

Trend Study 14-22-04

Study site name: Wild Cow Point .

Vegetation type: Chained, Seeded P-J .

Compass bearing: frequency baseline 165 degrees magnetic.

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

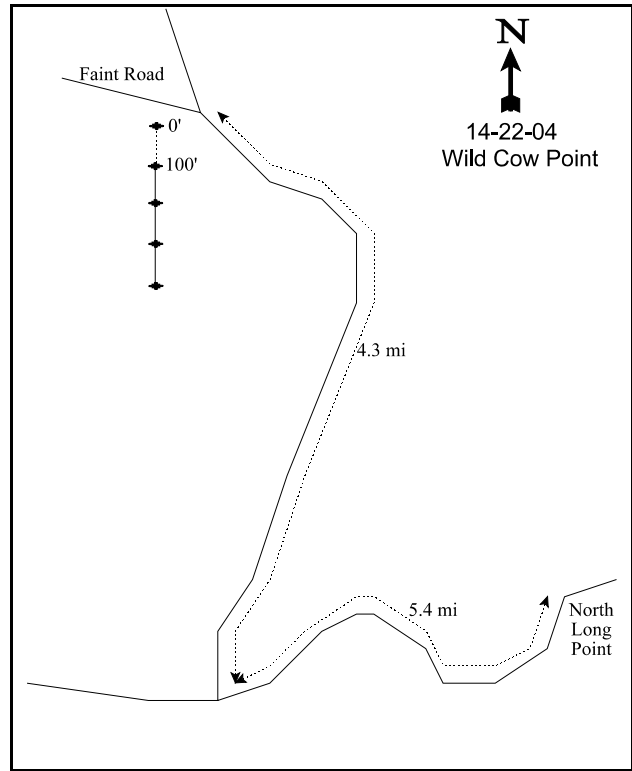
LOCATION DESCRIPTION

Drive to North Long Point. From the west rim of North Long Point, proceed west down the dugway on the Dark Canyon Plateau Road for 5.4 miles. Turn north on the Wild Cow Point Road and go 4.3 miles to a chaining and a faint road to the left (west). The zero foot stake is 10 feet south of the faint road on the west side of the Wild Cow Point Road about 100 hundred feet into the chaining, with the 0-foot stake having browse tag #481 attached. All stakes are 3 ½ foot tall green fence posts.



Map Name: Fable Valley

Township 33S , Range 18E , Section 22



Diagrammatic Sketch

GPS: NAD 27, UTM 12S 4194647 N, 593557 E

DISCUSSION

Wild Cow Point - Trend Study No. 14-22

The Wild Cow Point transect samples a chained and seeded area northwest of Elk Ridge. The narrow plateau is cut back by numerous canyons, which flow south into Fable Valley or north into Beef Basin. The study area is located on the higher, southwest end of Wild Cow Point at an elevation of 7,600 feet. The aspect is generally west on the level to a gently rolling plateau. A large area has been chained and seeded to crested wheatgrass in the early 1960's. The BLM manages the area with permits for 200-300 cattle on the point from January to June 15. The area was rested for 2 years in 2002 and 2003, but cows have returned to graze the area. Deer pellet groups were numerous in 1986 with no elk sign observed. In 1992, some elk pellet groups were encountered. Pellet group data from the site in 1999, estimated 38 deer days use/acre (94 ddu/ha), 1 elk day use/acre (2 edu/ha), and 3 cow days use/acre (7 cdu/ha). Pellet group data in 2004, estimated 27 deer days use/acre (68 ddu/ha) and 11 elk days use/acre (26 edu/ha).

The reddish sandy loam soil is derived from a hematite sandstone parent material. Depth of the loose soil varies from 1.5 to 3 feet over bed rock with an estimated average effective rooting depth of almost 19 inches. The upper horizon contains very little organic matter and phosphorus is low at just 4.8 ppm. Potassium is also low at 61 ppm. Values less than 10 ppm for phosphorus and 70 ppm for potassium may limit normal growth and development of plants. Litter cover is good, especially where the wheatgrass is dense. Protected microsites support limited cryptogamic activity. Soil pedestaling is evident around bunch grasses and shrubs. Some large bare areas are subject to wind erosion. Bare ground increased from 25% in 1999 to 35% in 2004. The ratio of bare soil to protective ground cover (vegetation, litter, and cryptogams) has remained stable since 1992 at 1:3.2 or 1:3.1.

Surviving pinyon and juniper are regaining their dominance since the chaining. They dominate much of the landscape, although the larger openings support good stands of sagebrush. The pinyon and juniper were on average about 7 feet tall in 1986, with some producing seed. Point quarter data from 1999, estimated 59 pinyon and 40 juniper trees/acre. Average diameter of pinyon was estimated at 4.2 inches while juniper was 11.6 inches. In 2004, pinyon and juniper density remained stable. Pinyon density was estimated at 62 trees/acre with an average diameter of 5.5 inches. Juniper density was 41 trees/acre in 2004, with an average diameter of 9.3 inches. In both 1999 and 2004 74% of the junipers sampled were knocked down trees that were still living. Pinyon and juniper trees comprised 30% of the browse cover in 1992, increasing to 38% in 1999 and 46% in 2004. Canopy cover (using line intercept method) in 1999, averaged 7% for pinyon and 4% for juniper. In 2004, pinyon cover increased to 13%, while juniper was up to 7%. When combined values for pinyon and juniper cover begin approaching 20%, the herbaceous understory begins to thin-out. When it exceeds 25%, herbaceous understory cover could easily be reduced to less than 3% (Tausch and West (2004). This site should be thinned out in some way to help restore the productivity of the understory.

The sagebrush community is composed of black sagebrush in association with Wyoming big sagebrush. Density of both Wyoming big sagebrush and black sagebrush has declined since 1992. Black sagebrush declined by 56% between 1992 and 2004. Cover declined 52% in that same period from 10 to 5%. In 1986 and 1992 young plants were common. In 2004, young plants were rare. Percent decadence was 42% in 1986. This declined to 11 and 18% in 1992 and 1999 respectively, but increased to 42% in 2004. Plants classified as dying made up 26% of the population in 2004. Wyoming big sagebrush is less abundant than black sagebrush, but makes up a significant portion of the browse cover. Cover was higher for Wyoming big sagebrush than black sagebrush in 2004. Wyoming big sagebrush density declined 35% between 1992 and 2004. Density was only 10% lower than it was in 1999. Percent decadency was 20% in 1992 and 12% in 1999. This increased to 34% in 2004, with 12% of the population classified as dying. Young plants were abundant in 1992, but were not in 1999 and 2004. Seedlings were very abundant in 2004. Utilization has been moderate to heavy with each reading and was mostly heavy in 2004. Utilization of black sagebrush has been mostly light to moderate. Dwarf rabbitbrush also shows signs of moderate to heavy hedging.

Crested wheatgrass is the dominant herbaceous species as it provided 40% of the herbaceous cover in 1992, increasing to 54% in 1999, and 59% in 2004. The large patches form a dense stand over much of the area and nested frequency has remained stable since 1992. Mutton bluegrass is also common and has been slowly declining since 1992. Cover was only 2% in 2004, down from 6% in 1999. Blue grama was more common in 1992, but declined significantly in 1999. Forbs are not very common or of real importance on this range. The more common and possibly utilized species include redroot buckwheat, Hoods phlox, low fleabane, and Rocky Mountain penstemon.

1986 APPARENT TREND ASSESSMENT

Evidence of wind-scoured depressions are found on some exposed sites. Overall, ground cover is good but does not appear to be increasing. Heavy grazing or removal of vegetation would subject the area to wind erosion and possible gullying and severe soil loss. Currently, soil trend is stable. The area currently provides abundant forage for livestock and big game, but the increasing dominance of young pinyon-Juniper indicates a possible long-term downward trend. Re-treatment of the area may be necessary in the future to maintain productivity, especially if it gains importance as a wintering area for an increasing elk herd.

1992 TREND ASSESSMENT

The soil trend for this site is a little more difficult to determine without the help of photographs for the site. Percent cover of bare ground has declined from 21% to 16%, but litter cover has decreased from 66% to 46%. Trend for soils on this site is considered stable. The key browse species for the site includes: black sagebrush, Wyoming big sagebrush, and dwarf rabbitbrush. Black sagebrush and dwarf rabbitbrush densities are almost the same with percent decadence for the much more important black sagebrush declining from 42% down to 11%. For Wyoming big sagebrush, the data would indicate that there was a large increase in it's density. This is more reflective of the greatly enlarged sampling area. In this community, there are small groups of Wyoming big sagebrush interspersed throughout the black sagebrush population. This sampling procedure gives a better representative sample of what is present in the plant community. This higher density is more representative of what is present in the sampled community. What is actually more descriptive of the community is that percent decadence has decreased from 50% in 1986 to 20% in 1992. Browse trend is stable to slightly improving for this site. The herbaceous understory trend is stable with a slight increase in nested frequency for grasses and substantial decrease in forb cover. The trend was considered stable because the forb component of the herbaceous understory only makes up 24% of the total herbaceous cover. The Desirable Components Index (see methods) rated this site as excellent with a score of 87.

TREND ASSESSMENT

soil - stable (3)

browse - slightly up (4)

herbaceous understory - stable (3)

winter range condition (DC Index) - 87 (excellent) Wyoming big sagebrush/black sagebrush type

1999 TREND ASSESSMENT

Trend for soil is stable. Percent bare ground has increased from 16% to 25%, however litter cover has increase from 46% to 50%. The ratio of bare soil to protective cover has remained almost the same (1:3.2 vs 1:3.1). There is some wind and water erosion occurring, but it is localized and not excessive. Trend for browse is considered stable. Population density of both black and Wyoming big sagebrush declined slightly, yet use is lower, vigor is improved, and percent decadence has declined for Wyoming big sagebrush. Recruitment is poor for both species with the number of seedlings and young sampled steadily declining since 1986. For now, there appears to be enough young to maintain the populations of both species of sagebrush. Trend for the herbaceous understory is down slightly. Sum of nested frequency of perennial grasses and forbs declined since 1992. Frequency of the crested wheatgrass, the most dominant grass, has remained similar. As a result,

crested wheatgrass now provides 61% of the grass cover and 54% of the total herbaceous cover. Forbs occur infrequently. The only common species sampled is bladderpod and desert phlox. The DCI score is excellent (70) for a Wyoming big sagebrush community. The shrub component is abundant and healthy, while the herbaceous understory is also abundant.

TREND ASSESSMENT

soil - stable (3)

browse - stable (3)

herbaceous understory - down slightly (2)

winter range condition (DC Index) - 70 (excellent) Wyoming big sagebrush/black sagebrush type

2004 TREND ASSESSMENT

The trend for soil is stable. Bare ground has increased slightly, but the ratio of bare soil to protective ground cover (vegetation, litter, and cryptogams) has remained stable at 1:3.1. The browse trend is down. Black sagebrush has seen the greatest decline as density has decreased by 31% since 1999 (56% since 1992). Cover has decreased by 52% since 1992. Decadence has increased to 42% and there are very few young and seedling plants to replace dying plants. Wyoming big sagebrush density declined 10% since 1999 (35% since 1992). Cover has remained fairly stable since 1992. Percent decadence for Wyoming big sagebrush has also increase since 1999 to 34%. However, only 12% of the population was classified as dying. Seedlings were very abundant in 2004. Dwarf rabbitbrush density has also declined since 1992 (71%). The herbaceous understory trend is slightly down. Nested frequency of perennial grasses declined 21% since 1999, while cover was down 42%. Crested wheatgrass is the dominant species and is healthy and vigorous. Forbs have remained stable since 1999. The DCI score has declined as sagebrush cover and vigor has declined. The loss of perennial grass cover has also lower the score.

TREND ASSESSMENT

soil - stable (3)

browse - down (1)

herbaceous understory - down slightly (2)

winter range condition (DC Index) - 47 (fair) Wyoming big sagebrush/black sagebrush type

HERBACEOUS TRENDS --

Management unit 14 , Study no: 22

Type	Species	Nested Frequency				Average Cover %		
		'86	'92	'99	'04	'92	'99	'04
G	Agropyron cristatum	a108	b181	b194	b157	8.47	10.26	7.28
G	Bouteloua gracilis	b57	b49	a18	a17	2.04	.14	.11
G	Bromus tectorum (a)	-	a-	a8	b20	-	.01	.05
G	Poa fendleriana	c168	bc129	ab119	a87	6.62	6.46	2.42
G	Sitanion hystrix	b33	b42	a4	a2	.29	.04	.00
Total for Annual Grasses		0	0	8	20	0	0.01	0.05
Total for Perennial Grasses		366	401	335	263	17.42	16.91	9.82
Total for Grasses		366	401	343	283	17.42	16.93	9.87
F	Allium spp.	2	6	12	10	.01	.11	.03

T y p e	Species	Nested Frequency				Average Cover %		
		'86	'92	'99	'04	'92	'99	'04
F	<i>Antennaria neglecta</i>	_b 8	_{ab} 6	_a 1	_a -	.53	.00	-
F	<i>Arabis</i> spp.	3	-	3	-	-	.18	.00
F	<i>Astragalus convallarius</i>	_b 41	_a 7	_a 2	_a -	.19	.01	-
F	<i>Castilleja linariaefolia</i>	-	3	2	-	.00	.00	-
F	<i>Calochortus nuttallii</i>	1	-	-	-	-	-	-
F	<i>Cordylanthus kingii</i> (a)	_a 5	_a 26	_a 9	_b 94	.89	.07	1.36
F	<i>Cryptantha flavoculata</i>	2	-	-	-	-	-	-
F	<i>Erigeron flagellaris</i>	-	1	2	-	.03	.03	-
F	<i>Erigeron pumilus</i>	_b 32	_a 3	_a 1	_a 3	.01	.00	.00
F	<i>Eriogonum racemosum</i>	_b 60	_a 22	_a 8	_a 15	.20	.10	.11
F	<i>Eriogonum umbellatum</i>	12	8	10	4	.10	.10	.03
F	<i>Heterotheca villosa</i>	-	2	-	-	.00	-	-
F	<i>Lesquerella rectipes</i>	16	9	15	8	.20	.58	.05
F	<i>Machaeranthera canescens</i>	_a -	_{ab} 6	_b 13	_c 36	.02	.10	.62
F	<i>Oenothera caespitosa</i>	-	-	-	2	-	-	.00
F	<i>Penstemon lentus</i>	10	3	3	1	.01	.03	.00
F	<i>Phlox austromontana</i>	_b 46	_b 41	_{ab} 24	_a 19	1.54	.60	.22
F	<i>Polygonum douglasii</i> (a)	-	11	1	2	.03	.00	.01
F	<i>Senecio multilobatus</i>	15	4	3	5	.03	.01	.07
F	<i>Thlaspi montanum</i>	9	-	-	-	-	-	-
F	<i>Townsendia incana</i>	-	8	5	1	.06	.01	.00
Total for Annual Forbs		5	37	10	96	0.91	0.08	1.37
Total for Perennial Forbs		257	129	104	104	2.96	1.88	1.17
Total for Forbs		262	166	114	200	3.88	1.97	2.54

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

BROWSE TRENDS --

Management unit 14 , Study no: 22

Type	Species	Strip Frequency			Average Cover %		
		'92	'99	'04	'92	'99	'04
B	Artemisia nova	47	43	44	9.66	6.71	4.63
B	Artemisia tridentata wyomingensis	36	43	36	7.38	6.64	6.94
B	Chrysothamnus depressus	41	22	17	2.36	1.02	.64
B	Chrysothamnus viscidiflorus viscidiflorus	0	1	0	-	-	.00
B	Echinocereus spp.	1	0	0	.00	-	-
B	Gutierrezia sarothrae	1	4	1	-	.03	.00
B	Juniperus osteosperma	5	4	3	3.31	2.82	4.53
B	Opuntia spp.	4	3	2	.00	.03	.03
B	Pinus edulis	9	8	10	4.99	6.15	5.93
B	Sclerocactus	0	0	1	-	-	-
Total for Browse		144	128	114	27.73	23.43	22.73

CANOPY COVER, LINE INTERCEPT --

Management unit 14 , Study no: 22

Species	Percent Cover	
	'99	'04
Artemisia nova	-	5.63
Artemisia tridentata wyomingensis	-	7.23
Chrysothamnus depressus	-	.25
Juniperus osteosperma	4.40	6.73
Pinus edulis	7.40	12.94

KEY BROWSE ANNUAL LEADER GROWTH --

Management unit 14 , Study no: 22

Species	Average leader growth (in)
	'04
Artemisia nova	1.0
Artemisia tridentata wyomingensis	1.5

POINT-QUARTER TREE DATA --
Management unit 14 , Study no: 22

Species	Trees per Acre	
	'99	'04
Juniperus osteosperma	40	41.1
Pinus edulis	59	62

Average diameter (in)	
'99	'04
11.5	9.3
4.2	5.5

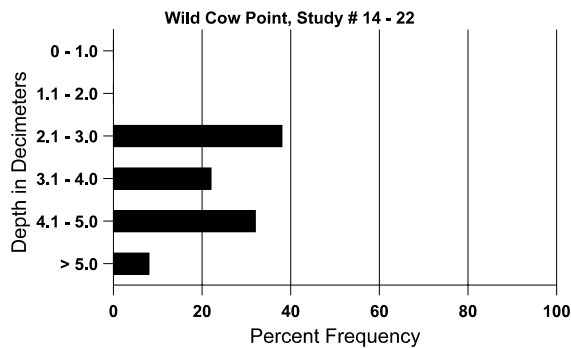
BASIC COVER --
Management unit 14 , Study no: 22

Cover Type	Average Cover %			
	'86	'92	'99	'04
Vegetation	12.25	43.56	38.62	35.64
Rock	.25	1.17	1.22	.66
Pavement	.25	0	.06	.00
Litter	65.50	46.42	50.02	48.98
Cryptogams	.50	5.09	2.24	2.09
Bare Ground	21.25	15.97	24.81	34.81

SOIL ANALYSIS DATA --
Management unit 14, Study no: 22, Study Name: Wild Cow Point

Effective rooting depth (in)	Temp °F (depth)	pH	%sand	%silt	%clay	%OM	PPM P	PPM K	ds/m
18.5	52.7 (18.1)	7.4	72.4	15.1	12.6	1.6	4.8	60.8	0.5

Stoniness Index



PELLET GROUP DATA --
 Management unit 14 , Study no: 22

Type	Quadrat Frequency		
	'92	'99	'04
Rabbit	49	39	38
Elk	1	2	2
Deer	29	18	19
Cattle	1	-	2

Days use per acre (ha)	
'99	'04
-	-
1 (2)	11 (27)
38 (94)	27 (68)
3 (7)	-

BROWSE CHARACTERISTICS --
 Management unit 14 , Study no: 22

		Age class distribution (plants per acre)					Utilization					
Y	Plants per Acre (excluding seedlings)	Seedling	Young	Mature	Decadent	Dead	% moderate	% heavy	% decadent	% dying	% poor vigor	Average Height Crown (in)
<i>Artemisia nova</i>												
86	5099	33	633	2300	2166	-	29	45	42	5	10	8/13
92	5160	240	900	3680	580	-	45	13	11	5	10	-/-
99	3260	120	280	2400	580	200	15	4	18	4	4	11/18
04	2260	200	20	1280	960	460	21	3	42	29	29	11/21
<i>Artemisia tridentata wyomingensis</i>												
86	399	66	66	133	200	-	42	50	50	-	8	16/15
92	2560	40	960	1100	500	-	30	56	20	.78	6	-/-
99	1840	-	160	1460	220	40	26	27	12	2	2	20/33
04	1660	1620	60	1040	560	440	18	70	34	12	12	17/26
<i>Chrysothamnus depressus</i>												
86	2365	33	266	1933	166	-	31	4	7	-	4	4/6
92	2320	60	320	1300	700	-	34	32	30	10	16	-/-
99	880	-	40	700	140	80	14	30	16	7	7	5/10
04	680	20	20	480	180	80	41	21	26	6	9	6/11
<i>Chrysothamnus nauseosus graveolens</i>												
86	0	-	-	-	-	-	0	0	-	-	0	-/-
92	0	-	-	-	-	-	0	0	-	-	0	-/-
99	0	-	-	-	-	-	0	0	-	-	0	-/-
04	0	-	-	-	-	-	0	0	-	-	0	29/36
<i>Chrysothamnus viscidiflorus</i>												
86	0	-	-	-	-	-	0	0	-	-	0	-/-
92	0	-	-	-	-	-	0	0	-	-	0	-/-
99	20	-	-	20	-	-	0	0	-	-	0	35/53
04	0	-	-	-	-	-	0	0	-	-	0	9/10

		Age class distribution (plants per acre)					Utilization					
Year	Plants per Acre (excluding seedlings)	Seedling	Young	Mature	Decadent	Dead	% moderate	% heavy	% decadent	% dying	% poor vigor	Average Height Crown (in)
Echinocereus spp.												
86	0	-	-	-	-	-	0	0	-	-	0	-/-
92	20	20	-	20	-	-	0	0	-	-	0	-/-
99	0	-	-	-	-	-	0	0	-	-	0	-/-
04	0	-	-	-	-	-	0	0	-	-	0	-/-
Gutierrezia sarothrae												
86	33	-	-	33	-	-	0	0	0	-	0	4/3
92	60	-	40	20	-	-	0	0	0	-	0	-/-
99	100	40	40	40	20	-	0	20	20	-	0	7/11
04	20	-	-	20	-	-	0	0	0	-	0	7/9
Juniperus osteosperma												
86	166	-	100	66	-	-	0	0	-	-	0	93/89
92	140	20	80	60	-	-	0	0	-	-	0	-/-
99	80	20	-	80	-	60	0	0	-	-	0	61/63
04	60	-	-	60	-	-	0	0	-	-	0	-/-
Opuntia spp.												
86	0	-	-	-	-	-	0	0	-	-	0	-/-
92	80	20	-	80	-	-	0	0	-	-	50	-/-
99	60	-	-	60	-	-	0	0	-	-	0	4/8
04	40	-	-	40	-	-	0	0	-	-	0	2/6
Pinus edulis												
86	233	-	233	-	-	-	0	0	-	-	0	-/-
92	180	-	100	80	-	-	0	0	-	-	0	-/-
99	160	-	60	100	-	-	0	0	-	-	0	-/-
04	200	-	20	180	-	-	0	0	-	-	0	-/-
Sclerocactus												
86	0	-	-	-	-	-	0	0	-	-	0	-/-
92	0	-	-	-	-	-	0	0	-	-	0	-/-
99	0	-	-	-	-	-	0	0	-	-	0	-/-
04	20	-	-	20	-	-	0	0	-	-	0	4/4