

PRICKLY PEAR - TREND STUDY NO. 11B-14-10

Vegetation Type: Chained Pinyon-Juniper

Range Type: Crucial Deer Winter, Crucial Elk Winter

NRCS Ecological Site Description: [Upland Shallow Loam \(Pinyon-Utah Juniper\), R047XB326UT](#)

Land Ownership: BLM

Elevation: 7570 ft. (2308 m)

Aspect: South

Slope: 12%

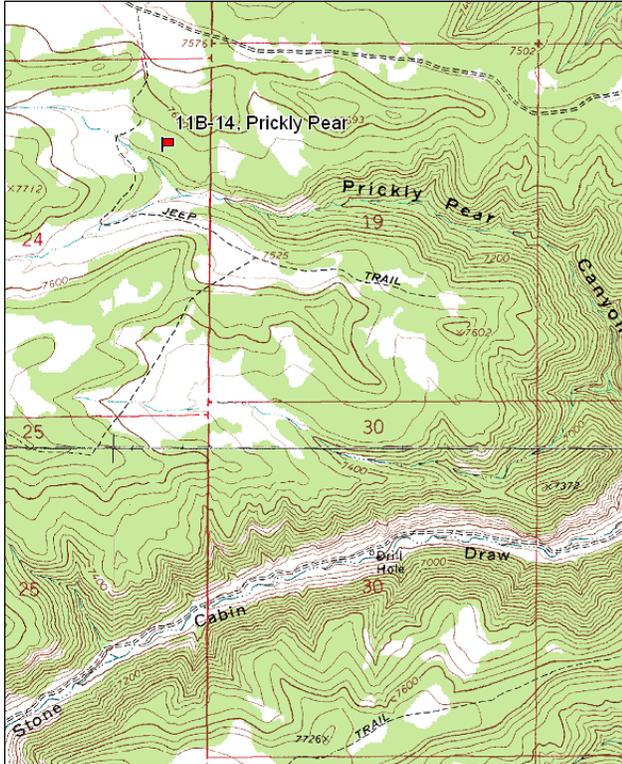
Transect bearing: 96° magnetic

Belt placement: line 1 (11ft), line 2 (34ft), line 3 (59ft), line 4 (71ft), line 5 (95ft).

Directions:

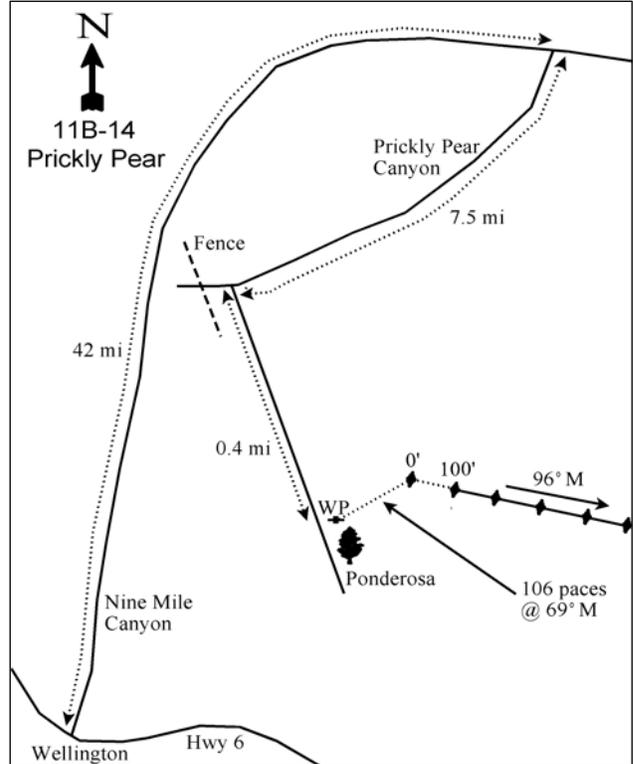
In Wellington at the intersection of Highway 6 and Nine Mile Canyon Road drive 42 miles northeast down Nine Mile Canyon to the Prickly Pear turnoff. Turn right (south) and travel up Prickly Pear Canyon 7.5 miles to a fork just before a fence. Turn left (south) and travel 0.4 miles to a large Ponderosa pine tree on the east side of the road. A witness post is just north of the tree. From the witness post walk 106 paces at 69°M crossing the fence to the 0 foot base line post. It is marked by browse tag #9148.

Map Name: Currant Canyon



Township: 12S Range: 14E Section: 24

Diagrammatic Sketch:



GPS: NAD 83, UTM 12S 560837 E 4401723 N

PRICKLY PEAR - TREND STUDY NO. 11B-14

Site Information

Site Description: The study is located at the head of Prickly Pear Canyon on a slightly sloping, flat, narrow ridge that runs west to east into Nine-Mile Canyon. Oil and gas exploration has expanded throughout the Nine Mile Canyon area. A new drill pad had been established just 500 feet beyond the end of the baseline between 2000 and 2005. New roads associated with the oil exploration have also been established. The area was chained and seeded in the mid-1970's and is currently grazed by livestock and horses as part of the Bureau of Land Management (BLM) Stone Cabin allotment. The study site was selected for anticipated increases in elk winter use, but pellet group transect data has estimated decreasing use by elk from moderately light in 2000 to light use in 2010. Estimated deer, cattle and horse use has been light since 2000 (Table - Pellet Group Data).

Browse: Browse is very limited on this site and is primarily comprised of a few true mountain mahogany (*Cercocarpus montanus*) and corymbed eriogonum (*Eriogonum corymbosum*). The true mountain mahogany consists of a small population of mostly mature plants with low decadence and good vigor. Recruitment of young mahogany plants has been limited over the course of the study. Utilization of mahogany has fluctuated between moderate and heavy use. Corymbed eriogonum is the most common browse on the site, but has had little use over the sample years. Other browse species that occur in low numbers on the site include rubber rabbitbrush (*Chrysothamnus nauseosus*), green ephedra (*Ephedra viridis*) and broom snakeweed (*Gutierrezia sarothrae*) (Table - Browse Characteristics). Pinyon pine (*Pinus edulis*) and Utah juniper (*Juniperus osteosperma*) trees are growing back within the chaining and appear to be increasing slowly in density (Table - Point-Quarter Tree Data) and cover (Table - Browse Trends), but most trees are still relatively small.

Herbaceous Understory: Grasses are neither diverse nor abundant on the site. The dominant grass species is Salina wildrye (*Elymus salina*). Indian ricegrass (*Oryzopsis hymenoides*) increased substantially and crested wheatgrass (*Agropyron cristatum*) decreased substantially in 2005. Forbs are diverse but are not overly abundant. The most common forbs are mostly low growing species that produce little useful forage (Table - Herbaceous Trends).

Soil: The soil has a clay loam texture with slightly alkaline soil reaction (pH 7.6). Phosphorus may have limited availability for plant growth and development at 2 ppm (Tiedemann and Lopez 2004) (Table - Soil Analysis Data). Bare ground cover is high despite a large amount of small shale fragments and larger flat pieces of sandstone that are common on the surface. Vegetation and litter cover a sparse on the site (Table - Basic Cover). The soil erosion condition was classified as slight in 2005 and 2010 due to moderate pedestaling, moderate litter and soil movement, and small rills and flow patterns on the sites.

Trend Assessments

Browse:

- **1994 to 2000 - stable (0):** The primary browse species, true mountain mahogany, increased slightly in density, but density remained low. Cover of mahogany increased slightly from 1% to 2%.
- **2000 to 2005 - stable (0):** The density of true mountain mahogany decreased slightly, but cover increased to 3%.
- **2005 to 2010 - stable (0):** There was little change in the density of true mountain mahogany and cover remained similar.

Grass:

- **1994 to 2000 - slightly down (-1):** The sum of nested frequency of perennial grasses decreased by 11%, though cover remained similar.
- **2000 to 2005 - slightly down (-1):** The perennial grass sum of nested frequency decreased by 13%, but cover increased from 5% to 7%. There was a slight change in composition with a significant

decrease in the nested frequency of crested wheatgrass and a significant increase in the nested frequency of Indian ricegrass.

- **2005 to 2010 - slightly down (-1):** There was an 11% decrease in the sum of nested frequency of perennial grasses and cover decreased to 5%. The nested frequency of Salina wildrye has decreased significantly since 1994.

Forb:

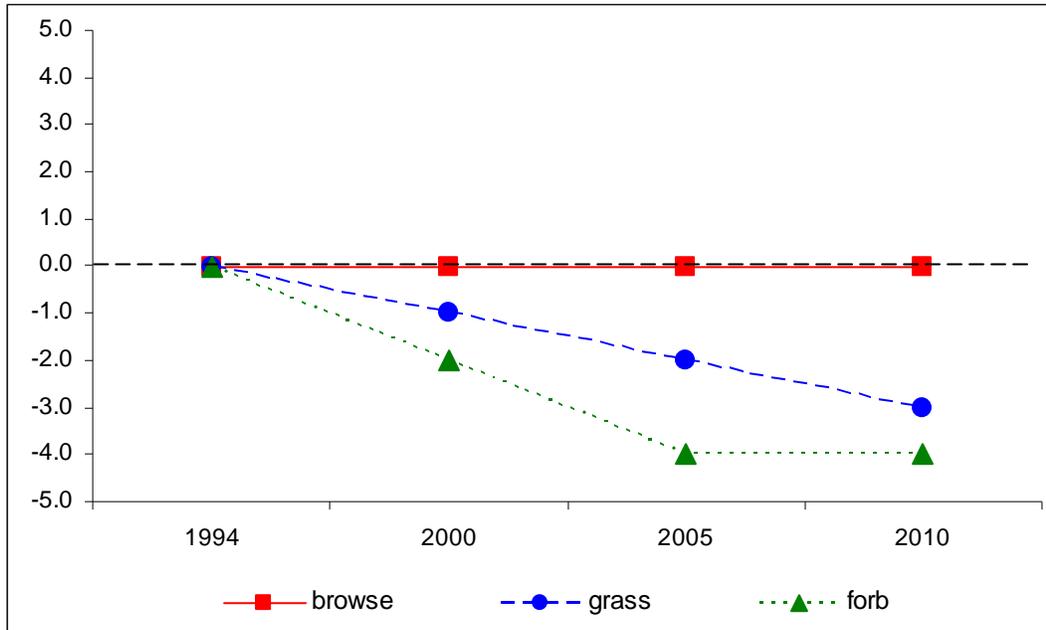
- **1994 to 2000 - down (-2):** The sum of nested frequency of perennial forbs decreased by 35%, though cover remained similar.
- **2000 to 2005 - down (-2):** The perennial forb sum of nested frequency decreased by 23%, though there was little change in cover.
- **2005 to 2010 - stable (0):** There was little change in the perennial forb sum of nested frequency or cover.

DEER DESIRABLE COMPONENTS INDEX - MID-LEVEL POTENTIAL SCALE --
Management unit 11B, study no: 14

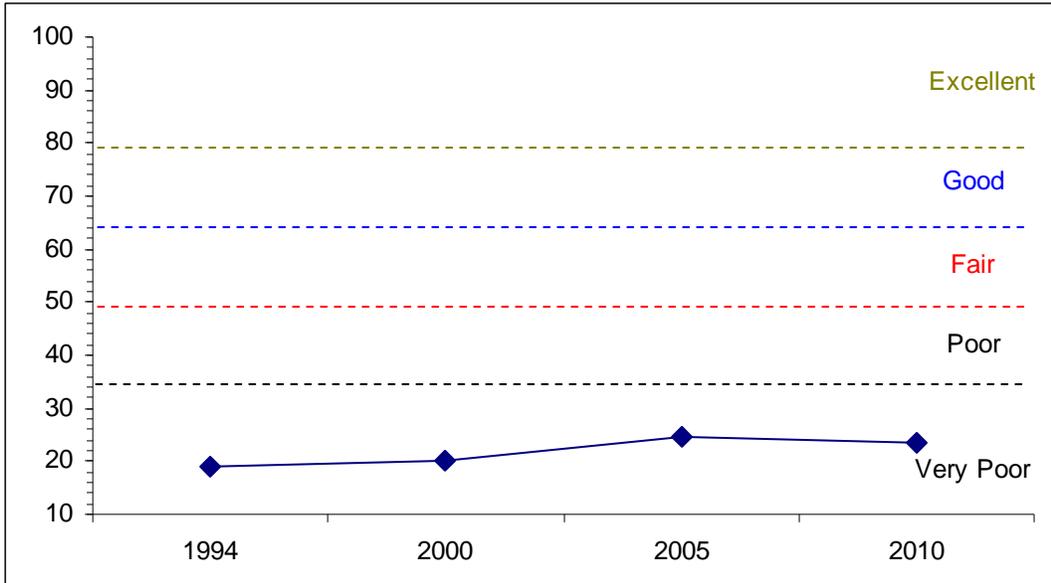
Year	Preferred Browse Cover	Preferred Browse Decadence	Preferred Browse Young	Perennial Grass Cover	Annual Grass Cover	Perennial Forb Cover	Noxious Weeds	Total Score	Ranking
94	1.0	0.0	0.0	10.1	0.0	8.0	0.0	19.1	Very Poor
00	2.3	0.0	0.0	9.9	0.0	8.0	0.0	20.2	Very Poor
05	4.1	0.0	0.0	13.1	0.0	7.5	0.0	24.7	Very Poor
10	5.0	0.0	0.0	10.6	0.0	7.9	0.0	23.5	Very Poor

Trend Summary

CUMULATIVE RANGE TREND ASSESSMENT--
Management unit 11B, Study no: 14



DEER DESIRABLE COMPONENTS INDEX TREND, MID-LEVEL POTENTIAL--
 Management unit 11B, Study no: 14



HERBACEOUS TRENDS--
 Management unit 11B, Study no: 14

Type	Species	Nested Frequency				Average Cover %			
		'94	'00	'05	'10	'94	'00	'05	'10
G	<i>Agropyron cristatum</i>	b69	b62	a15	a4	1.30	1.31	.20	.18
G	<i>Agropyron spicatum</i>	-	9	-	-	-	.33	-	-
G	<i>Bromus inermis</i>	5	-	-	-	.01	-	-	-
G	<i>Carex sp.</i>	13	11	6	8	.25	.45	.04	.19
G	<i>Elymus salina</i>	b128	ab118	ab104	a86	3.40	2.82	4.48	2.92
G	<i>Oryzopsis hymenoides</i>	a2	a2	b50	b53	.00	.03	1.80	1.81
G	<i>Stipa comata</i>	7	-	1	6	.01	-	.03	.19
G	<i>Stipa lettermani</i>	3	-	-	-	.03	-	-	-
Total for Annual Grasses		0	0	0	0	0	0	0	0
Total for Perennial Grasses		227	202	176	157	5.03	4.96	6.55	5.30
Total for Grasses		227	202	176	157	5.03	4.96	6.55	5.30
F	<i>Antennaria rosea</i>	a-	ab5	a-	b16	-	.01	-	.02
F	<i>Arenaria fendleri</i>	3	-	-	1	.03	-	-	.00
F	<i>Castilleja chromosa</i>	2	-	10	6	.00	-	.02	.03
F	<i>Draba sp. (a)</i>	-	3	-	-	-	.00	-	-
F	<i>Euphorbia fendleri</i>	10	-	6	-	.02	-	.04	-
F	<i>Haplopappus acaulis</i>	a27	b50	ab35	ab36	.50	1.36	.52	.45
F	<i>Helianthella microcephala</i>	a-	a-	a-	b23	-	-	-	.76
F	<i>Helianthella uniflora</i>	b20	b15	b18	a-	.12	.08	.61	-
F	<i>Hymenopappus filifolius</i>	54	30	34	52	1.20	.32	.68	.96
F	<i>Hymenoxys acaulis</i>	b56	a15	a9	a7	.24	.10	.05	.03
F	<i>Lesquerella sp.</i>	b135	a37	a19	a14	.45	.13	.07	.06
F	<i>Lomatium sp.</i>	-	-	1	-	-	-	.03	-
F	<i>Lygodesmia sp.</i>	-	-	1	-	-	-	.00	-

T y p e	Species	Nested Frequency				Average Cover %			
		'94	'00	'05	'10	'94	'00	'05	'10
F	<i>Machaeranthera grindelioides</i>	_b 67	_{ab} 68	_{ab} 43	_a 34	.31	.74	.80	.64
F	<i>Pedicularis centranthera</i>	-	-	7	-	-	-	.03	-
F	<i>Penstemon palmeri</i>	_b 13	_b 13	_a -	_a -	.06	.04	.00	-
F	<i>Penstemon sp.</i>	-	-	-	1	-	-	-	.00
F	<i>Phlox hoodii</i>	_b 150	_b 123	_a 85	_a 77	.80	1.13	.54	.81
F	<i>Physaria acutifolia</i>	_a 2	_b 14	_a -	_a -	.00	.03	-	-
F	<i>Physaria sp.</i>	-	-	-	1	-	-	-	.00
F	<i>Schoenocrambe linifolia</i>	-	-	2	-	-	-	.00	-
F	<i>Stanleya pinnata</i>	-	-	-	-	-	-	.00	-
F	<i>Townsendia incana</i>	13	12	13	1	.05	.05	.05	.03
F	Unknown forb-perennial	_c 37	_a -	_b 12	_b 12	.16	-	.25	.10
Total for Annual Forbs		0	3	0	0	0	0.00	0	0
Total for Perennial Forbs		589	382	295	281	3.99	4.02	3.73	3.94
Total for Forbs		589	385	295	281	3.99	4.02	3.73	3.94

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

BROWSE TRENDS--

Management unit 11B, Study no: 14

T y p e	Species	Strip Frequency				Average Cover %			
		'94	'00	'05	'10	'94	'00	'05	'10
B	<i>Cercocarpus montanus</i>	8	7	7	10	.69	1.50	2.75	3.32
B	<i>Chrysothamnus nauseosus</i>	13	10	11	10	.28	.15	.23	.56
B	<i>Chrysothamnus viscidiflorus</i>	2	3	1	1	.00	-	-	.15
B	<i>Ephedra viridis</i>	3	1	2	3	-	-	-	-
B	<i>Eriogonum corymbosum</i>	37	45	61	58	.85	1.22	2.59	2.03
B	<i>Gutierrezia sarothrae</i>	15	12	14	18	.10	.08	.07	.09
B	<i>Juniperus osteosperma</i>	0	1	0	2	-	.03	.15	.30
B	<i>Pinus edulis</i>	0	4	5	6	1.26	1.52	2.64	2.76
Total for Browse		78	83	101	108	3.21	4.50	8.46	9.23

CANOPY COVER, LINE INTERCEPT--

Management unit 11B, Study no: 14

Species	Percent Cover		
	'00	'05	'10
<i>Cercocarpus montanus</i>	-	3.29	5.30
<i>Chrysothamnus nauseosus</i>	-	.86	1.20
<i>Eriogonum corymbosum</i>	-	2.29	2.28
<i>Gutierrezia sarothrae</i>	-	.33	.10
<i>Pinus edulis</i>	.80	3.08	3.88

KEY BROWSE ANNUAL LEADER GROWTH--

Management unit 11B, Study no: 14

Species	Average leader growth (in)	
	'05	'10
Cercocarpus montanus	5.9	3.4

POINT-QUARTER TREE DATA--

Management unit 11B, Study no: 14

Species	Trees per Acre			Average diameter (in)		
	'00	'05	'10	'00	'05	'10
Juniperus osteosperma	31	37	43	3.6	2.7	3.3
Pinus edulis	92	140	140	3.3	2.3	3

BASIC COVER--

Management unit 11B, Study no: 14

Cover Type	Average Cover %			
	'94	'00	'05	'10
Vegetation	12.62	13.89	17.20	19.88
Rock	15.38	13.51	9.51	10.94
Pavement	6.16	16.37	22.53	21.68
Litter	19.67	23.13	21.88	22.63
Cryptogams	.00	.06	0	0
Bare Ground	34.38	42.35	40.68	32.57

SOIL ANALYSIS DATA --

Management unit 11B, Study no: 14, Study Name: Prickly Pear

Effective rooting depth (in)	pH	sandy loam			%OM	PPM P	PPM K	ds/m
		%sand	%silt	%clay				
14.2	7.6	31.6	36.8	31.6	3.5	2.0	201.6	0.6

PELLET GROUP DATA--

Management unit 11B, Study no: 14

Type	Quadrat Frequency				Days use per acre (ha)		
	'94	'00	'05	'10	'00	'05	'10
Rabbit	10	8	31	1	-	-	-
Horse	-	2	-	-	8 (20)	4 (9)	-
Elk	21	7	6	6	23 (57)	15 (38)	8 (20)
Deer	8	1	2	9	-	2 (5)	17 (43)
Cattle	-	-	1	-	10 (25)	7 (16)	1 (2)

BROWSE CHARACTERISTICS--
Management unit 11B, Study no: 14

		Age class distribution					Utilization			
Year	Plants per Acre (excluding seedlings)	% Young	% Mature	% Decadent	Seedling (plants/acre)	% moderate	% heavy	% poor vigor	Average Height Crown (in)	
Amelanchier utahensis										
94	0	0	0	-	-	0	0	0	45/61	
00	0	0	0	-	-	0	0	0	-/-	
05	0	0	0	-	-	0	0	0	-/-	
10	0	0	0	-	-	0	0	0	38/30	
Artemisia nova										
94	0	0	0	-	-	0	0	0	-/-	
00	0	0	0	-	-	0	0	0	-/-	
05	0	0	0	-	-	0	0	0	-/-	
10	0	0	0	-	-	0	0	0	7/12	
Artemisia tridentata tridentata										
94	0	0	0	-	-	0	0	0	-/-	
00	0	0	0	-	-	0	0	0	-/-	
05	0	0	0	-	-	0	0	0	-/-	
10	0	0	0	-	-	0	0	0	48/37	
Cercocarpus montanus										
94	180	0	100	0	-	44	22	0	29/36	
00	220	0	100	0	100	18	36	0	32/47	
05	160	0	100	0	40	13	75	0	42/52	
10	200	10	80	10	-	30	10	20	43/54	
Chrysothamnus nauseosus										
94	480	4	75	21	-	4	21	17	22/24	
00	320	6	75	19	-	13	0	6	20/23	
05	260	8	62	31	-	0	0	15	24/25	
10	320	13	69	19	-	0	0	25	25/29	
Chrysothamnus viscidiflorus										
94	40	0	100	0	-	0	0	0	5/8	
00	60	0	67	33	-	0	0	33	4/7	
05	20	0	100	0	-	0	100	0	-/-	
10	20	0	100	0	-	0	0	0	4/8	
Ephedra viridis										
94	60	33	33	33	-	33	0	0	16/19	
00	20	0	100	0	-	0	100	0	16/10	
05	40	50	50	0	-	50	0	0	21/19	
10	60	0	100	0	-	33	0	0	24/26	
Eriogonum corymbosum										
94	1880	35	64	1	40	13	0	0	11/16	
00	2180	27	56	17	180	4	0	5	9/13	
05	3140	42	56	2	1160	5	0	.63	12/18	
10	3660	27	70	3	160	14	3	7	10/13	

		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>										
94	760	16	79	5	-	0	0	3	5/6	
00	480	0	100	0	-	0	0	0	4/6	
05	320	6	94	0	20	0	0	0	7/9	
10	600	0	97	3	-	0	0	0	7/7	
<i>Juniperus osteosperma</i>										
94	0	0	0	-	-	0	0	0	-/-	
00	20	100	0	-	20	0	0	0	-/-	
05	0	0	0	-	-	0	0	0	-/-	
10	40	100	0	-	-	0	0	0	-/-	
<i>Pinus edulis</i>										
94	0	0	0	-	-	0	0	0	-/-	
00	80	75	25	-	60	0	0	0	-/-	
05	120	83	17	-	-	0	17	0	-/-	
10	120	67	33	-	-	0	0	0	-/-	