

Trend Study 20-1-08

Study site name: Upper Indian Peak .

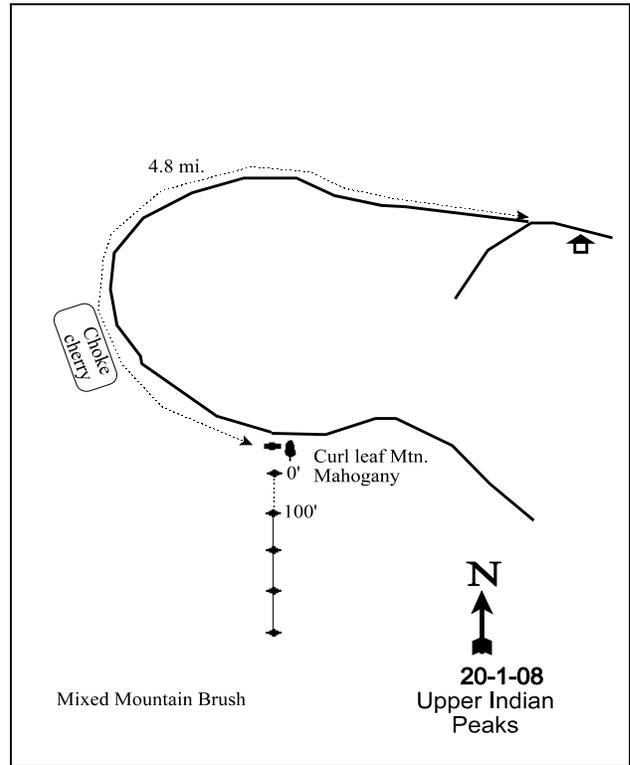
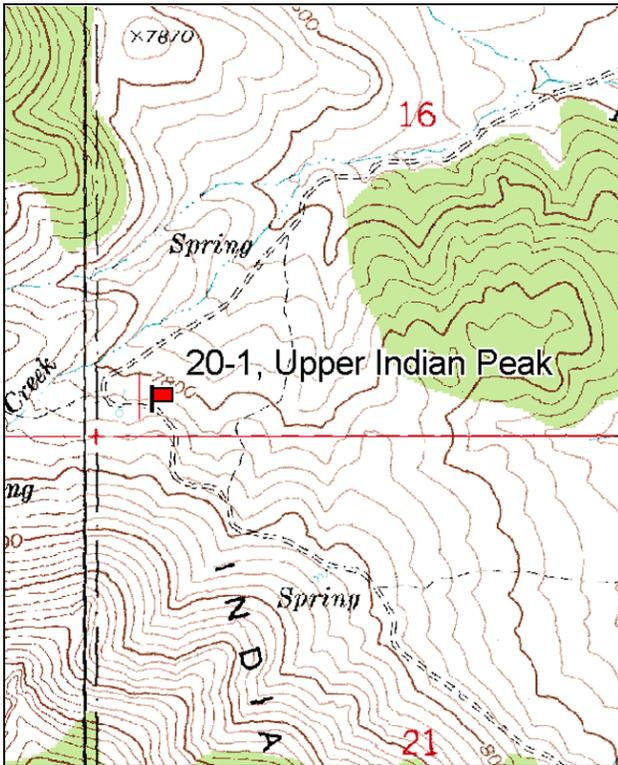
Vegetation type: Mountain Brush .

Compass bearing: frequency baseline 180 degrees magnetic.

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

LOCATION DESCRIPTION

From the Indian Peaks state cabin, travel west 0.4 miles to a fork. Turn left and cross the stream. Turn right at the fork on the other side of the stream at 0.1 miles. Stay right at all other forks and drive 4.8 miles to a curleaf mahogany on the west side of the road and the witness post. It is 2.4 miles from the last fork to the witness post. The 0-foot baseline stake is 15 feet south of the mahogany. The study is marked by 2-3 foot tall steel rebar.



Map Name: Buckhorn Spring

Diagrammatic Sketch

Township 29S, Range 18W, Section 16

GPS: NAD 83, UTM 12S 248615 E, 4240757 N

DISCUSSION

Upper Indian Peak - Trend Study No. 20-1

Study Information

This study samples an area of mixed mountain brush northeast of Indian Peak [elevation: 7,860 feet (2,396 m), slope: 20%-30%, aspect: north]. This limited mountain brush range type is important to the resident deer and elk herds. It is used year-round except when there is deep snow. There is ample winter range within the pinyon (*Pinus monophylla*)-juniper (*Juniperus osteosperma*) belt, although it is low-quality. Water can be limiting on these dry mountains, but there are several springs and a small perennial stream within 0.25 miles (0.4 km) of this study. Deer, elk, feral horses, and trespass cattle are found in the area. Pellet group transect data estimated 6 deer days use/acre (14 ddu/ha) in 1991, 8 deer days use/acre (20 ddu/ha) in 1998, 2 deer days use/acre (5 ddu/ha) in 2003, and 16 deer days use/acre (40 ddu/ha) in 2008. Elk use was estimated at 5 days use/acre (13 edu/ha) in 1991, 26 days use/acre (64 edu/ha) in 1998, 60 days use/acre (148 edu/ha) in 2003, and 38 days use/acre (94 edu/ha) in 2008. Horse use was estimated at 1 day use/acre (2 hdu/ha) in 2008. The allotment has been closed to livestock grazing since 1978, however, trespass cattle use was estimated at 4 cattle days use/acre (10 cdu/ha) in 1998.

Soil

The soil is a sandy loam with a neutral reaction (pH 7.3). Relative combined vegetation and litter cover has been 59%-64% since 1998, while relative combined rock and pavement cover has been 21%-29%. Relative bare ground cover has been 6% to 19% since 1998. The ground surface consists of loose soil and rocks. There is moderate downslope movement of rocks, soil, and litter, which has resulted in pedestalling on the uphill side of shrubs and bunchgrasses, as well as terracing of trails parallel to the slope. In 2008, several gullies were present on the study. The soil erosion condition was classified as stable in 2003 and moderate in 2008 due to soil, litter, and rock movement, as well as pedestalling and the formation of flow patterns and gullies.

Browse

The browse component is comprised of a variety of valuable and palatable species, including mountain big sagebrush (*Artemisia tridentata* ssp. *vaseyana*), Utah serviceberry (*Amelanchier utahensis*), and true mountain mahogany (*Cercocarpus montanus*). Other important but less abundant species include curleaf mountain mahogany (*Cercocarpus ledifolius*), bitterbrush (*Purshia tridentata*), and slenderbush eriogonum (*Eriogonum microthecum*). Key and preferred browse species composed 91% of the total browse cover in 1998, 87% in 2003, and 80% in 2008.

Mountain big sagebrush is the most abundant browse species. Quadrat cover decreased from 16% in 1998 to 11% in 2008, while density fluctuated between 6,840 plants/acre and 7,100 plants/acre since 1998 when the sample area increased. The population has been largely mature since 1985. Decadence was low in 1985 at 3% of the population, and has fluctuated from 13% to 24% since 1991. Young recruitment was high in 1985 at 36% of the population, and has ranged from 3% to 15% since 1991. Plant vigor has been good, with less than 12% of the population showing poor vigor in all sample years. Browse use was light-moderate in 1985, 1998, 2003, and 2008, and moderate-heavy in 1991.

Utah serviceberry provided 6%-10% quadrat cover from 1998 to 2008. Density increased slightly from 900 plants/acre in 1998 to 960 plants/acre in 2008. All of the sampled plants were mature in 1985, and the population was mostly mature in subsequent sample years. Decadent plants comprised 17% of the population in 1991, 2% in 1998 and 2003, and 13% in 2008. Young recruitment was high in 1991 and 1998 at 33% and 36% of the population, respectively, but decreased to 9% in 2003 and 17% in 2008. Vigor has been excellent in all sample years, although it was noted in 2008 that many plants were webbed from an insect infestation. Browse use was mostly light in 1985 and 1991, light-moderate in 1998 and 2008, and mostly heavy in 2003.

Annual leader growth averaged 3.7 inches (9.4 cm) in 2003 and 1.3 inches (3.3 cm) in 2008.

True mountain mahogany has provided 5%-8% quadrat cover since 1998, and density has ranged from 740 plants/acre to 1,040 plants/acre in the same years. The population has been largely mature in all sample years. Decadence increased slightly from 5% of the population in 1985 to 8% in 1998, and no decadent plants have been sampled since 2003. Young recruitment has remained relatively stable at 14%-19% since 1985. Plant vigor has been good in all sample years. Browse use was light-moderate in 1985, 1998, and 2008, moderate-heavy in 1991, and heavy in 2003. Average annual leader growth was 4.3 inches (10.9 cm) in 2003 and 1.1 inches (2.9 cm) in 2008.

Average curlleaf mountain mahogany quadrat cover increased from less than 1% to 2% since 1998, and density remained relatively stable between 80 plants/acre and 100 plants/acre. The population was composed of only young and mature plants in all sample years. Plant vigor has been excellent. Browse use was light in 1985, light-moderate in 1998 and 2008, and moderate-heavy in 2003. Annual leader growth averaged 3.0 inches (7.6 cm) in 2003 and 1.8 inches (4.6 cm) in 2008.

Antelope bitterbrush was sampled for the first time in 1991 and had a short growth form, with an average height of 11 inches (28 cm) from 1998 to 2008. Quadrat cover has remained stable at 1% since 1998, and density has increased from 60 plants/acre to 140 plants/acre. All of the plants sampled in 1991 were young, and all of the plants sampled from 1998 to 2008 were mature. Plant vigor was excellent in all sample years. Browse use was light in 1991, mostly light with some heavy use in 1998, and mostly heavy in 2003 and 2008. Average annual leader growth was 3.1 inches (7.9 cm) in 2003 and 1.8 inches (4.6 cm) in 2008.

Slenderbush eriogonum provided 1% quadrat cover from 1998 to 2008, and density steadily increased from 1,000 plants/acre in 1998 to 2,600 plants/acre in 2008. The population has been mostly mature since 1985. Decadent plants comprised 10% of the population or less in all sample years. Young recruitment increased from 16% of the population in 1985 to 31% in 1991, decreased to 1% by 2003, and increased to 13% in 2008. Plant vigor was good in all sample years, and browse use was mostly light.

Other browse species sampled on the study include snowberry (*Symphoricarpos oreophilus*), skunkbush sumac (*Rhus trilobata*), gray horsebrush (*Tetradymia canescens*), stickyleaf low rabbitbrush (*Chrysothamnus viscidiflorus* ssp. *viscidiflorus*), and grizzlybear pricklypear (*Opuntia erinacea*).

Herbaceous Understory

The herbaceous understory has been abundant and diverse. Total grass cover decreased from 13% in 1998 to 5% in 2003, and increased to 8% by 2008. Mutton bluegrass (*Poa fendleriana*), bluebunch wheatgrass (*Agropyron spicatum*), and Sandberg bluegrass (*Poa secunda*) have provided the majority of the grass cover. Mutton bluegrass was the most abundant grass in all sample years, providing 91% of the total grass cover in 1998, 55% in 2003, and 77% in 2008. No annual grasses have been sampled on the study. Wildlife use on grasses appeared light until 2008, when they had been grazed if they were not protected by the shrub canopy.

Total forb cover was 15% in 1998, 6% in 2003, and 8% in 2008. Most forbs were found growing in close proximity to the shrubs. Thirty-four forb species have been sampled on the study, four of which are annuals. Many valuable forage species are present, which are very important in providing succulent summer forage. The most common forb species include desert phlox (*Phlox austromontana*), Eaton fleabane (*Erigeron eatonii*), dusty penstemon (*Penstemon comarrhenus*), silvery lupine (*Lupinus argenteus*), and northwestern paintbrush (*Castilleja angustifolia*). The paintbrush was heavily grazed in 1991 and 1998.

1991 Trend Assessment

The browse trend is stable. The densities of serviceberry, true mountain mahogany, and slenderbush eriogonum decreased, while mountain big sagebrush density remained stable. Serviceberry and sagebrush

decadence also increased substantially. However, young recruitment of serviceberry and slenderbush eriogonum increased, and a substantial number serviceberry, sagebrush, true mountain mahogany, and slenderbush eriogonum seedlings were sampled. Bitterbrush was also sampled for the first time. The trend for grass is stable. The nested frequency for perennial grasses increased 11%. The trend for forbs is slightly up. The nested frequency for perennial forbs increased 19%. Northwestern paintbrush and tapertip hawksbeard (*Crepis acuminata*) increased significantly in nested frequency.

browse - stable (0)

grass - stable (0)

forb - slightly up (+1)

1998 Trend Assessment

The browse trend is stable. Density changes may have been related to the larger sample area in 1998; therefore the trend was determined using other parameters. Utah serviceberry, mountain big sagebrush, and slenderbush eriogonum decadence decreased, while young recruitment of serviceberry and sagebrush increased. Curlleaf mountain mahogany was sampled again for the first time since 1985. The trend for grass is stable. The sum of nested frequency for perennial grasses remained stable. The trend for forbs is slightly down. The sum of nested frequency for perennial forbs decreased 18%. The nested frequencies of northwestern paintbrush, tapertip hawksbeard, Eaton fleabane, desert phlox, and longleaf phlox (*Phlox longifolia*) decreased significantly. The winter range condition, determined by the Desirable Components Index (DCI), was rated as good-excellent due to high preferred browse cover with low decadence and high recruitment, high perennial grass and forb cover, and the absence of annual grasses and noxious weeds.

winter range condition (DCI) - excellent (89) Mid-level potential scale

browse - stable (0)

grass - stable (0)

forb - slightly down (-1)

2003 Trend Assessment

The browse trend is stable. The densities of Utah serviceberry, mountain big sagebrush, curlleaf mountain mahogany, true mountain mahogany, and bitterbrush remained stable or increased slightly, while the density of slenderbush eriogonum increased more than two-fold. Decadence slightly increased for sagebrush, slightly decreased for true mountain mahogany, and remained stable for all other preferred species. Young recruitment of preferred species decreased, but vigor remained good on all species. The trend for grass is slightly down. The sum of nested frequency for perennial grasses decreased 19%. Mutton bluegrass decreased significantly in nested frequency, while bluebunch wheatgrass and Sandberg bluegrass increased significantly. The trend for forbs is down. The sum of nested frequency for perennial forbs decreased 43%. Wild onion (*Allium sp.*), northwestern paintbrush, desert parsley (*Lomatium sp.*), and dusty penstemon decreased significantly in nested frequency. The DCI rating decreased to fair-good due to a decreases in young recruitment of preferred browse species and perennial grass cover.

winter range condition (DCI) - fair-good (66) Mid-level potential scale

browse - stable (0)

grass - slightly down (-1)

forb - down (-2)

2008 Trend Assessment

The browse trend is stable. The densities of preferred browse species did not change substantially. Utah serviceberry, mountain big sagebrush, and slenderbush eriogonum decadence increased slightly. However, young recruitment of serviceberry, sagebrush, true mountain mahogany, and slenderbush eriogonum increased. Preferred browse vigor remained excellent. The trend for grasses is slightly up. The sum of nested frequency for perennial grasses increased 19%. Mutton bluegrass increased significantly in nested frequency. The trend for forbs is up. The sum of nested frequency for perennial forbs increased 37%. Tapertip hawksbeard and rose pussytoes (*Antennaria rosea*) increased significantly in nested frequency. The DCI rating improved to good due to increases in young recruitment of preferred browse and perennial grass cover.

winter range condition (DCI) - good (73) Mid-level potential scale

browse - stable (0)

grass - slightly up (+1)

forb - up (+2)

HERBACEOUS TRENDS --

Management unit 20 , Study no: 1

T y p e	Species	Nested Frequency					Average Cover %		
		'85	'91	'98	'03	'08	'98	'03	'08
G	Agropyron cristatum	-	-	-	6	-	-	.01	-
G	Agropyron smithii	-	-	-	-	1	-	-	.00
G	Agropyron spicatum	_a 10	_{abc} 38	_{ab} 23	_c 54	_{bc} 48	.26	.87	1.07
G	Koeleria cristata	1	-	6	-	1	.06	-	.00
G	Leucopoa kingii	-	-	2	-	-	.01	-	-
G	Poa fendleriana	_c 267	_c 267	_c 265	_a 135	_b 213	11.69	2.57	6.27
G	Poa secunda	_a -	_{ab} 4	_b 17	_c 63	_c 44	.55	1.25	.75
G	Sitanion hystrix	-	-	1	-	-	.06	-	-
G	Stipa comata	-	-	3	-	-	.15	-	-
Total for Annual Grasses		0	0	0	0	0	0	0	0
Total for Perennial Grasses		278	309	317	258	307	12.78	4.70	8.11
Total for Grasses		278	309	317	258	307	12.78	4.70	8.11
F	Achillea millefolium	1	-	3	-	-	.00	-	-
F	Agoseris glauca	_a -	_a -	_b 14	_{ab} 6	_b 13	.04	.04	.05
F	Allium sp.	_A -	_a -	_b 18	_a 3	_a 3	.09	.00	.03
F	Antennaria rosea	_a -	_a 2	_a -	_a 1	_b 16	-	.00	.09
F	Androsace septentrionalis (a)	-	-	5	-	-	.01	-	-
F	Arabis drummondi	4	6	2	2	-	.01	.00	-
F	Astragalus mollissimus	_c 33	_{bc} 20	_{ab} 18	_a -	_a -	.14	-	-
F	Astragalus utahensis	_a -	_a -	_{ab} 7	_a -	_b 13	.33	-	.05
F	Balsamorhiza hookeri	_a -	_a -	_b 35	_a -	_a 2	.57	-	.03
F	Balsamorhiza sagittata	1	3	1	4	-	.03	.06	-
F	Castilleja angustifolia	_b 62	_c 113	_b 66	_a 25	_a 9	1.40	.13	.07
F	Calochortus nuttallii	1	-	5	1	-	.04	.00	-
F	Collinsia parviflora (a)	-	-	_b 12	_a -	_a -	.05	-	-
F	Crepis acuminata	_{ab} 32	_c 66	_{ab} 39	_a 16	_{bc} 62	.29	.03	.44
F	Cryptantha sp.	-	-	-	-	6	-	-	.04
F	Cymopterus sp.	_A -	_a -	_c 25	_b 11	_c 26	.32	.05	.06
F	Delphinium nuttallianum	-	-	2	-	-	.00	-	-
F	Erigeron eatonii	_b 162	_b 153	_a 112	_a 106	_a 107	2.01	.92	.79
F	Erigeron pumilus	3	5	3	-	2	.00	-	.03
F	Eriogonum racemosum	41	35	24	18	23	.22	.17	.13
F	Eriogonum umbellatum	27	40	46	28	42	.95	.21	.57

Type	Species	Nested Frequency					Average Cover %		
		'85	'91	'98	'03	'08	'98	'03	'08
F	<i>Fritillaria atropurpurea</i>	a-	a-	b ¹³	a-	a-	.05	-	-
F	<i>Galium multiflorum</i>	3	3	6	4	5	.18	.03	.04
F	<i>Lappula occidentalis</i> (a)	-	-	3	-	-	.00	-	-
F	<i>Lomatium</i> sp.	a-	a-	b ³⁸	a ⁶	a-	.47	.01	-
F	<i>Lupinus argenteus</i>	c ⁴²	bc ³⁸	ab ²⁰	a ¹¹	ab ¹⁶	.92	.72	1.08
F	<i>Lygodesmia spinosa</i>	-	4	-	-	-	-	-	-
F	<i>Microsteris gracilis</i> (a)	-	-	3	-	-	.00	-	-
F	<i>Penstemon bridgesii</i>	7	17	4	6	5	.15	.04	.06
F	<i>Penstemon comarrhenus</i>	ab ²¹	b ²²	b ²⁰	a ²	ab ¹⁵	1.24	.37	.99
F	<i>Phlox austromontana</i>	b ¹⁶³	b ¹⁹⁷	a ⁹¹	a ⁸⁰	a ⁸¹	4.61	3.40	2.88
F	<i>Phlox longifolia</i>	b ⁶⁹	b ⁸⁶	a ³³	a ³⁰	ab ⁶⁰	.15	.10	.19
F	<i>Senecio integerrimus</i>	a-	a-	b ¹⁵	b ¹³	b ¹⁰	.13	.08	.07
F	<i>Streptanthus cordatus</i>	4	2	7	7	3	.01	.07	.03
F	Unknown forb-perennial	5	-	-	-	-	-	-	-
Total for Annual Forbs		0	0	23	0	0	0.08	0	0
Total for Perennial Forbs		681	812	667	380	519	14.46	6.48	7.76
Total for Forbs		681	812	690	380	519	14.54	6.48	7.76

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

BROWSE TRENDS --

Management unit 20 , Study no: 1

Type	Species	Strip Frequency			Average Cover %		
		'98	'03	'08	'98	'03	'08
B	Amelanchier utahensis	30	30	29	8.40	5.89	9.63
B	Artemisia tridentata vaseyana	87	86	87	15.96	13.22	11.47
B	Cercocarpus ledifolius	4	4	4	.39	1.60	1.89
B	Cercocarpus montanus	30	32	29	5.22	7.63	5.76
B	Chrysothamnus parryi	0	14	1	-	.04	.00
B	Chrysothamnus viscidiflorus viscidiflorus	22	21	31	.91	1.05	1.46
B	Eriogonum microthecum	30	47	53	.79	1.09	1.18
B	Gutierrezia sarothrae	0	1	0	-	.00	-
B	Opuntia erinacea	19	15	9	.22	.09	.21
B	Pinus monophylla	2	0	1	.00	-	.00
B	Purshia tridentata	3	4	3	.68	.66	1.16
B	Symphoricarpos oreophilus	35	40	46	1.87	3.34	5.87
B	Tetradymia canescens	5	10	8	.18	.00	.04
Total for Browse		267	304	301	34.66	34.63	38.70

CANOPY COVER, LINE INTERCEPT --

Management unit 20 , Study no: 1

Species	Percent Cover	
	'03	'08
Amelanchier utahensis	11.14	12.44
Artemisia tridentata vaseyana	11.85	12.38
Cercocarpus ledifolius	1.25	2.01
Cercocarpus montanus	7.75	7.63
Chrysothamnus parryi	.43	.16
Chrysothamnus viscidiflorus viscidiflorus	.50	1.10
Eriogonum microthecum	.43	1.53
Opuntia erinacea	.01	.11
Purshia tridentata	1.29	1.51
Symphoricarpos oreophilus	5.03	7.31
Tetradymia canescens	.10	.05

KEY BROWSE ANNUAL LEADER GROWTH --

Management unit 20 , Study no: 1

Species	Average leader growth (in)	
	'03	'08
Amelanchier utahensis	3.7	1.3
Cercocarpus ledifolius	3.0	1.8
Cercocarpus montanus	4.3	1.1
Purshia tridentata	3.1	1.8

BASIC COVER --

Management unit 20 , Study no: 1

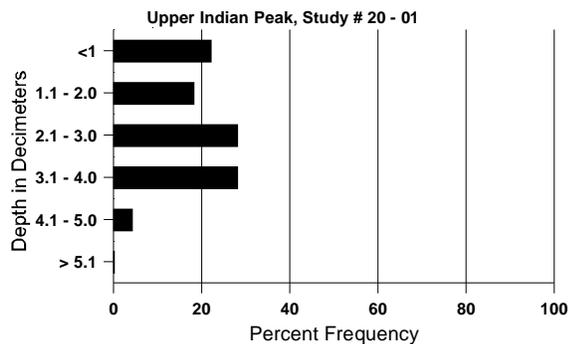
Cover Type	Average Cover %				
	'85	'91	'98	'03	'08
Vegetation	12.50	14.50	49.77	42.25	46.03
Rock	1.00	1.75	4.53	2.73	3.42
Pavement	36.25	22.00	33.65	22.38	27.08
Litter	38.75	42.00	34.09	25.88	24.52
Cryptogams	0	0	.08	0	.03
Bare Ground	11.50	19.75	8.10	22.10	13.42

SOIL ANALYSIS DATA --

Management unit 20, Study no: 1, Study Name: Upper Indian Peak

Effective rooting depth (in)	Temp °F (depth)	pH	Sandy Loam			%0M	PPM P	PPM K	ds/m
			%sand	%silt	%clay				
15.3	59.7 (15.6)	7.3	62.0	21.1	16.9	2.2	9.3	112.0	0.4

Stoniness Index



PELLET GROUP DATA --

Management unit 20 , Study no: 1

Type	Quadrat Frequency		
	'98	'03	'08
Rabbit	19	-	25
Elk	19	24	27
Deer	14	3	6
Cattle	3	-	-

Days use per acre (ha)		
'98	'03	'08
-	-	-
26 (64)	60 (149)	38 (94)
8 (20)	2 (5)	16 (40)
4 (10)	-	-

BROWSE CHARACTERISTICS --

Management unit 20 , Study no: 1

		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>Amelanchier utahensis</i>												
85	1066	133	-	1066	-	-	0	0	0	-	0	27/23
91	398	399	133	199	66	-	17	0	17	-	0	33/35
98	900	60	320	560	20	-	27	9	2	-	0	42/46
03	920	20	80	820	20	-	15	78	2	-	0	41/50
08	960	100	160	680	120	-	33	17	13	-	0	41/50
<i>Artemisia tridentata vaseyana</i>												
85	11332	1199	4066	6933	333	-	19	2	3	-	1	8/13
91	11598	66	999	7933	2666	-	50	31	23	2	11	8/18
98	6840	840	1040	4920	880	240	34	13	13	3	3	15/23
03	7100	-	200	5660	1240	240	25	.28	17	3	3	9/17
08	6900	40	500	4760	1640	260	23	10	24	6	6	8/20
<i>Cercocarpus ledifolius</i>												
85	66	-	66	-	-	-	0	0	-	-	0	-/-
91	0	-	-	-	-	-	0	0	-	-	0	-/-
98	100	-	40	60	-	-	40	20	-	-	0	76/59
03	100	-	20	80	-	-	20	60	-	-	0	73/77
08	80	-	-	80	-	-	25	0	-	-	0	50/35
<i>Cercocarpus montanus</i>												
85	1464	333	199	1199	66	-	36	0	5	-	0	30/12
91	1131	333	199	866	66	-	41	35	6	2	6	31/37
98	740	20	140	540	60	20	46	24	8	-	3	43/52
03	1040	-	140	900	-	-	12	81	0	-	0	39/51
08	800	80	140	660	-	-	33	28	0	-	0	37/45

		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 parryi												
85	0	-	-	-	-	-	0	0	0	-	0	-/-
91	0	-	-	-	-	-	0	0	0	-	0	-/-
98	0	-	-	-	-	-	0	0	0	-	0	-/-
03	340	-	-	320	20	-	6	24	6	-	0	7/10
08	20	-	-	20	-	-	0	100	0	-	0	14/14
Chrysothamnus viscidiflorus viscidiflorus												
85	864	-	199	599	66	-	0	0	8	-	0	8/6
91	332	-	133	133	66	-	20	0	20	-	0	9/11
98	720	20	80	520	120	20	11	0	17	-	0	10/14
03	960	-	-	900	60	-	19	4	6	-	0	10/12
08	1100	-	60	900	140	-	2	0	13	2	4	8/12
Eriogonum microthecum												
85	10532	666	1733	7933	866	-	0	0	8	-	3	6/4
91	7131	733	2199	4199	733	-	10	.93	10	.84	7	7/7
98	1000	120	60	900	40	-	0	2	4	-	0	7/10
03	2240	-	20	2180	40	-	4	2	2	-	0	7/8
08	2600	100	340	2120	140	-	2	0	5	2	2	7/10
Gutierrezia sarothrae												
85	0	-	-	-	-	-	0	0	-	-	0	-/-
91	0	-	-	-	-	-	0	0	-	-	0	-/-
98	0	-	-	-	-	-	0	0	-	-	0	-/-
03	20	-	-	20	-	-	0	0	-	-	0	6/9
08	0	-	-	-	-	-	0	0	-	-	0	-/-
Opuntia erinacea												
85	3399	133	1133	2266	-	-	0	0	0	-	2	5/8
91	2599	199	733	1133	733	-	0	0	28	2	26	4/6
98	440	-	160	200	80	-	0	0	18	5	18	4/9
03	420	-	60	340	20	-	0	0	5	5	10	4/9
08	200	80	-	180	20	-	0	0	10	10	30	5/10
Pinus monophylla												
85	266	-	266	-	-	-	0	0	0	-	0	-/-
91	66	-	66	-	-	-	0	0	0	-	0	-/-
98	60	-	60	-	-	-	0	0	0	-	0	-/-
03	0	-	-	-	-	-	0	0	0	-	0	-/-
08	20	-	-	-	20	-	0	0	100	100	100	-/-

		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)
Purshia tridentata												
85	0	-	-	-	-	-	0	0	-	-	0	-/-
91	66	-	66	-	-	-	0	0	-	-	0	-/-
98	60	-	-	60	-	-	0	33	-	-	0	11/53
03	80	-	-	80	-	-	25	75	-	-	0	11/55
08	140	-	-	140	-	-	0	86	-	-	0	11/29
Rhus trilobata												
85	0	-	-	-	-	-	0	0	-	-	0	-/-
91	0	-	-	-	-	-	0	0	-	-	0	-/-
98	0	-	-	-	-	-	0	0	-	-	0	-/-
03	0	-	-	-	-	-	0	0	-	-	0	-/-
08	0	20	-	-	-	-	0	0	-	-	0	-/-
Symphoricarpos oreophilus												
85	1265	133	666	599	-	-	0	0	0	-	0	10/9
91	866	-	533	333	-	-	15	0	0	-	0	12/22
98	1420	60	400	1020	-	-	3	0	0	-	0	12/22
03	1900	-	220	1620	60	-	8	0	3	2	2	11/22
08	1900	440	680	1200	20	-	2	2	1	-	0	12/23
Tetradymia canescens												
85	532	133	-	333	199	-	0	0	37	-	13	10/6
91	399	66	133	-	266	-	0	0	67	15	50	-/-
98	100	-	-	80	20	-	0	0	20	-	0	12/13
03	320	-	40	240	40	-	19	0	13	-	0	12/16
08	340	-	40	140	160	-	6	0	47	41	41	6/8