

Trend Study 16A-5-07

Study site name: Nebo Creek.

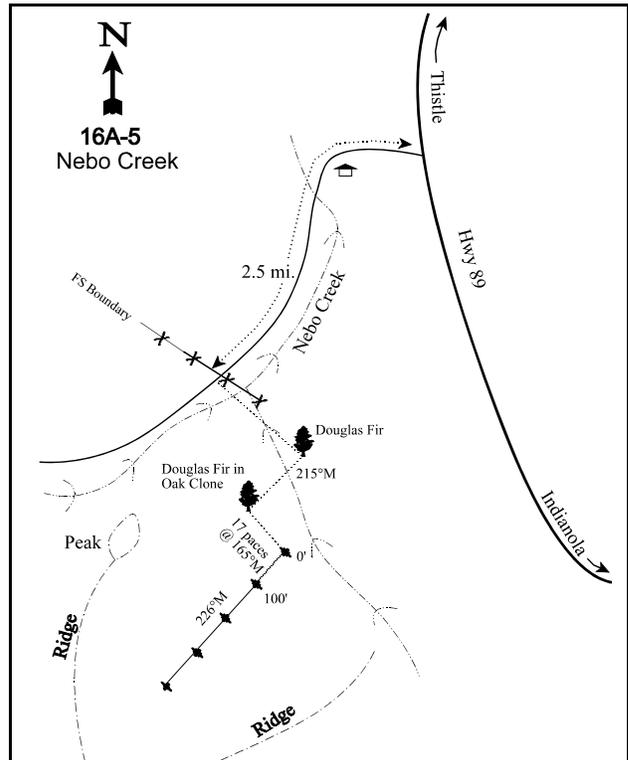
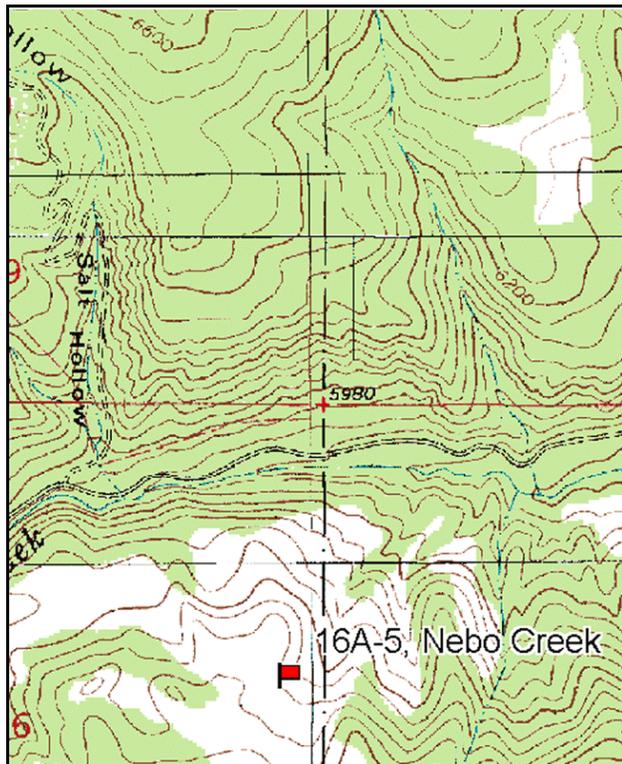
Vegetation type: Mixed Oak-Sage.

Compass bearing: frequency baseline 226 degrees magnetic.

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

LOCATION DESCRIPTION

Beginning at the intersection of Highway US-89 and the Nebo Creek Road, proceed 2.5 miles westerly up Nebo Creek to the USFS boundary sign or the cattle guard. Park here. Take an azimuth of 185 degrees magnetic to the top of a lone Douglas fir. Proceed across Nebo Creek and uphill to the Douglas fir tree. From here walk at an azimuth of 215 degrees magnetic up a drainage to a fence line. From the fence line, walk 124 paces at the same azimuth to a second but smaller Douglas fir within a clump of oak brush. From this tree, the 0-foot baseline stake is 17 paces away at an azimuth of 165 degree magnetic. The study is marked by green steel "T" fenceposts approximately 12 to 18 inches in height.



Map Name: Spencer Canyon

Diagrammatic sketch

Township 11S, Range 3E, Section 16

GPS: NAD 83, UTM 12S 449858E 4412882 N

DISCUSSION

Nebo Creek - Trend Study No. 16A-5

Study Information

This study is located on National Forest land in the Nebo Creek drainage [elevation: 6,320 feet (1,926 m), slope: 10%, aspect: northeast]. When the study began in 1983, the preferred browse was Gambel oak (*Quercus gambelii*), mountain big sagebrush (*Artemisia tridentata* ssp. *vaseyana*), and basin big sagebrush (*Artemisia tridentata* ssp. *tridentata*). The entire area burned in the Nebo Creek fire of 2001. The fire eliminated all of the sagebrush, and the only shrubs sampled in 2002 were a small number of stickleaf low rabbitbrush (*Chrysothamnus viscidiflorus* ssp. *viscidiflorus*) and threadleaf rubber rabbitbrush (*Chrysothamnus nauseosus* ssp. *consimilis*). The area serves as year-round range for deer and elk, and is grazed by livestock in the summer. During the 1983 reading, numerous fresh deer and elk pellet groups, as well as three live deer were observed. The carcasses of two deer and an elk were observed, along with two separate antler drops. Deer were also observed during the 2007 reading. Pellet group quadrat frequency indicated light use by deer, elk, and cattle in 1997. Deer use was estimated at 7 days use/acre (17 ddu/ha) in 2002 and 1 day use/acre (2 ddu/ha) in 2007. Elk use was estimated at 3 days use/acre (7 edu/ha) in 2002 and 23 days use/acre (57 edu/ha) in 2007. Cattle use estimates were 1 day use/acre (2 cdu/ha) in 2002 and 29 days use/acre (72 cdu/ha) in 2007. Sheep use was estimated at 1 day use/acre (3 sdu/ha) in 2002. Due to the difficulty of identifying the differences between elk and sheep pellets, it is likely that some of the elk use in 2007 was actually sheep use.

Soil

The soil is classified within the Lizzant series (USDA-NRCS 2007). The soils in this series are very deep and well-drained, and formed in alluvium and colluvium derived from sedimentary rocks. The soil texture is a clay loam with a moderately acidic pH (6.0). There is some large rock cobble on the surface and throughout the profile. Vegetation and litter were abundant prior to 2001, and signs of erosion were minimal. After the fire, relative vegetation cover had declined from 47% to 17%, and litter cover dropped from 43% to 7%. Relative bare ground cover increased from 7% in 1997 to 61% in 2002. By 2007, relative vegetation cover increased to 57%, and bare ground only accounted for 17% relative cover. The erosion condition was classified as slight in 2002 due to the presence of rills, pedestalling, gullies, and some soil and surface litter movement. The classification was stable in 2007.

Browse

The original study sampled an oak clone in the middle of a sagebrush-grass basin. It was a mixed-age stand that varied in height from a few inches to a treelike stature up to 15 feet (4.6 m) in height. The plants were mostly mature and 23% of the population was young. The degree of hedging in 1983 was variable, with young plants showing only light use and available portions of mature individuals heavily utilized. The majority of the population consisted of young plants in 1989. The stand was vigorous, and use was light. In 1997, the baseline was lengthened and moved entirely into the sagebrush-grass type, and as a result, little oak was sampled. The fire burned the entire stand in 2001. It was resprouting in 2002, and one mature plant was sampled in 2007.

Basin big sagebrush and mountain big sagebrush provided approximately 7% cover in 1997 when the baseline was relocated. Basin big sagebrush density was the higher of the two species at 1,080 plants/acre (2,669 plants/ha), while mountain big sagebrush density was 400 plants/acre (988 plants/ha). Both populations were mostly mature, with good recruitment. Use was mostly light, and mountain big sagebrush was used slightly more than basin big sagebrush. All of the sampled plants were vigorous. Sagebrush was eliminated in the fire of 2001, and although no plants were sampled in 2002 or 2007, it was noted that sagebrush was beginning to reestablish.

Prior to the fire, the most common shrub was stickyleaf low rabbitbrush. This species made up 53% of the shrub cover in 1997, with a density of 3,540 plants/acre (8,747 plants/ha). The population was mature and vigorous. Other shrubs included threadleaf rubber rabbitbrush and a few heavily hedged Utah serviceberry (*Amelanchier utahensis*) plants. After the fire, low rabbitbrush resprouted to 720 plants/acre (1,779 plants/ha) in 2002 and 2,800 plants/acre (6,919 plants/ha) in 2007. A few resprouting rubber rabbitbrush were also sampled after the fire, but serviceberry was not.

Herbaceous Understory

The herbaceous understory was diverse and abundant in 1997, and provided 57% total cover. Perennial species dominated the understory, and perennial grasses provided 23% cover. The most abundant grasses were Sandberg bluegrass (*Poa secunda*) and Kentucky bluegrass (*Poa pratensis*), which together provided 17% cover. Cheatgrass (*Bromus tectorum*) was sampled in almost half of the quadrats, but only provided 3% cover. Following the fire, cheatgrass became the dominant grass species. Between 2002 and 2007, this species increased from less than 1% to 24% cover, and from a quadrat frequency of 16% to 95%. Perennial grass cover also increased from 10% in 2002 to 15% in 2007. Sandberg bluegrass remained abundant in 2007, but only provided 22% of the total grass cover.

Bonneville pea (*Lathyrus brachycalyx*), American vetch (*Vicia americana*), blue-eyed Mary (*Collinsia parviflora*), stickseed (*Hackelia patens*), western aster (*Aster chilensis*), and Beckwith milkvetch (*Astragalus beckwithii*) provided the most forb cover in 1997. Common houndstongue (*Cynoglossum officinale*), a noxious weed, was sampled in five quadrats. Total forb cover was 31% in 1997, but cover only reached 8% in 2002 and 11% in 2007 following the fire, due to a sharp decline in perennial cover from 26% in 1997 to 7% in 2002 and 2007. Bonneville pea, aster, slender phlox (*Microsteris gracilis*), tumbled mustard (*Sisymbrium altissimum*), and pale Alyssum (*Alyssum alyssoides*) provided the most forb cover in 2007.

1989 TREND ASSESSMENT

The trend for browse is slightly down. Sagebrush was not divided into two different species in the 1983 report, and the combined density decreased 14%, from 1,932 plants/acre (4,774 plants/ha) to 1,664 plants/acre (4,112 plants/ha). Decadence increased to 54% of the basin big sagebrush population and 50% of the mountain big sagebrush population. Recruitment of basin big sagebrush was high at 38% of the population. Vigor declined, and 15% of the population displayed poor vigor. Thirty-one percent of the basin big sagebrush individuals showed moderate-heavy use, while 42% of the mountain big sagebrush population showed moderate use. The trend for grass is up. The sum of nested frequency for perennial grass increased two-fold, and Kentucky bluegrass, mutton bluegrass (*Poa fendleriana*), and mountain brome (*Bromus carinatus*) increased significantly in nested frequency. The trend for forbs is up. The sum of nested frequency for perennial forbs increased almost 60%, and American vetch, dandelion (*Taraxacum officinale*), and onion (*Allium campanulatum*) increased significantly in nested frequency. Houndstongue was sampled in three quadrats.

browse - slightly down (-1)

grass - up (+2)

forb - up (+2)

1997 TREND ASSESSMENT

The trend for browse is stable. It is difficult to determine the trend for 1997 because the baseline was moved out of the oak and entirely into the sagebrush, so the sample areas are completely different. Basin big sagebrush, the most abundant species, increased in density from 865 plants/acre (2,137 plants/ha) to 1,080 plants/acre (2,669 plants/ha). Decadence decreased to 0% of the population, and the plants were mostly mature with good recruitment. Vigor was good and use was light. Mountain big sagebrush density decreased by 50%, but decadence also decreased from 50% of the population to 10%. All of the plants were vigorous and use decreased to only 5% of the individuals showing moderate use. Additionally, one vigorous, heavily hedged serviceberry plant was sampled. The trend for grass is up. The sum of nested frequency for perennial grasses continued to increase substantially, with significant increases in Kentucky bluegrass, Sandberg

bluegrass, bluebunch wheatgrass (*Agropyron spicatum*), and oniongrass (*Melica bulbosa*). However, some of these changes might be a product of moving the baseline in 1997. The trend for forbs is up. The sum of nested frequency for perennial forbs increased by almost 80%. These species provided 26% cover. American vetch and lambstongue groundsel (*Senecio integerrimus*) increased significantly in nested frequency. Houndstongue was still present, but provided very little cover. The Desirable Components Index (DCI) was rated as good due to excellent perennial herbaceous cover, low annual grass cover, and low decadence of preferred browse, despite low browse cover and the presence of a noxious weed.

winter range condition (DCI) - good (69) Mid-level potential scale
browse - stable (0) grass - up (+2) forb - up (+2)

2002 TREND ASSESSMENT

The trend for browse is down. Both sagebrush subspecies were eliminated by the fire, and only low densities of rabbitbrush and Gambel oak resprouted. The trend for grass is down. The sum of nested frequency for perennial grasses decreased 46%. Average grass cover decreased from 25% to 11%. Cheatgrass decreased significantly in nested frequency. The trend for forbs is down. The sum of nested frequency for perennial forbs decreased 59%, and forb cover decreased from 31% to 8%. Houndstongue was not sampled. The DCI was rated as very poor due to losses in browse and understory cover from the fire.

winter range condition (DCI) - very poor (30) Mid-level potential scale
browse - down (-2) grass - down (-2) forb - down (-2)

2007 TREND ASSESSMENT

The trend for browse is stable, since preferred browse was not sampled since the fire. It was noted that sagebrush was beginning to return in 2007, but it was not sampled in the density measurements. Low rabbitbrush became the dominant shrub, with a density of 2,800 plants/acre (6,919 plants/ha). Additionally, one moderately hedged rubber rabbitbrush plant and one oak plant were sampled. The trend for grass is down. Although the sum of nested frequency for perennial grasses increased 25%, average cheatgrass cover increased from less than 1% to 24%. Cheatgrass dominated the study and could prevent the establishment of desirable species. The nested frequency of cheatgrass increased nine-fold. There was, however, a significant increase in the nested frequency of Sandberg bluegrass. The trend for forbs is up. The sum of nested frequency for perennial species increased 22%, and total forb cover increased from 8% to 11%. Houndstongue was sampled at a similar nested frequency and cover as in 1997. The DCI rating continued to be very poor due to the absence of preferred browse and high annual grass cover.

winter range condition (DCI) - very poor (20) Mid-level potential scale
browse - stable (0) grass - down (-2) forb - up (+2)

HERBACEOUS TRENDS --
Management unit 16A, Study no: 5

T y p e	Species	Nested Frequency					Average Cover %		
		'83	'89	'97	'02	'07	'97	'02	'07
G	Agropyron cristatum	-	-	2	-	-	.15	-	-
G	Agropyron spicatum	_a 9	_{ab} 36	_c 78	_{ab} 28	_{bc} 57	3.05	.91	3.37
G	Bromus carinatus	_a 16	_b 27	-	-	-	-	-	-
G	Bromus japonicus (a)	-	-	-	-	1	-	-	.00

Type	Species	Nested Frequency					Average Cover %		
		'83	'89	'97	'02	'07	'97	'02	'07
G	<i>Bromus tectorum</i> (a)	-	-	_b 131	_a 34	_c 313	2.50	.53	24.47
G	<i>Elymus cinereus</i>	_a 1	-	_a 5	_a 2	_a 8	.97	.15	1.25
G	<i>Elymus junceus</i>	-	-	-	6	-	-	1.41	-
G	<i>Melica bulbosa</i>	_a 10	_a 3	_c 78	_{bc} 52	_b 43	2.05	1.68	.44
G	<i>Oryzopsis hymenoides</i>	-	-	1	-	-	.03	-	-
G	<i>Phleum pratense</i>	-	-	-	-	4	-	-	.15
G	<i>Poa bulbosa</i>	-	-	-	-	15	-	-	.36
G	<i>Poa fendleriana</i>	_a 22	_b 57	-	_a 7	_a 3	-	.01	.03
G	<i>Poa pratensis</i>	_a 6	_b 56	_c 173	_{ab} 24	_{ab} 33	8.10	.35	.73
G	<i>Poa secunda</i>	_a 34	_a 26	_b 154	_b 146	_c 191	8.42	5.62	8.91
G	<i>Sitanion hystrix</i>	-	_a 1	-	_a 3	-	-	.03	-
G	<i>Stipa columbiana</i>	-	-	5	-	-	.01	-	-
G	<i>Stipa lettermani</i>	-	-	_a 4	_a 4	_a 1	.03	.03	.03
Total for Annual Grasses		0	0	131	34	314	2.50	0.53	24.48
Total for Perennial Grasses		98	206	500	272	355	22.83	10.20	15.29
Total for Grasses		98	206	631	306	669	25.34	10.74	39.77
F	<i>Achillea millefolium</i>	_b 21	_{ab} 20	_{ab} 17	_a 2	-	.88	.00	-
F	<i>Agoseris glauca</i>	_a 10	-	_b 67	_b 59	_b 58	.84	.39	.37
F	<i>Alyssum alyssoides</i> (a)	-	-	_a 6	_a 24	_b 106	.04	.22	1.01
F	<i>Allium campanulatum</i>	_a 8	_b 47	_b 62	_a 10	_a 2	.33	.13	.01
F	<i>Antennaria rosea</i>	-	-	-	3	-	-	.00	-
F	<i>Arabis</i> sp.	-	3	-	-	-	-	-	-
F	<i>Artemisia ludoviciana</i>	_a 7	_a 7	_a 3	-	_a 7	.15	-	.76
F	<i>Astragalus beckwithii</i>	-	-	_b 49	_a 13	-	1.82	.21	-
F	<i>Aster chilensis</i>	_b 35	_{bc} 43	_c 76	_a 1	_{bc} 67	1.86	.03	1.60
F	<i>Astragalus convallarius</i>	-	-	-	1	-	-	.03	-
F	<i>Balsamorhiza sagittata</i>	_a 6	_a 7	_a 8	_a 12	_a 5	.73	1.23	.16
F	<i>Camelina microcarpa</i> (a)	-	-	_a 36	-	_b 60	.13	-	.16
F	<i>Calochortus nuttallii</i>	-	-	_a 6	_a 7	_a 2	.01	.01	.00
F	<i>Chenopodium album</i> (a)	-	-	3	-	-	.00	-	-
F	<i>Cirsium</i> sp.	-	_a 14	_a 13	-	-	.07	-	-
F	<i>Collomia linearis</i> (a)	-	-	_b 119	-	_a 3	.68	-	.00
F	<i>Comandra pallida</i>	37	-	-	-	-	-	-	-
F	<i>Collinsia parviflora</i> (a)	-	-	_c 258	_b 123	_a 53	3.96	.63	.12
F	<i>Crepis acuminata</i>	_a 3	_{ab} 16	_c 56	_c 55	_{bc} 36	.82	1.85	.75
F	<i>Cymopterus longipes</i>	_a 3	_a 2	_a 7	-	-	.04	-	-

Type	Species	Nested Frequency					Average Cover %		
		'83	'89	'97	'02	'07	'97	'02	'07
F	<i>Cymopterus</i> sp.	-	5	-	-	-	-	-	-
F	<i>Cynoglossum officinale</i>	-	_a 6	_a 12	-	_a 12	.17	-	.07
F	<i>Delphinium nuttallianum</i>	-	-	_a 5	_a 1	-	.04	.00	-
F	<i>Descurainia pinnata</i> (a)	-	-	_a 10	_a 14	_b 34	.06	.16	.10
F	<i>Epilobium brachycarpum</i> (a)	-	-	_a 16	-	_a 8	.11	-	.02
F	<i>Eriogonum racemosum</i>	_a 6	_a 1	_a 3	_a 4	_a 1	.03	.00	.03
F	<i>Hackelia patens</i>	_{ab} 16	_b 41	_c 72	_a 5	_{ab} 21	2.07	.09	.34
F	<i>Holosteum umbellatum</i> (a)	-	-	-	3	-	-	.00	-
F	<i>Hymenoxys acaulis</i>	-	-	2	-	-	.30	-	-
F	<i>Lathyrus brachycalyx</i>	_a 97	_a 54	_b 172	_b 164	_b 154	9.14	2.15	1.55
F	<i>Lappula occidentalis</i> (a)	-	-	-	-	60	-	-	.32
F	<i>Lactuca serriola</i>	-	_{ab} 13	_{ab} 18	_a 1	_b 29	.38	.33	.11
F	<i>Lithospermum ruderale</i>	_a 1	_a 6	_a 10	_a 1	_a 1	.48	.01	.03
F	<i>Lupinus argenteus</i>	_a 8	_a 5	_a 4	_a 4	_a 9	.06	.16	.19
F	<i>Machaeranthera canescens</i>	-	2	-	-	-	-	-	-
F	<i>Microsteris gracilis</i> (a)	-	-	-	_a 23	_b 160	-	.28	1.22
F	<i>Penstemon</i> sp.	-	-	-	-	1	-	-	.00
F	<i>Phlox longifolia</i>	-	_b 88	_a 17	_a 1	_a 18	.08	.00	.09
F	<i>Polygonum douglasii</i> (a)	-	-	_b 17	_{ab} 5	_a 1	.06	.01	.00
F	<i>Ranunculus testiculatus</i> (a)	-	-	_a 28	_a 20	_a 38	.15	.06	.32
F	<i>Senecio integerrimus</i>	-	_a 1	_b 36	-	_a 4	1.08	-	.06
F	<i>Sisymbrium altissimum</i> (a)	-	-	-	-	109	-	-	1.00
F	<i>Sphaeralcea coccinea</i>	-	3	-	-	-	-	-	-
F	<i>Taraxacum officinale</i>	_a 12	_b 40	_b 46	_a 6	-	.38	.03	-
F	<i>Tragopogon dubius</i>	_a 26	_a 14	_a 16	-	_a 24	.15	-	.31
F	<i>Veronica biloba</i> (a)	-	-	17	-	-	.27	-	-
F	<i>Vicia americana</i>	_a 10	_b 52	_c 106	_a 6	_a 3	3.71	.18	.06
F	<i>Viguiera multiflora</i>	-	_a 3	_a -	_a 5	-	.03	.01	-
Total for Annual Forbs		0	0	510	212	632	5.48	1.38	4.30
Total for Perennial Forbs		306	493	883	361	454	25.70	6.90	6.55
Total for Forbs		306	493	1393	573	1086	31.18	8.28	10.85

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

BROWSE TRENDS --

Management unit 16A, Study no: 5

Type	Species	Strip Frequency			Average Cover %		
		'97	'02	'07	'97	'02	'07
B	Amelanchier utahensis	1	0	0	.03	-	-
B	Artemisia tridentata tridentata	37	0	0	3.98	-	-
B	Artemisia tridentata vaseyana	15	0	0	2.98	-	-
B	Chrysothamnus nauseosus consimilis	1	1	1	.15	.03	.15
B	Chrysothamnus viscidiflorus viscidiflorus	72	20	63	8.75	.35	8.12
B	Gutierrezia sarothrae	0	0	0	.00	-	-
B	Opuntia sp.	3	0	1	.06	-	-
B	Quercus gambelii	1	0	1	.63	-	.15
Total for Browse		130	21	66	16.59	0.38	8.42

CANOPY COVER, LINE INTERCEPT --

Management unit 16A, Study no: 5

Species	Percent Cover	
	'02	'07
Chrysothamnus nauseosus consimilis	-	.03
Chrysothamnus viscidiflorus viscidiflorus	.38	12.39

BASIC COVER --

Management unit 16A, Study no: 5

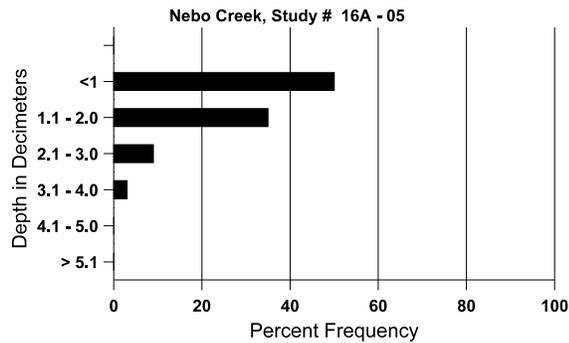
Cover Type	Average Cover %				
	'83	'89	'97	'02	'07
Vegetation	0	3.00	61.17	18.42	62.62
Rock	.50	1.50	1.88	5.83	2.13
Pavement	.25	2.00	1.65	10.49	1.46
Litter	88.00	84.75	55.32	7.27	24.93
Cryptogams	0	.25	.54	0	.00
Bare Ground	11.25	8.50	8.40	64.55	18.93

SOIL ANALYSIS DATA --

Herd Unit 16A, Study no: 05, Nebo Creek

Effective rooting depth (in)	Temp °F (depth)	pH	Clay loam			%OM	ppm P	ppm K	dS/m
			%sand	%silt	%clay				
15.2	41.0 (13.3)	6.0	34.7	34.7	30.6	3.5	39.6	320.0	.5

Stoniness Index



PELLET GROUP DATA --

Management unit 16A, Study no: 5

Type	Quadrat Frequency		
	'97	'02	'07
Sheep	-	2	-
Elk	4	1	9
Deer	7	1	6
Cattle	5	-	3

Days use per acre (ha)	
'02	'07
1 (3)	-
3 (7)	23 (58)
7 (17)	1 (2)
1 (2)	29 (72)

BROWSE CHARACTERISTICS --

Management unit 16A, Study no: 5

		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)
83	0	-	-	-	-	-	0	0	-	-	0	-/-
89	0	-	-	-	-	-	0	0	-	-	0	-/-
97	20	-	-	20	-	-	0	100	-	-	0	29/43
02	0	-	-	-	-	-	0	0	-	-	0	-/-
07	0	-	-	-	-	-	0	0	-	-	0	-/-
Artemisia tridentata tridentata												
83	1932	-	66	1266	600	-	28	0	31	-	0	28/38
89	865	133	333	66	466	-	23	8	54	8	15	22/21
97	1080	20	180	900	-	480	0	0	0	-	0	40/47
02	0	-	-	-	-	-	0	0	0	-	0	-/-
07	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)
<i>Artemisia tridentata vaseyana</i>												
83	0	-	-	-	-	-	0	0	0	-	0	-/-
89	799	200	66	333	400	-	42	0	50	-	0	49/34
97	400	-	100	260	40	100	5	0	10	-	0	27/39
02	0	-	-	-	-	-	0	0	0	-	0	-/-
07	0	-	-	-	-	-	0	0	0	-	0	16/18
<i>Chrysothamnus nauseosus consimilis</i>												
83	0	-	-	-	-	-	0	0	-	-	0	-/-
89	0	-	-	-	-	-	0	0	-	-	0	-/-
97	20	-	-	20	-	-	0	0	-	-	0	37/41
02	20	-	-	20	-	-	0	0	-	-	0	9/8
07	20	-	-	20	-	-	100	0	-	-	0	31/55
<i>Chrysothamnus viscidiflorus viscidiflorus</i>												
83	1666	-	66	1600	-	-	0	0	0	-	0	16/18
89	1932	-	266	1200	466	-	0	0	24	3	41	15/19
97	3540	-	20	3460	60	20	0	0	2	2	2	17/23
02	720	-	440	280	-	-	0	0	0	-	3	6/7
07	2800	-	20	2740	40	20	1	0	1	-	0	16/24
<i>Juniperus osteosperma</i>												
83	66	-	-	66	-	-	0	0	-	-	0	67/79
89	66	-	-	66	-	-	0	100	-	-	0	128/87
97	0	-	-	-	-	-	0	0	-	-	0	-/-
02	0	-	-	-	-	-	0	0	-	-	0	-/-
07	0	-	-	-	-	-	0	0	-	-	0	-/-
<i>Opuntia sp.</i>												
83	533	-	-	533	-	-	0	0	-	-	0	6/6
89	1199	-	533	666	-	-	0	0	-	-	0	5/8
97	80	-	-	80	-	-	0	0	-	-	0	5/12
02	0	-	-	-	-	-	0	0	-	-	0	-/-
07	20	-	-	20	-	-	0	0	-	-	0	5/8
<i>Quercus gambelii</i>												
83	6799	466	1533	5200	66	-	18	60	1	-	0	43/18
89	8866	533	6133	2533	200	-	15	0	2	-	0	85/36
97	60	-	-	60	-	-	0	0	0	-	0	21/12
02	0	-	-	-	-	-	0	0	0	-	0	-/-
07	20	-	-	20	-	-	0	0	0	-	0	28/17

		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)
<i>Symphoricarpos oreophilus</i>												
83	0	-	-	-	-	-	0	0	-	-	0	-/-
89	0	66	-	-	-	-	0	0	-	-	0	-/-
97	0	-	-	-	-	-	0	0	-	-	0	-/-
02	0	-	-	-	-	-	0	0	-	-	0	-/-
07	0	-	-	-	-	-	0	0	-	-	0	-/-