

NUTTERS CANYON - TREND STUDY NO. 11A-5-10

Vegetation Type: Black Sagebrush

Range Type: Crucial Deer Winter, Crucial Elk Winter

NRCS Ecological Site Description: Not Available

Land Ownership: BLM

Elevation: 6675 ft. (2035 m)

Aspect: North

Slope: 4%

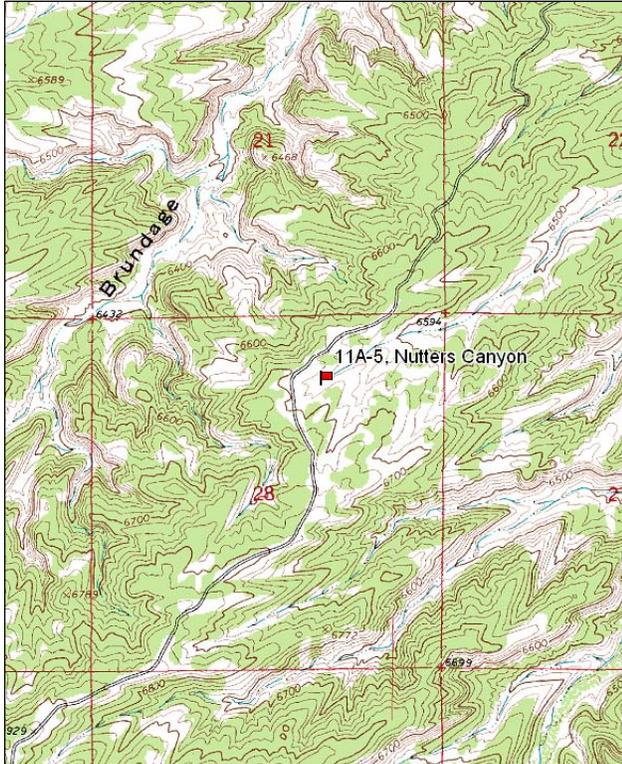
Transect bearing: 206° magnetic

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

Directions:

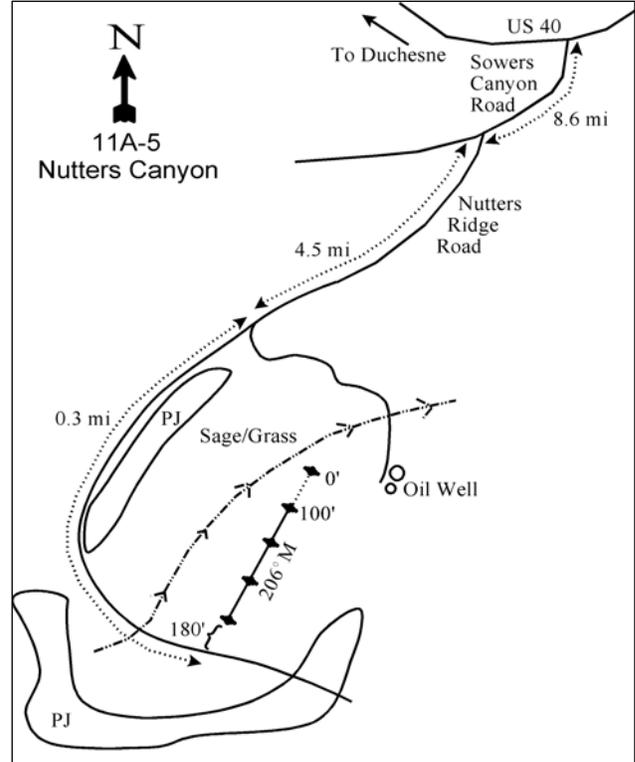
From Highway U.S. 40 near Bridgeland, turn south and go up the Anthro Mountain-Sowers Canyon Road 8.6 miles to the turnoff to Nutter's Ridge by an old cabin and an oil well. Turn left and go 4.5 miles up the ridge on the main road (stay left at major forks) to another fork to an oil well. Bear right and continue 0.3 miles to where the road curves and crosses a small drainage. Stop before you drive back into the Pinyon and Juniper and walk down into the sage opening about 180 feet to the 400-foot baseline stake. The 0-foot baseline stake is marked with browse tag #9035.

Map Name: Duchesne SE



Township: 5S Range: 4W Section: 28

Diagrammatic Sketch:



GPS: NAD 83, UTM 12T 556507 E 4430407 N

NUTTERS CANYON - TREND STUDY NO. 11A-5

Site Information

Site Description: This study is located above Nutters Canyon in the middle of a sagebrush (*Artemisia spp.*) and grass swale surrounded by pinyon pine (*Pinus edulis*) and Utah juniper (*Juniperus osteosperma*) woodlands. Natural sagebrush and grass openings are found within the heads of most of the drainages. There are roads along most of the main ridges, plus spur roads going to numerous oil wells within the area. Cattle grazing and use is relatively light on this Ute Reservation land. Pellet group transect data has estimated mostly moderate use by elk since 2000. Estimated use by deer was light in 2000, but has been more moderate since 2005. The majority of elk pellets were found in the grassy areas and most deer pellets were found in the black sagebrush (*Artemisia nova*) adjacent to the pinyon-juniper woodland. The area also appears to receive some light use from antelope.

Browse: The sagebrush on the study is classified primarily as black sagebrush, although there appears to be some hybridization between Wyoming big sagebrush (*Artemisia tridentata* ssp. *wyomingensis*) and black sagebrush. Along the edge of the pinyon-juniper type and along the drainage bottom, there are shrubs more characteristic of mountain big sagebrush (*A. tridentata* ssp. *vaseyana*). Black sagebrush provides the majority of the browse cover on the site (Table - Browse Trends). The black sagebrush population is a mixture of young and old plants that has had moderate to heavy use over the sample years. Decadence of black sagebrush was relatively high in 2000 and 2005, but has been low in the other sample years. Recruitment of young black sagebrush plants has been mostly good over the course of the study, but was low in 2000 and 2005. Other browse species found less commonly include winterfat (*Ceratoides lanata*), shadscale (*Atriplex confertifolia*), fringed sagebrush (*Artemisia frigida*), stickleaf low rabbitbrush (*Chrysothamnus viscidiflorus* ssp. *viscidiflorus*) and broom snakeweed (*Gutierrezia sarothrae*) (Table - Browse Characteristics).

Herbaceous Understory: Grasses on the site are fairly diverse and abundant. Needle-and-thread (*Stipa comata*) has slowly increased in dominance over the course of the study as the other two abundant species, blue grama (*Bouteloua gracilis*) and bottlebrush squirreltail (*Sitanion hystrix*), have slowly decreased in frequency. Other perennial species sampled, but that occur less frequently, include thickspike wheatgrass (*Agropyron dasystachyum*), galleta (*Hilaria jamesii*), Indian ricegrass (*Oryzopsis hymenoides*) and Sandberg bluegrass (*Poa secunda*). Forbs are rare and have provided very little vegetation cover or useful forage during all sampling periods. There were almost no forbs sampled during the 2000 reading. The most common forb species is scarlet globemallow (*Sphaeralcea coccinea*).

Soil: The soils are a loam with a slightly alkaline reaction (pH 7.4) (Table - Soil Analysis Data). Bare ground cover is low due to a large amount of pavement cover. Vegetation and litter cover are also moderately low (Table - Basic Cover). The soil erosion condition was classified as stable in 2005 and 2010.

Trend Assessments

Browse:

- **1988 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. Decadence and vigor of black sagebrush remained similar. Recruitment of young black sagebrush plants decreased, but remained good at 17% of the population.
- **1995 to 2000 - stable (0):** There was a 12% increase in the density of black sagebrush from 10,840 plants/acre to 12,100 plants/acre, though cover remained similar. Decadence of black sagebrush increased from 12% to 39% and poor vigor increased from 5% to 13%. Recruitment of young black sagebrush plants decreased to 3% of the population.
- **2000 to 2005 - down (-2):** The density of black sagebrush decreased by 49% to 6,180 plants/acre and cover decreased from 17% to 8%. Black sagebrush decadence remained high at 37% and poor vigor increased to 26%.

- **2005 to 2010 - slightly up (+1):** There was a large increase in the density of black sagebrush to 9,420 plants/acre due to a large increase in the recruitment of young plants. The density of mature black sagebrush changed little and cover remained similar. Decadence and poor vigor both decreased to 13%.

Grass:

- **1988 to 1995 - down (-2):** The sum of nested frequency of perennial grasses decreased by 28% with a significant decrease in the nested frequency of the three dominant grasses, blue grama, bottlebrush squirreltail and needle-and-thread.
- **1995 to 2000 - stable (0):** There was little change in the sum of nested frequency of perennial grasses, though cover increased from 7% to 11%.
- **2000 to 2005 - slightly down (-1):** The perennial grass sum of nested frequency decreased by 13%, but cover increased to 18%. There was a significant decrease in the nested frequency of blue grama.
- **2005 to 2010 - stable (0):** The sum of nested frequency and cover of perennial grasses remained similar. There was a significant decrease in the nested frequency of bottlebrush squirreltail and a significant increase in the nested frequency of needle-and-thread.

Forb:

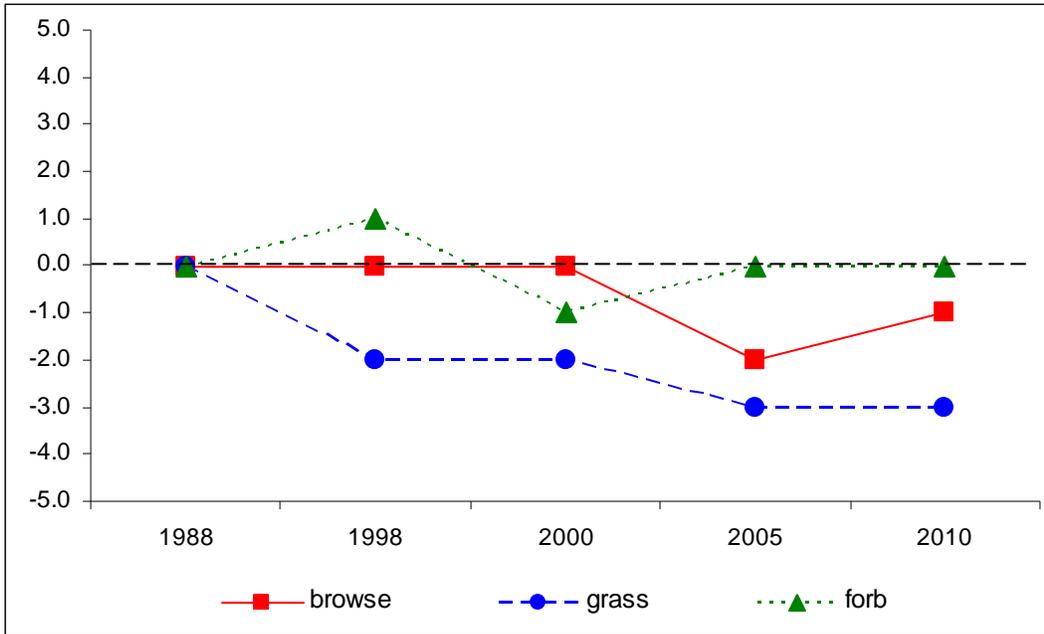
- **1988 to 1995 - slightly up (+1):** There was a large increase in the sum of nested frequency of perennial forbs, but forbs remained rare on the site.
- **1995 to 2000 - down (-2):** There were almost no forbs sampled on the site.
- **2000 to 2005 - slightly up (+1):** More forbs were sampled on the site and cover increased to over 1% due to an increase in the cover of scarlet globemallow, but forbs remain rare on the site.
- **2005 to 2010 - stable (0):** There was little change in the sum of nested frequency of perennial forbs, though cover decreased to less than 1%.

DEER DESIRABLE COMPONENTS INDEX - LOW POTENTIAL SCALE --
Management unit 11A, study no: 5

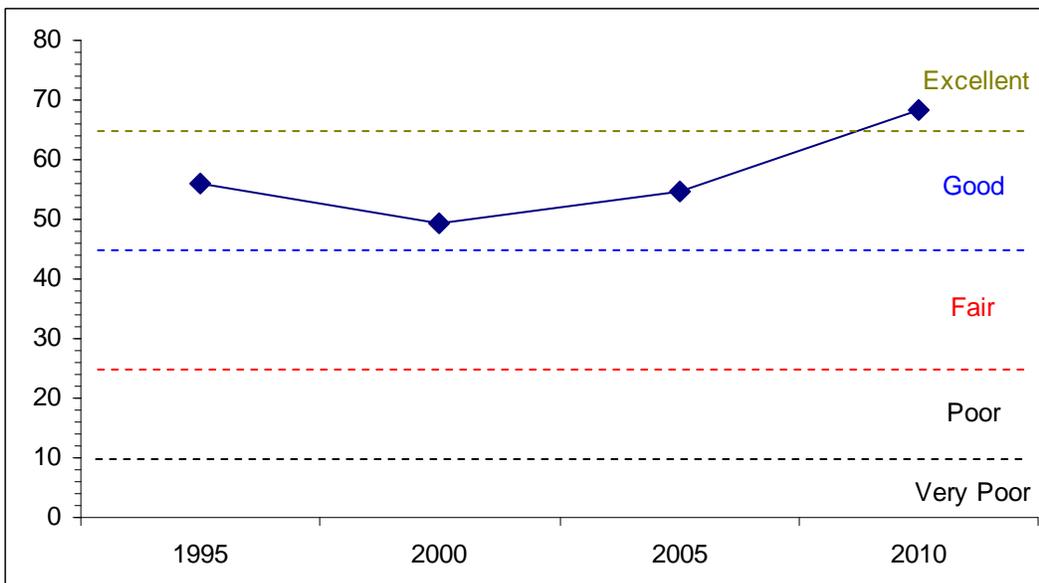
Year	Preferred Browse Cover	Preferred Browse Decadence	Preferred Browse Young	Perennial Grass Cover	Annual Grass Cover	Perennial Forb Cover	Noxious Weeds	Total Score	Ranking
95	21.6	11.5	8.1	13.3	0.0	1.4	0.0	55.9	Good
00	21.6	3.0	1.7	22.8	0.0	0.0	0.0	49.2	Good
05	11.4	5.7	5.1	30.0	0.0	2.5	0.0	54.6	Good
10	10.4	11.4	15.0	30.0	0.0	1.5	0.0	68.2	Excellent

Trend Summary

CUMULATIVE RANGE TREND ASSESSMENT--
Management unit 11A, Study no: 5



DEER DESIRABLE COMPONENTS INDEX TREND, LOW POTENTIAL SCALE--
Management unit 11A, Study no: 5



HERBACEOUS TRENDS--
Management unit 11A, Study no: 5

Type	Species	Nested Frequency					Average Cover %			
		'88	'95	'00	'05	'10	'95	'00	'05	'10
G	Agropyron dasystachyum	a-	ab17	b20	ab9	a3	.16	.05	.04	.00
G	Bouteloua gracilis	c209	b139	b154	a65	a65	1.20	3.24	1.54	1.05
G	Hilaria jamesii	a-	b18	ab14	a5	ab9	.24	.07	.04	.07
G	Oryzopsis hymenoides	b10	ab8	ab6	a-	ab4	.06	.07	-	.03
G	Poa secunda	ab14	ab17	a7	b25	c57	.11	.04	.42	.77
G	Sitanion hystrix	c221	b157	b165	bc179	a98	2.01	3.34	7.67	2.79
G	Stipa comata	c281	ab174	a136	a154	b211	2.88	4.56	8.07	13.06
Total for Annual Grasses		0	0	0	0	0	0	0	0	0
Total for Perennial Grasses		735	530	502	437	447	6.67	11.38	17.81	17.79
Total for Grasses		735	530	502	437	447	6.67	11.38	17.81	17.79
F	Arabis perennans	a-	b18	a-	a-	a-	.06	-	-	-
F	Astragalus purshii	a-	c58	a-	b8	a-	.19	-	.02	-
F	Astragalus sp.	ab7	c44	a-	b21	ab10	.15	-	.10	.03
F	Chenopodium fremontii (a)	-	b35	a-	a-	a-	.23	-	-	-
F	Chenopodium leptophyllum(a)	-	3	-	5	2	.01	-	.01	.00
F	Cryptantha sp.	a-	a1	a-	a-	b37	.00	-	-	.22
F	Descurainia pinnata (a)	-	b48	a-	a1	a3	.33	-	.00	.01
F	Erigeron pumilus	-	3	-	-	-	.00	-	-	-
F	Eriogonum cernuum (a)	-	4	-	3	-	.01	-	.03	-
F	Lappula occidentalis (a)	-	b49	a-	b44	a4	.20	-	.18	.01
F	Machaeranthera canescens	1	3	-	1	-	.01	-	.03	-
F	Navarretia intertexta (a)	-	b32	a-	a3	a-	.12	-	.01	-
F	Orobancha sp.	-	1	-	-	-	.00	-	-	-
F	Phlox longifolia	a-	b38	a-	b23	b18	.07	-	.06	.11
F	Schoenrambe linifolia	7	10	4	4	4	.03	.01	.19	.01
F	Sphaeralcea coccinea	b32	b20	a2	ab20	ab21	.13	.01	.85	.35
F	Taraxacum officinale	-	1	-	-	-	.00	-	-	-
F	Townsendia sp.	-	-	-	2	3	-	-	.00	.00
Total for Annual Forbs		0	171	0	56	9	0.91	0	0.24	0.03
Total for Perennial Forbs		47	197	6	79	93	0.68	0.01	1.26	0.73
Total for Forbs		47	368	6	135	102	1.60	0.01	1.51	0.76

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

BROWSE TRENDS--

Management unit 11A, Study no: 5

Type	Species	Strip Frequency				Average Cover %			
		'95	'00	'05	'10	'95	'00	'05	'10
B	Artemisia frigida	6	5	1	1	.01	.04	.00	-
B	Artemisia nova	92	95	83	90	16.18	16.71	7.67	7.50
B	Artemisia tridentata wyomingensis	1	0	0	0	-	-	-	.00
B	Atriplex confertifolia	12	8	15	16	1.32	.71	1.41	.48
B	Ceratoides lanata	10	6	26	33	.06	.00	.29	.44
B	Chrysothamnus nauseosus graveolens	3	2	0	0	.07	.00	-	-
B	Chrysothamnus viscidiflorus stenophyllus	6	7	7	10	.01	.21	.25	.36
B	Gutierrezia sarothrae	10	23	5	5	.08	.28	.00	-
B	Opuntia sp.	3	2	1	1	.00	.03	.03	.15
B	Pediocactus simpsonii	2	10	4	2	.00	.04	.00	.00
B	Pinus edulis	0	4	4	2	-	-	.03	.03
Total for Browse		145	162	146	160	17.76	18.05	9.69	8.98

CANOPY COVER, LINE INTERCEPT--

Management unit 11A, Study no: 5

Species	Percent Cover	
	'05	'10
Artemisia frigida	-	.03
Artemisia nova	11.80	10.44
Atriplex confertifolia	3.36	.95
Ceratoides lanata	.58	.30
Chrysothamnus viscidiflorus stenophyllus	.50	.51
Gutierrezia sarothrae	-	.15
Pinus edulis	.45	.65

KEY BROWSE ANNUAL LEADER GROWTH--

Management unit 11A, Study no: 5

Species	Average leader growth (in)	
	'05	'10
Ceratoides lanata	3.8	1.0

BASIC COVER--

Management unit 11A, Study no: 5

Cover Type	Average Cover %				
	'88	'95	'00	'05	'10
Vegetation	11.00	25.97	29.31	27.87	31.72
Rock	.50	.84	2.42	1.05	.77
Pavement	33.00	47.27	44.26	30.35	32.85
Litter	44.50	25.42	19.22	21.31	33.96
Cryptogams	0	.05	2.71	.94	1.72
Bare Ground	11.00	5.48	9.82	28.22	10.73

SOIL ANALYSIS DATA --

Management unit 11A, Study no: 5, Study Name: Nutters Canyon

Effective rooting depth (in)	pH	loam			%OM	PPM P	PPM K	ds/m
		%sand	%silt	%clay				
17.8	7.4	44.9	33.8	21.3	2.3	6.6	220.8	0.9

PELLET GROUP DATA--

Management unit 11A, Study no: 5

Type	Quadrat Frequency				Days use per acre (ha)		
	'95	'00	'05	'10	'00	'05	'10
Rabbit	6	10	6	6	-	-	-
Elk	15	24	37	12	40 (99)	31 (76)	21 (53)
Deer	17	9	24	23	5 (13)	41 (101)	34 (84)

BROWSE CHARACTERISTICS--

Management unit 11A, Study no: 5

Year	Plants per Acre (excluding seedlings)	Age class distribution			Seedling (plants/acre)	Utilization		% poor vigor	Average Height Crown (in)
		% Young	% Mature	% Decadent		% moderate	% heavy		
Artemisia frigida									
88	2532	61	37	3	1199	16	11	5	7/11
95	240	58	42	0	40	0	0	0	12/10
00	200	30	70	0	-	0	0	0	3/5
05	20	0	100	0	-	0	0	0	9/8
10	20	0	100	0	-	100	0	0	8/10
Artemisia nova									
88	21065	42	43	15	5866	13	.31	5	10/12
95	10840	17	71	12	320	58	32	5	11/18
00	12100	3	58	39	200	15	35	13	7/15
05	6180	2	61	37	21740	8	23	26	7/15
10	9420	41	46	13	2580	25	4	13	7/14
Artemisia tridentata wyomingensis									
88	0	0	0	-	-	0	0	0	-/-
95	20	0	100	-	-	100	0	0	15/7
00	0	0	0	-	-	0	0	0	-/-
05	0	0	0	-	-	0	0	0	-/-
10	0	0	0	-	-	0	0	0	32/49
Atriplex confertifolia									
88	133	0	100	0	-	0	0	0	8/13
95	360	6	89	6	-	0	0	6	16/29
00	320	13	25	63	-	19	31	6	13/28
05	400	40	55	5	720	0	0	10	16/39
10	580	45	45	10	20	0	0	10	13/26

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>Ceratoides lanata</i>									
88	265	75	0	25	-	0	0	0	-/-
95	320	13	88	0	-	19	6	0	10/10
00	120	0	83	17	-	33	67	17	3/3
05	1860	80	18	2	2020	15	0	2	11/15
10	2980	82	18	0	260	13	5	.67	8/11
<i>Chrysothamnus nauseosus graveolens</i>									
88	0	0	0	0	-	0	0	0	-/-
95	300	20	80	0	-	0	0	0	9/11
00	40	0	50	50	-	0	50	50	11/6
05	0	0	0	0	-	0	0	0	-/-
10	0	0	0	0	-	0	0	0	-/-
<i>Chrysothamnus viscidiflorus stenophyllus</i>									
88	132	0	50	50	66	0	0	0	3/2
95	140	0	100	0	-	0	0	0	6/7
00	340	12	29	59	40	0	24	59	2/7
05	1520	93	7	0	420	0	0	0	8/10
10	1040	79	21	0	-	0	0	0	6/9
<i>Gutierrezia sarothrae</i>									
88	265	25	75	-	-	0	0	0	5/5
95	240	8	92	-	380	0	0	0	7/6
00	1680	7	93	-	60	0	0	0	3/5
05	100	0	100	-	-	0	0	0	8/8
10	120	0	100	-	-	0	0	0	7/9
<i>Opuntia sp.</i>									
88	0	0	0	-	-	0	0	0	-/-
95	60	0	100	-	-	0	0	0	6/10
00	40	0	100	-	-	0	0	0	-/-
05	20	0	100	-	-	0	0	0	3/8
10	20	0	100	-	-	0	0	0	3/8
<i>Pediocactus simpsonii</i>									
88	0	0	0	-	-	0	0	0	-/-
95	40	0	100	-	-	0	0	0	0/1
00	260	31	69	-	-	8	0	0	1/2
05	80	0	100	-	-	0	0	0	1/1
10	40	0	100	-	-	0	0	0	2/3
<i>Pinus edulis</i>									
88	133	100	0	-	-	0	0	0	-/-
95	0	0	0	-	-	0	0	0	-/-
00	100	100	0	-	20	0	0	0	-/-
05	100	100	0	-	-	0	0	0	-/-
10	60	100	0	-	20	0	0	0	-/-