site. Around the periphery of the site, there are juniper trees that survived the fire.

Herbaceous Understory: Annual cheatgrass dominated the understory in 1986. Although dense that year, cheatgrass appeared to be infected by a fungus that in many areas of the state had greatly reduced seed production during the wet years of 1983-85. Since the destructive wildfire, annuals have accounted for 88% to 96% of the total vegetation cover on the site. The annual grass species cheatgrass and sixweeks fescue (*Vulpia octoflora*) have fluctuated in being the dominant cover species. In 2000, much of the cheatgrass did not germinate, likely due to the dry fall and winter, with a subsequent decrease in cover. The perennial grass species galleta (*Hilaria jamesii*) and sand dropseed (*Sporobolus cryptandrus*) are also present, but in very low numbers. The annual forb species tumble mustard (*Sisymbrium altissimum*), storksbill (*Erodium cicutarium*), and Russian thistle (*Salsola iberica*) have been the predominant forbs on the site. Perennial forbs are very rare on the site (Table - Herbaceous Trends).

Soil: The soil is a reddish sandy loam with a neutral pH (7.2) (Table - Soil Analysis Data). Litter and vegetation cover is essentially contributed by only annual species and is therefore prone to large vacillations driven by climatic variation. This has been evident on this site. Bare ground cover has been moderately low on the site despite the presence of annuals (Table -Basic Cover). The soil erosion condition was classified as stable in 2005 and 2010.

### Trend Assessments

Browse:

- **1986 to 1995 - down (-2):** The entire population of basin big sagebrush was removed from the site by a wildfire. There was no browse sampled on the site in 1995.
- **1995 to 2000 - stable (0):** There were no preferred browse species sampled on the site. The browse condition remained very poor.
- **2000 to 2005 - stable (0):** There were no preferred browse species sampled on the site. The browse condition remained very poor.
- **2005 to 2010 - stable (0):** There were no preferred browse species sampled on the site. The browse condition remained very poor.

Grass:

- **1986 to 1995 - stable (0):** There was little change in the sum of nested frequency of perennial grasses and perennial grasses are rare. Cheatgrass was the dominant grass species on the site.
- **1995 to 2000 - slightly up (+1):** The sum of nested frequency of perennial grasses increased slightly, but they remain rare. Cheatgrass decreased two degrees of significance and cover decreased from 16% to less than 1%. However, sixweeks fescue increased significantly and cover increased from 3% to 5%.
- **2000 to 2005 - stable (0):** There was little change in the sum of nested frequency of perennial grasses, but cheatgrass increased significantly in nested frequency and cover increased to 6%. Sixweeks fescue also increased in cover to 15%.
- **2005 to 2010 - slightly down (-1):** The sum of nested frequency of perennial grasses decreased slightly and they remained rare on the site. Cheatgrass increased significantly and cover increased markedly to 38%. However, sixweeks fescue nested frequency decreased two degrees of significance and cover decreased to less than 1%.

Forb:

- **1986 to 1995 - slightly up (+1):** Perennial forbs increased in nested frequency, but cover remains less than 1%. Annual species dominate the site.
- **1995 to 2000 - slightly down (-1):** The sum of nested frequency of perennial forbs decreased, but cover increased slightly. Annual species also had a decrease in the sum of nested frequency, but cover increased markedly due to a significant increase in the nested frequency of storksbill.
- **2000 to 2005 - slightly up (+1):** The perennial forb sum of nested frequency increased and cover increased to over 1%. However, the cover of annual species nearly doubled.
- **2005 to 2010 - slightly up (+1):** The sum of nested frequency of perennial forbs increased due to a significant increase in the nested frequency of hoary aster (*Machaeranthera canescens*), but cover remained around 1%. Annual species cover and sum of nested frequency decreased slightly.

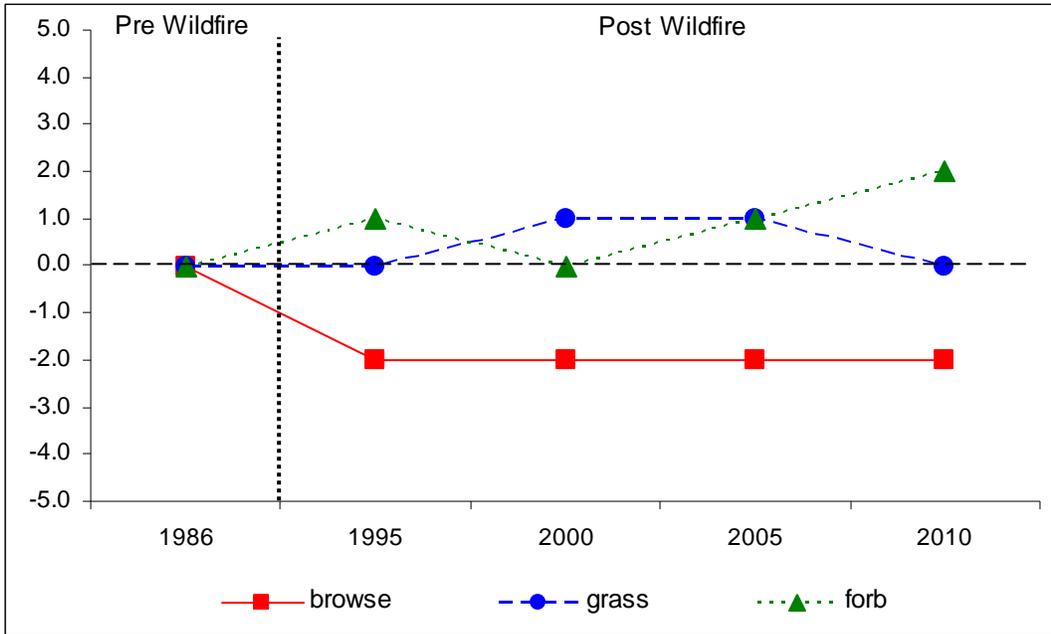
DEER DESIRABLE COMPONENTS INDEX - LOW POTENTIAL SCALE --

Management unit 13B, study no: 2

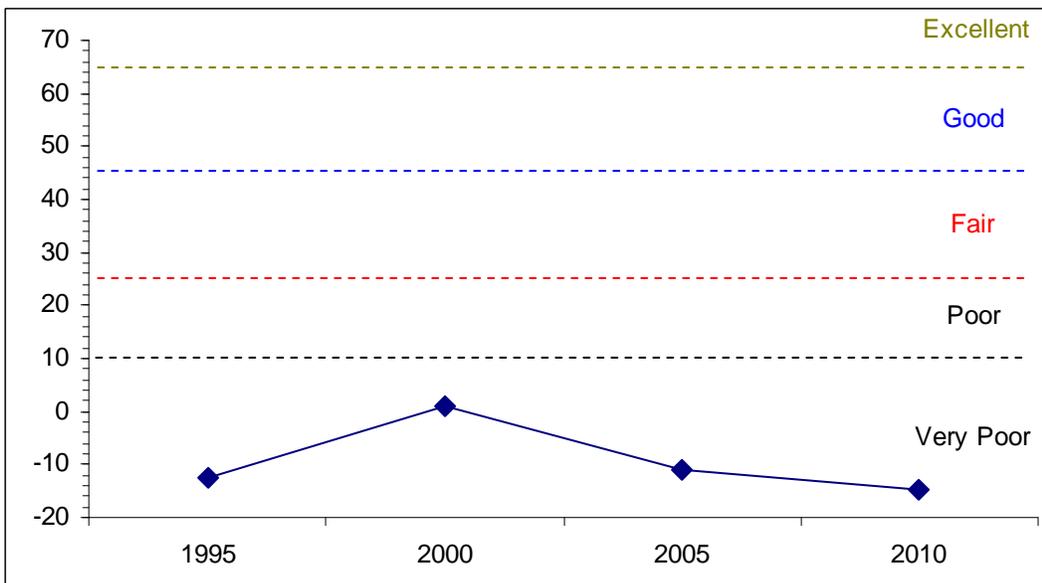
Year	Preferred Browse Cover	Preferred Browse Decadence	Preferred Browse Young	Perennial Grass Cover	Annual Grass Cover	Perennial Forb Cover	Noxious Weeds	Total Score	Ranking
95	0.0	0.0	0.0	1.4	-14.5	0.6	0.0	<b>-12.5</b>	Very Poor
00	0.0	0.0	0.0	4.2	-4.7	1.4	0.0	<b>0.9</b>	Very Poor
05	0.0	0.0	0.0	2.0	-15.7	2.8	0.0	<b>-11.0</b>	Very Poor
10	0.0	0.0	0.0	3.5	-20.0	1.8	0.0	<b>-14.7</b>	Very Poor

## Trend Summary

CUMULATIVE RANGE TREND ASSESSMENT--  
 Management unit 13B, Study no: 2



DEER DESIRABLE COMPONENTS INDEX TREND, LOW POTENTIAL SCALE--  
 Management unit 13B, Study no: 2



HERBACEOUS TRENDS--  
Management unit 13B, Study no: 2

Type	Species	Nested Frequency					Average Cover %			
		'86	'95	'00	'05	'10	'95	'00	'05	'10
G	<i>Aristida purpurea</i>	-	2	6	-	-	.03	.21	-	-
G	<i>Bromus tectorum</i> (a)	-	c371	a187	b250	c372	16.27	.89	5.99	38.45
G	<i>Hilaria jamesii</i>	45	40	33	29	32	.65	.95	.35	1.16
G	<i>Sporobolus cryptandrus</i>	a-	a-	b15	b28	b10	-	.93	.65	.60
G	<i>Vulpia octoflora</i> (a)	-	b277	c326	c334	a49	3.01	5.39	15.00	.19
Total for Annual Grasses		0	648	513	584	421	19.29	6.29	20.99	38.64
Total for Perennial Grasses		45	42	54	57	42	0.69	2.09	1.01	1.76
Total for Grasses		45	690	567	641	463	19.98	8.38	22.00	40.40
F	<i>Astragalus nuttallianus</i> (a)	-	b15	a-	ab9	a-	.08	-	.19	-
F	<i>Calochortus nuttallii</i>	a-	a3	a-	b45	b45	.00	-	.20	.38
F	<i>Chenopodium fremontii</i> (a)	-	a-	b12	a-	ab8	-	.03	-	.02
F	<i>Chenopodium leptophyllum</i> (a)	-	-	-	-	2	-	-	-	.00
F	<i>Cryptantha</i> sp.	-	1	-	-	-	.00	-	-	-
F	<i>Descurainia pinnata</i> (a)	-	a-	a-	b35	b21	-	-	.14	.50
F	<i>Draba</i> sp. (a)	-	a-	b24	c67	b15	-	.04	.32	.03
F	<i>Erigeron</i> sp.	-	2	-	-	-	.00	-	-	-
F	<i>Eriogonum cernuum</i> (a)	-	2	-	-	-	.00	-	-	-
F	<i>Erodium cicutarium</i> (a)	-	a44	b213	c344	b252	.14	9.74	20.87	5.69
F	<i>Lepidium densiflorum</i> (a)	-	b70	a10	a3	a4	.15	.05	.00	.15
F	<i>Machaeranthera canescens</i>	a-	a6	a-	a5	b42	.01	-	.04	.20
F	<i>Navarretia intertexta</i> (a)	-	c51	b11	ab2	a-	.15	.02	.00	-
F	<i>Oenothera</i> sp.	-	-	-	-	1	-	-	-	.00
F	<i>Plantago patagonica</i> (a)	-	b276	a6	a10	a10	1.93	.01	.02	.02
F	<i>Salsola iberica</i> (a)	-	a-	a10	b260	b258	-	.02	3.79	10.21
F	<i>Sisymbrium altissimum</i> (a)	-	d307	c241	b58	a9	5.85	3.69	.78	.19
F	<i>Sphaeralcea coccinea</i>	a2	d54	c25	ab9	a2	.27	.72	.52	.01
F	<i>Sphaeralcea parvifolia</i>	a-	a-	a-	b10	b4	-	-	.61	.31
Total for Annual Forbs		0	765	527	788	579	8.33	13.62	26.12	16.84
Total for Perennial Forbs		2	66	25	69	94	0.30	0.72	1.38	0.90
Total for Forbs		2	831	552	857	673	8.63	14.35	27.50	17.75

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

BROWSE TRENDS--  
Management unit 13B, Study no: 2

Type	Species	Strip Frequency			Average Cover %		
		'00	'05	'10	'00	'05	'10
B	<i>Gutierrezia sarothrae</i>	1	0	0	.03	-	-
Total for Browse		1	0	0	0.03	0	0

BASIC COVER--

Management unit 13B, Study no: 2

Cover Type	Average Cover %				
	'86	'95	'00	'05	'10
Vegetation	10.50	47.54	26.79	49.97	57.46
Rock	0	.00	.00	0	0
Pavement	0	0	.01	0	.03
Litter	69.50	59.21	36.02	20.01	44.00
Cryptogams	3.50	3.03	16.78	6.24	.45
Bare Ground	16.50	13.90	29.22	29.78	23.27

SOIL ANALYSIS DATA --

Management unit 13B, Study no: 2, Study Name: Upper Westwater Dolores

Effective rooting depth (in)	pH	sandy loam			%OM	PPM P	PPM K	ds/m
		%sand	%silt	%clay				
14.4	7.2	56.0	26.0	18.0	0.4	8.4	163.2	0.5

PELLET GROUP DATA--

Management unit 13B, Study no: 2

Type	Quadrat Frequency			
	'95	'00	'05	'10
Rabbit	9	2	7	11
Elk	-	-	-	-
Deer	10	9	7	2
Cattle	9	25	29	23

Days use per acre (ha)		
'00	'05	'10
-	-	-
-	-	1 (2)
8 (20)	6 (15)	9 (23)
51 (126)	57 (142)	38 (93)

BROWSE CHARACTERISTICS--  
 Management unit 13B, Study no: 2

		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 tridentata</i>										
86	<b>2198</b>	30	18	52	-	0	0	0	28/27	
95	<b>0</b>	0	0	0	-	0	0	0	-/-	
00	<b>0</b>	0	0	0	-	0	0	0	-/-	
05	<b>0</b>	0	0	0	-	0	0	0	-/-	
10	<b>0</b>	0	0	0	-	0	0	0	-/-	
<i>Gutierrezia sarothrae</i>										
86	<b>0</b>	0	0	0	-	0	0	0	-/-	
95	<b>0</b>	0	0	0	-	0	0	0	-/-	
00	<b>20</b>	0	0	100	-	0	0	100	6/12	
05	<b>0</b>	0	0	0	-	0	0	0	-/-	
10	<b>0</b>	0	0	0	-	0	0	0	-/-	
<i>Opuntia sp.</i>										
86	<b>0</b>	0	0	-	-	0	0	0	-/-	
95	<b>0</b>	0	0	-	-	0	0	0	-/-	
00	<b>0</b>	0	0	-	-	0	0	0	-/-	
05	<b>0</b>	0	0	-	-	0	0	0	7/50	
10	<b>0</b>	0	0	-	-	0	0	0	7/8	