Trend Study 10-4-05

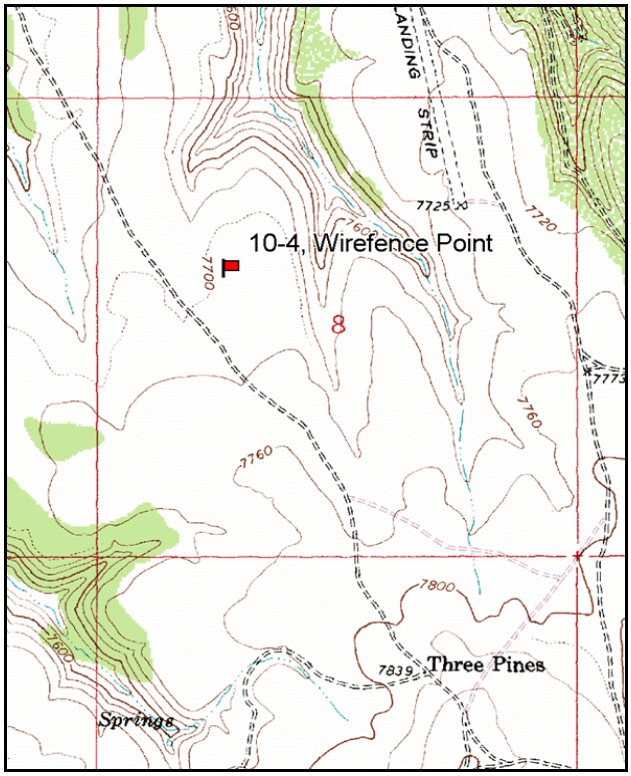
Study site name: Wirefence Point . Vegetation type: Mountain Brush .

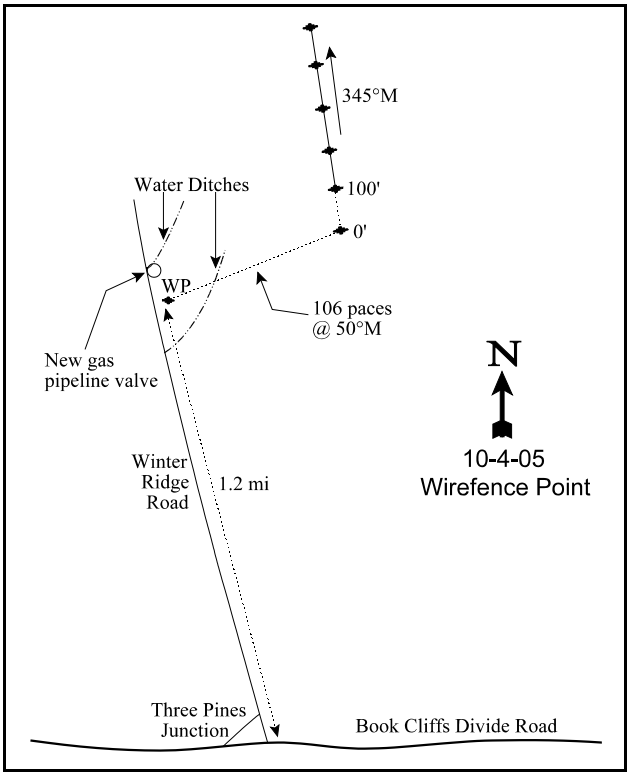
Compass bearing: frequency baseline 345 degrees magnetic.

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

LOCATION DESCRIPTION

From the Book Cliffs Divide road near Three Pines, turn right on the Winter Ridge Road. Travel 1.2 miles towards Winter Ridge to a witness point. There may be an old drainage ditch or faint fork on the right hand side of the road. From the witness post, walk out 106 paces bearing 50°M to the 0-foot baseline stake. The frequency baseline is marked by green fenceposts 12-18 inches in height.





Map Name: Cedar Camp Canyon

Diagrammatic Sketch

Township 16S , Range 23E , Section 8

GPS: NAD 27, UTM 12S 4365700 N, 637050 E

DISCUSSION

Wirefence Point - Trend Study No. 10-4

The Wirefence Point study is located on summer range near the head of Wirefence Canyon near the Three Pines intersection. Elevation is 7,700 feet on nearly level terrain. In addition to the regular rotation schedule, this site was monitored in 1997 as a special study to monitor perceived conflicts over elk and livestock use in the North Book Cliffs. The vegetation composition of the site is sagebrush-grass. A 2,4-D spray treatment was done in the 1980's to thin sagebrush; however, sagebrush is again the dominant overstory species. As of fall 2005, the permittee of this area on State Trust Lands has proposed to retreat the area by spraying or perhaps harrowing, but is still awaiting funding. This area is grazed by cattle on a rotation deferred system between spring and summer. Elk use this area during mild winters. Pellet group data from 2000 estimated 33 deer days use/acre (82 ddu/ha), 19 elk days use/acre (47 edu/ha), and 5 cow days use/acre (12 cdu/ha). The 2005 pellet group data estimated 20 deer days use/acre (50 ddu/ha), 8 elk days use/acre (20 edu/ha), and 2 cow days use/acre (5 cdu/ha). Wild horses are also found in the area and were observed in 2005.

Soils are moderately deep with an average effective rooting depth of 18 inches. Texture analysis indicates the soil to be a clay loam with a neutral soil reaction (pH of 6.7). The soil surface is cracked from drying, indicating the abundance of clay in the soil. Relative percent bare soil increased in 2000 and again in 2005. Relative litter cover decreased from 36% in 2000 to 25% in 2005. The ratio of bare ground to protective ground cover (vegetation, litter, and cryptogams) decreased from 1:3.9 in 1997 to 1:2.6 in 2000 and decreased again in 2005 to 1:2.3. This is due to drought which has caused a decrease in the sum of nested frequency for herbaceous species and an increase in nested frequency of bare soil. In 2000 and 2005, there was some evidence of overland flow and slight pedestaling around shrubs. An erosion class assessment rated erosion as stable in 2005.

In 1988, there was little evidence of the thinning 2,4-D spray treatment of browse on this state-owned rangeland as only a few sagebrush skeletons or sprouting serviceberry were observed. Mountain big sagebrush is again the dominant species and most abundant browse species on the site in both density and cover. The initial reading of this transect in 1982 estimated the sagebrush population to be 4,666 plants/acre. Thirty-one percent of the population was classified as young, while seedlings numbered 6,666 plants/acre. Hedging was very light and vigor was good. In 1988, the site had a slightly larger population (7,732 plants/acre) with an increase in percent decadence and fewer seedlings, yet a large proportion of young plants (60%). The number of mature plants declined from 3,200 to 2,266 plants/acre. Study site stakes could not be located in 1995, so new posts were placed as close as possible to the old baseline using photographs from previous readings, but trends can still be determined by examining age class composition, form class, vigor, and percent decadence, with less emphasis placed on population densities. Data from 1995 estimated 5,180 plants/acre for sagebrush, which was lower than the 1988 estimate. A much larger sample size was implemented beginning in mid-1992 which lengthened the baseline which more effectively estimates shrub populations using shrub strips. The decrease in density between 1988 and 1995 can be attributed in part to the change in sample size giving better estimates for shrubs with clumped and/or discontinuous distributions. In 1995, the number of seedlings was high with 40% of the population consisting of young plants. Utilization was light and vigor was good with a low number of decadent plants (6%). In 1997 decadence was low at 9%. Utilization was light to moderate with mostly good vigor. In 2000, the density of sagebrush was estimated at 5,640 plants/acre, of which many were young plants (29%). Use was light to moderate use, and vigor was good. Percent decadence slightly increased to 14%. In 2005, density was 5,000 plants/acre. Seedlings were abundant and twelve percent of the population was young, which is higher than the percent dying (9%). Decadence increased slightly to 18%.

Other browse species present in the area include: squaw apple, snowberry, serviceberry, bitterbrush, and gray horsebrush. These species occur in low densities and some were not sampled in the shrub density strips, but were measured for height/crown. Squaw apple is the second most abundant preferred browse after sagebrush. Utilization was moderate to heavy in 2005. Dwarf rabbitbrush appears to be stable with the majority of the population consisting of mature plants.

The dominant herbaceous species are thickspike wheatgrass, muttongrass, prairie junegrass, Sandberg bluegrass, and Kentucky blue grass. Grass cover was 8-9% from 1995-2000, but increased to 13% in 2005. This increase comes from the Kentucky bluegrass, which is an increaser species under heavy grazing. Kentucky bluegrass was sampled in 2% of quadrats in 1997. It increased to 27% of quadrats in 2005. Forbs are also diverse and have accounted for more than half of the herbaceous cover with each reading. Unfortunately, low growing increasers such as pussytoes, mat penstemon, desert phlox, and lance-leaved sedum make up a large proportion of the forb cover. Drought and continual use have caused the sum of nested frequency for perennial grasses and forbs to decline in 2000 and 2005.

1982 APPARENT TREND ASSESSMENT

Soil trend appears stable. There is minimal soil movement even though there is a significant amount of bare ground. Vegetation trend depends mostly upon the management objectives. If a high level of livestock forage (i.e., grasses) is desired, trend is probably stable to slightly declining. The browse population, especially mountain big sagebrush, is increasing and will provide considerably more browse forage in the future. However, the forb-grass component is more important for summer range and should be enhanced if possible, even if shrub growth is inhibited.

1988 TREND ASSESSMENT

Due to a slight increase in vegetation "basal" cover from 7% to 12%, and an apparent increase in cryptogamic cover (from 0% in 1982 to 8% ground cover in 1988), the amount of bare soil decreased from 39% to 23%. Trend for soil is slightly up. The browse trend is up for the key species, mountain big sagebrush, which has increased by 40% since 1982. Reproductive potential is still high at 22% with 60% of the population consisting of young plants. Trend for the herbaceous understory is up due to increased quadrat frequency of both grasses and forbs.

TREND ASSESSMENT
soil - slightly up (+1)
browse - up (+2)
herbaceous understory - up (+2)

1995 TREND ASSESSMENT

Even though the original study stakes could not be located, the new study is very close to the old one and trends can still be determined. The soil trend is considered stable. Relative cover values for litter and cryptogamic cover have declined, but values for percent bare ground are similar. Erosion is not a problem because herbaceous cover is abundant. Trend for sagebrush is stable. The number of estimated mature plants/acre has remained relatively stable. The difference in density between 1988 and 1995 is due to the reduced number of young plants which declined from 4,666 plants/acre to 2,060, as well as the increased sample sized used in 1995. This is still a more than adequate number of young. Percent decadence has declined, vigor is good, and proportion of individuals showing heavy use has declined from 16% to less than 1%. Trend for the herbaceous understory is stable. Sum of nested frequency for grasses and forbs have declined slightly, but not enough to warrant a downward trend. This has most likely been the result of drought. Carex and needle-and-thread have declined significantly in nested frequency, while prairie junegrass

and muttongrass increased significantly. Although this site is primarily summer range it can be used by elk in mild winters. The Desirable Components Index (see methods) rated this site as good to excellent with good shrub and understory components.

TREND ASSESSMENT
soil - stable (0)
browse - stable (0)
herbaceous understory - stable (0)
winter range condition (DC Index) - good to excellent (81) Mid-level potential scale

1997 TREND ASSESSMENT

As in 1995, the soil trend is stable with a decrease in bare ground cover. Vegetation and litter are still abundant and provide protection from wind and water erosion. The mountain big sagebrush population has slightly declined since 1995, but not significantly. The age class structure has stayed nearly the same with a decrease in the number of seedlings encountered this year. Decadence has slightly increased as has the ratio of dead to live plants. There is an adequate number of young plants to replace those individuals that may die-off. Trend for browse is slightly down. Nested frequency for muttongrass has steadily increased since 1988, while Sandberg bluegrass has steadily decreased. Thickspike wheatgrass and needle-and-thread grass have significantly increased since 1995. Trend for the herbaceous understory is stable. The DC index rating is good.

TREND ASSESSMENT
soil - stable (0)
browse - slightly down (-1)
herbaceous understory - stable (0)
winter range condition (DC Index) - good (73) Mid-level potential scale

2000 TREND ASSESSMENT

Trend for soil is slightly down. Relative percent cover of bare soil increased coupled with a decrease in relative percent cover of vegetation. The ratio of protective ground cover to bare soil also decreased as nested frequency values for herbaceous species are down due to drought. There was some evidence of overland flow and pedestaling around the base of shrubs. Trend for browse is stable. Mountain big sagebrush density appears stable and recruitment remains high at 29%. Although percent decadence slightly increased in 2000 (from 9% to 14%). Also, the ratio of dead to live plants improved from 1:6 to 1:10 in 2000. Vigor remains generally good, and use is light to moderate. Trend for the herbaceous understory is slightly down. Sum of nested frequency values for perennial grasses and forbs decreased in 2000 due to drought. The DC index rating is good.

TREND ASSESSMENT
soil - slightly down (-1)
browse - stable (0)
herbaceous understory - slightly down (-1)
winter range condition (DC Index) - good (75) Mid-level potential scale

2005 TREND ASSESSMENT

The soil trend is slightly down. Relative percent bare ground increased and the ratio of bare ground to protective ground cover (vegetation, litter, and cryptogams) decreased from 1:2.6 to 1:2.3. An erosion condition class assessment rated erosion as stable in 2005. The browse trend is stable. Mountain big

sagebrush density declined by 11%, but the decline is likely due to fewer younger plants in the population. Young plants decreased from 29% of the population to 12%. Strip frequency remained stable at 88% of the strips. Sagebrush cover increased to 17%. Squaw apple density increased from 220 plants/acre to 400 plants/acre. The herbaceous understory trend is down. Sum of nested frequency for perennial grasses and forbs declined 20%. Muttongrass nested frequency significantly decreased, while Kentucky bluegrass, an increaser species, increased significantly. Although this site is primarily summer range it can be used by elk in mild winters. The DC index rates this site as excellent.

TREND ASSESSMENT
soil - slightly down (-1)
browse - stable (0)
herbaceous understory - down (-2)
winter range condition (DC Index) - excellent (85) Mid-level potential scale

HERBACEOUS TRENDS --
Management unit 10 , Study no: 4

Type	Species	Nested Frequency					Average Cover %			
		'88	'95	'97	'00	'05	'95	'97	'00	'05
G	Agropyron dasystachyum	$_{b}$195	$_{b}$174	$_{c}$271	$_{a}$74	$_{a}$47	1.58	2.80	.48	.31
G	Bouteloua gracilis	$_{b}$25	$_{a}$-	$_{a}$1	$_{a}$-	$_{a}$-	-	.00	-	-
G	Carex sp.	$_{b}$53	$_{a}$22	$_{ab}$33	$_{ab}$33	$_{a}$16	.05	.06	.39	.05
G	Koeleria cristata	$_{a}$92	$_{c}$172	$_{ab}$106	$_{c}$168	$_{bc}$143	2.52	.86	2.50	3.34
G	Oryzopsis hymenoides	-	-	-	1	1	-	-	.00	.00
G	Poa fendleriana	$_{a}$-	$_{b}$84	$_{c}$214	$_{c}$182	$_{b}$118	1.37	2.53	4.40	2.84
G	Poa pratensis	-	-	6	-	81	-	.18	-	4.25
G	Poa secunda	$_{c}$133	$_{c}$137	$_{a}$34	$_{b}$85	$_{a}$10	2.75	.66	.69	.12
G	Sitanion hystrix	-	-	-	2	1	-	-	.01	.00
G	Stipa comata	$_{c}$225	$_{a}$42	$_{b}$94	$_{a}$37	$_{a}$60	.58	1.14	.50	1.91
Total for Annual Grasses		0	0	0	0	0	0	0	0	0
Total for Perennial Grasses		723	631	759	582	477	8.89	8.26	9.00	12.86
Total for Grasses		723	631	759	582	477	8.89	8.26	9.00	12.86
F	Agoseris glauca	$_{a}$-	$_{b}$25	$_{b}$39	$_{b}$35	$_{b}$21	.11	.13	.18	.19
F	Antennaria rosea	$_{b}$196	$_{a}$99	$_{a}$112	$_{a}$103	$_{a}$95	2.40	2.34	3.19	2.44
F	Androsace septentrionalis (a)	-	$_{b}$65	$_{a}$9	$_{a}$16	$_{b}$52	.18	.05	.05	.39
F	Arabis sp.	$_{b}$47	$_{a}$5	$_{a}$6	$_{a}$1	$_{a}$-	.01	.01	.00	-
F	Arenaria congesta	$_{c}$256	$_{ab}$66	$_{a}$54	$_{b}$96	$_{ab}$74	.82	.48	1.68	1.12
F	Astragalus convallarius	$_{a}$1	$_{ab}$19	$_{ab}$21	$_{b}$33	$_{b}$21	.07	.09	.42	.41
F	Astragalus spatulatus	-	1	6	5	-	.03	.21	.06	-
F	Aster sp.	$_{a}$-	$_{b}$11	$_{c}$43	$_{b}$10	$_{b}$11	.08	.14	.08	.07
F	Astragalus sp.	5	11	4	1	4	.59	.03	.03	.01
F	Castilleja flava	$_{ab}$8	$_{c}$41	$_{bc}$29	$_{abc}$22	$_{a}$5	.31	.24	.19	.04

Type	Species	Nested Frequency					Average Cover %			
		'88	'95	'97	'00	'05	'95	'97	'00	'05
F	Castilleja linariaefolia	-	-	-	-	1	-	-	-	.00
F	Calochortus nuttallii	$_{a}$-	$_{b}$9	$_{a}$-	$_{a}$-	$_{ab}$1	.02	-	-	.00
F	Chaenactis douglasii	$_{a}$-	$_{a}$4	$_{a}$-	$_{a}$4	$_{b}$15	.00	-	.01	.43
F	Cirsium sp.	3	-	-	-	-	-	-	-	-
F	Comandra pallida	$_{c}$222	$_{ab}$97	$_{b}$107	$_{b}$127	$_{a}$62	.45	.48	1.39	.61
F	Collinsia parviflora (a)	-	$_{b}$30	$_{a}$-	$_{a}$-	$_{b}$16	.12	-	-	.03
F	Crepis acuminata	$_{a}$6	$_{b}$56	$_{b}$54	$_{b}$45	$_{b}$56	.36	.23	.54	.54
F	Cryptantha sp.	7	-	-	-	8	-	-	-	.01
F	Cymopterus sp.	$_{a}$-	$_{a}$1	$_{b}$21	$_{a}$-	$_{ab}$8	.01	.04	-	.03
F	Delphinium nuttallianum	$_{a}$-	$_{ab}$6	$_{b}$10	$_{a}$-	$_{ab}$5	.01	.03	-	.01
F	Eriogonum alatum	$_{a}$-	$_{b}$17	$_{a}$-	$_{b}$10	$_{ab}$9	.15	-	.05	.05
F	Erigeron eatonii	$_{a}$-	$_{a}$-	$_{a}$-	$_{b}$31	$_{b}$36	-	-	.18	.42
F	Erigeron pumilus	$_{d}$174	$_{c}$109	$_{c}$83	$_{b}$35	$_{a}$3	.58	.28	.25	.00
F	Eriogonum racemosum	-	-	-	4	-	-	-	.01	-
F	Eriogonum umbellatum	$_{ab}$41	$_{b}$55	$_{ab}$41	$_{ab}$30	$_{a}$22	.98	.28	.25	.36
F	Gayophytum ramosissimum(a)	-	1	-	-	4	.00	-	-	.01
F	Hymenopappus filifolius	$_{a}$-	$_{b}$31	$_{c}$47	$_{b}$31	$_{a}$-	.71	.33	.47	-
F	Hymenoxys richardsonii	-	-	-	2	5	-	-	.03	.01
F	Lesquerella ludoviciana	$_{a}$-	$_{c}$39	$_{b}$10	$_{bc}$21	$_{bc}$33	.23	.08	.05	.57
F	Linum lewisii	$_{a}$-	$_{d}$40	$_{cd}$27	$_{ab}$9	$_{bc}$17	.18	.11	.05	.10
F	Lithospermum sp.	-	6	-	-	-	.01	-	-	-
F	Lupinus argenteus	$_{a}$31	$_{b}$59	$_{b}$55	$_{ab}$45	$_{a}$19	1.80	1.85	.92	.08
F	Orthocarpus sp. (a)	-	1	-	3	1	.00	-	.00	.00
F	Penstemon caespitosus	$_{a}$30	$_{b}$99	$_{b}$75	$_{b}$70	$_{ab}$65	3.32	.72	1.24	2.04
F	Penstemon sp.	$_{a}$-	$_{a}$2	$_{a}$-	$_{b}$12	$_{a}$-	.00	-	.36	-
F	Phlox austromontana	$_{a}$58	$_{b}$137	$_{b}$107	$_{b}$124	$_{b}$110	1.89	.81	3.11	2.36
F	Phlox longifolia	36	47	44	29	26	.19	.20	.07	.17
F	Polygonum douglasii (a)	-	$_{b}$85	$_{b}$57	$_{a}$3	$_{b}$61	.25	.11	.00	.22
F	Senecio integerrimus	$_{a}$-	$_{bc}$17	$_{d}$41	$_{ab}$1	$_{cd}$21	.06	.14	.00	.38
F	Sedum lanceolatum	$_{b}$164	$_{a}$111	$_{a}$112	$_{a}$113	$_{a}$80	2.38	.72	1.13	.83
F	Senecio multilobatus	$_{a}$-	$_{b}$15	$_{a}$-	$_{a}$-	$_{a}$-	.22	-	-	-
F	Sphaeralcea coccinea	-	4	2	-	-	.01	.00	-	-
F	Taraxacum officinale	$_{ab}$1	$_{b}$14	$_{b}$13	$_{ab}$4	$_{a}$-	.05	.03	.01	-
F	Unknown forb-annual (a)	-	-	1	-	-	-	.00	-	-
F	Zigadenus paniculatus	-	3	4	-	6	.01	.01	-	.04
Total for Annual Forbs		0	182	67	22	134	0.57	0.17	0.06	0.67

Type	Species	Nested Frequency					Average Cover %			
		'88	'95	'97	'00	'05	'95	'97	'00	'05
Total for Perennial Forbs		1286	1256	1167	1053	839	18.17	10.09	16.05	13.42
Total for Forbs		1286	1438	1234	1075	973	18.74	10.27	16.12	14.09

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

BROWSE TRENDS --
Management unit 10 , Study no: 4

Type	Species	Strip Frequency				Average Cover %			
		'95	'97	'00	'05	'95	'97	'00	'05
B	Artemisia tridentata vaseyana	84	83	87	88	13.93	11.59	13.30	16.91
B	Ceratoides lanata	3	0	0	0	-	-	-	-
B	Chrysothamnus depressus	66	56	65	65	1.72	1.55	1.26	2.71
B	Chrysothamnus viscidiflorus viscidiflorus	57	47	44	36	.82	.42	.65	.79
B	Gutierrezia sarothrae	10	4	2	10	.51	.01	-	.33
B	Juniperus scopulorum	0	1	1	1	.03	.63	.15	.15
B	Peraphyllum ramosissimum	9	13	10	13	2.31	1.15	1.95	3.00
B	Pediocactus simpsonii	0	2	2	4	.03	.03	.03	.00
B	Pinus edulis	0	1	1	1	-	-	-	-
B	Symphoricarpos oreophilus	1	1	1	1	-	-	-	-
B	Tetradymia canescens	4	4	9	4	-	.03	.07	.21
Total for Browse		234	212	222	223	19.38	15.42	17.41	24.12

CANOPY COVER, LINE INTERCEPT --
Management unit 10 , Study no: 4

Species	Percent Cover '05
Artemisia tridentata vaseyana	24.66
Chrysothamnus depressus	2.90
Chrysothamnus viscidiflorus viscidiflorus	.93
Gutierrezia sarothrae	.33
Juniperus scopulorum	.40
Peraphyllum ramosissimum	2.09
Pinus edulis	.08
Tetradymia canescens	.06

KEY BROWSE ANNUAL LEADER GROWTH --
Management unit 10 , Study no: 4

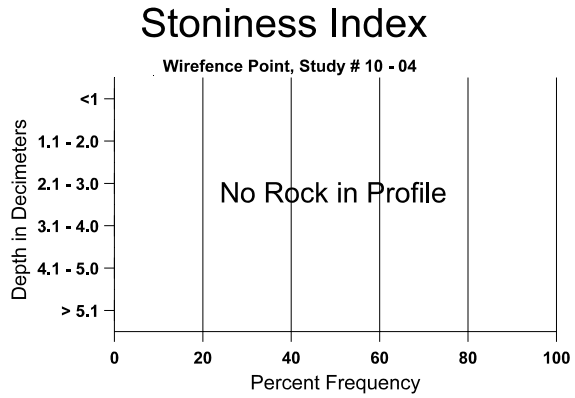
Species	Average leader growth (in) '05
Artemisia tridentata vaseyana	1.6
Peraphyllum ramosissimum	3.5

BASIC COVER --
Management unit 10 , Study no: 4

Cover Type	Average Cover %					
	'82	'88	'95	'97	'00	'05
Vegetation	7.25	12.25	47.23	38.17	43.97	41.97
Rock	0	0	.16	.15	.04	.03
Pavement	0	0	.56	2.65	.85	.23
Litter	61.50	56.75	44.75	33.25	46.00	28.64
Cryptogams	0	8.00	1.20	1.98	2.07	1.21
Bare Ground	39.00	23.00	26.94	18.45	35.99	41.28

SOIL ANALYSIS DATA --
Herd Unit 10, Study # 4, Study Name: Wirefence Point

Effective rooting depth (in)	Temp °F (depth)	pH	%sand	%silt	%clay	%0M	ppm P	ppm K	dS/m
18.6	57.2 (16.0)	6.7	31.8	32.4	35.8	2.4	6.9	124.8	0.5



PELLET GROUP DATA --
Management unit 10 , Study no: 4

Type	Quadrat Frequency			
	'95	'97	'00	'05
Rabbit	1	1	19	12
Horse	-	-	-	1
Elk	4	9	13	6
Deer	18	11	21	25
Cattle	4	5	1	-

Days use per acre (ha)	
'00	'05
-	-
-	-
19 (47)	8 (20)
33 (82)	20 (50)
5 (13)	2 (5)

BROWSE CHARACTERISTICS --
Management unit 10 , Study no: 4

		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)
Amelanchier utahensis												
82	**66**	-	-	66	-	-	100	0	-	-	0	26/10
88	**66**	-	66	-	-	-	0	100	-	-	100	-/-
95	**0**	-	-	-	-	-	0	0	-	-	0	-/-
97	**0**	-	-	-	-	-	0	0	-	-	0	-/-
00	**0**	-	-	-	-	-	0	0	-	-	0	-/-
05	**0**	-	-	-	-	-	0	0	-	-	0	-/-
Artemisia tridentata vaseyana												
82	**4666**	6666	1466	3200	-	-	0	0	0	-	0	29/29
88	**7732**	1666	4666	2266	800	-	35	16	10	-	0	27/24
95	**5180**	1680	2060	2820	300	720	20	.77	6	-	1	30/35
97	**4440**	520	1440	2620	380	760	25	2	9	4	5	39/48
00	**5640**	300	1620	3220	800	560	26	1	14	4	8	31/34
05	**5000**	840	580	3520	900	880	14	4	18	9	9	28/35
Ceratoides lanata												
82	**0**	-	-	-	-	-	0	0	0	-	0	-/-
88	**0**	-	-	-	-	-	0	0	0	-	0	-/-
95	**100**	-	20	60	20	-	60	0	20	20	20	-/-
97	**0**	-	-	-	-	-	0	0	0	-	0	-/-
00	**0**	-	-	-	-	-	0	0	0	-	0	-/-
05	**0**	-	-	-	-	-	0	0	0	-	0	-/-

		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)
Chrysothamnus depressus												
82	**11666**	-	-	11666	-	-	0	0	0	-	0	3/8
88	**3666**	66	1400	1733	533	-	20	4	15	.54	5	4/5
95	**5780**	-	360	5320	100	20	0	0	2	.69	.69	5/8
97	**3720**	-	100	3580	40	20	1	0	1	-	0	4/6
00	**4680**	-	480	4080	120	-	.42	0	3	3	3	4/7
05	**4180**	-	260	3860	60	80	4	.47	1	.95	.95	4/8
Chrysothamnus viscidiflorus viscidiflorus												
82	**0**	-	-	-	-	-	0	0	0	-	0	-/-
88	**0**	-	-	-	-	-	0	0	0	-	0	-/-
95	**2700**	-	980	1720	-	-	0	0	0	-	0	9/11
97	**1600**	-	240	1360	-	-	0	0	0	-	0	8/11
00	**1780**	-	700	1040	40	-	0	0	2	-	1	9/10
05	**1240**	-	140	1060	40	-	2	0	3	-	0	8/11
Gutierrezia sarothrae												
82	**0**	-	-	-	-	-	0	0	-	-	0	-/-
88	**0**	-	-	-	-	-	0	0	-	-	0	-/-
95	**500**	-	20	480	-	-	0	0	-	-	0	6/7
97	**120**	-	-	120	-	-	0	0	-	-	0	4/5
00	**80**	-	-	80	-	-	0	0	-	-	0	3/6
05	**420**	-	40	380	-	-	0	0	-	-	0	5/8
Juniperus osteosperma												
82	**66**	-	66	-	-	-	0	0	-	-	0	-/-
88	**66**	-	66	-	-	-	0	0	-	-	0	-/-
95	**0**	-	-	-	-	-	0	0	-	-	0	-/-
97	**0**	-	-	-	-	-	0	0	-	-	0	-/-
00	**0**	20	-	-	-	-	0	0	-	-	0	-/-
05	**0**	-	-	-	-	-	0	0	-	-	0	-/-
Juniperus scopulorum												
82	**0**	-	-	-	-	-	0	0	-	-	0	-/-
88	**0**	-	-	-	-	-	0	0	-	-	0	-/-
95	**0**	-	-	-	-	-	0	0	-	-	0	-/-
97	**20**	-	-	20	-	-	0	0	-	-	0	-/-
00	**20**	-	20	-	-	-	0	0	-	-	0	-/-
05	**20**	-	20	-	-	-	0	0	-	-	0	-/-

		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)
Peraphyllum ramosissimum												
82	**466**	-	-	133	333	-	0	0	71	-	0	31/28
88	**598**	-	266	266	66	-	22	11	11	-	0	26/25
95	**220**	-	20	200	-	-	45	9	0	-	0	24/30
97	**300**	-	60	220	20	-	33	33	7	-	0	23/34
00	**220**	-	40	120	60	-	45	0	27	18	18	26/34
05	**400**	-	200	180	20	-	40	35	5	-	0	21/32
Pediocactus simpsonii												
82	**0**	-	-	-	-	-	0	0	-	-	0	-/-
88	**0**	-	-	-	-	-	0	0	-	-	0	-/-
95	**0**	-	-	-	-	-	0	0	-	-	0	-/-
97	**60**	-	-	60	-	-	0	0	-	-	0	2/4
00	**40**	-	20	20	-	-	0	0	-	-	0	2/4
05	**100**	-	20	80	-	-	0	0	-	-	0	2/4
Pinus edulis												
82	**0**	-	-	-	-	-	0	0	-	-	0	-/-
88	**0**	-	-	-	-	-	0	0	-	-	0	-/-
95	**0**	-	-	-	-	-	0	0	-	-	0	-/-
97	**20**	20	20	-	-	-	0	0	-	-	0	-/-
00	**20**	-	20	-	-	-	0	0	-	-	0	-/-
05	**20**	-	20	-	-	-	0	0	-	-	0	-/-
Purshia tridentata												
82	**0**	66	-	-	-	-	0	0	-	-	0	-/-
88	**0**	-	-	-	-	-	0	0	-	-	0	-/-
95	**0**	-	-	-	-	-	0	0	-	-	0	14/20
97	**0**	-	-	-	-	-	0	0	-	-	0	-/-
00	**0**	-	-	-	-	-	0	0	-	-	0	11/24
05	**0**	-	-	-	-	-	0	0	-	-	0	-/-
Symphoricarpos oreophilus												
82	**200**	-	-	200	-	-	0	0	-	-	0	8/12
88	**800**	-	600	200	-	-	25	0	-	-	8	20/12
95	**20**	-	-	20	-	-	0	0	-	-	0	7/10
97	**20**	-	-	20	-	-	0	0	-	-	0	-/-
00	**20**	-	-	20	-	-	0	0	-	-	0	13/19
05	**20**	-	20	-	-	-	0	0	-	-	0	8/10

		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)
Tetradymia canescens												
82	**0**	-	-	-	-	-	0	0	-	-	0	-/-
88	**0**	-	-	-	-	-	0	0	-	-	0	-/-
95	**120**	-	40	80	-	-	0	17	-	-	0	7/13
97	**140**	-	20	120	-	-	14	0	-	-	0	7/10
00	**260**	-	20	240	-	-	0	0	-	-	0	7/10
05	**160**	-	-	160	-	-	0	0	-	-	0	7/9