

CLARK'S BASIN - TREND STUDY NO. 1-17-11

Vegetation Type: Mountain Brush

Range Type: Crucial Deer Summer (Fawning habitat)

NRCS Ecological Site Description: [Upland Shallow Loam \(Black Sagebrush\), R025XY316UT](#)

Land Ownership: USFS

Elevation: 6,860 ft. (2,091 m)

Aspect: South

Slope: 3-5%

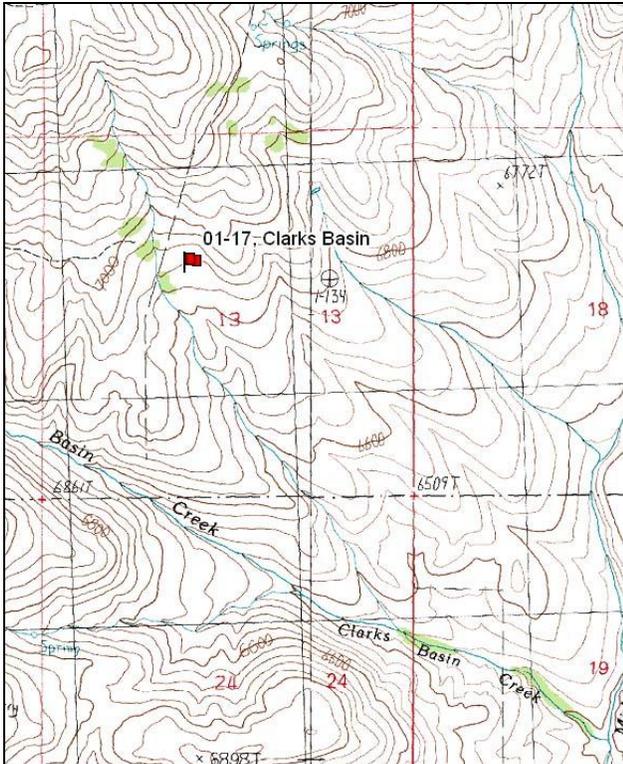
Transect bearing: 100° magnetic

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

Directions:

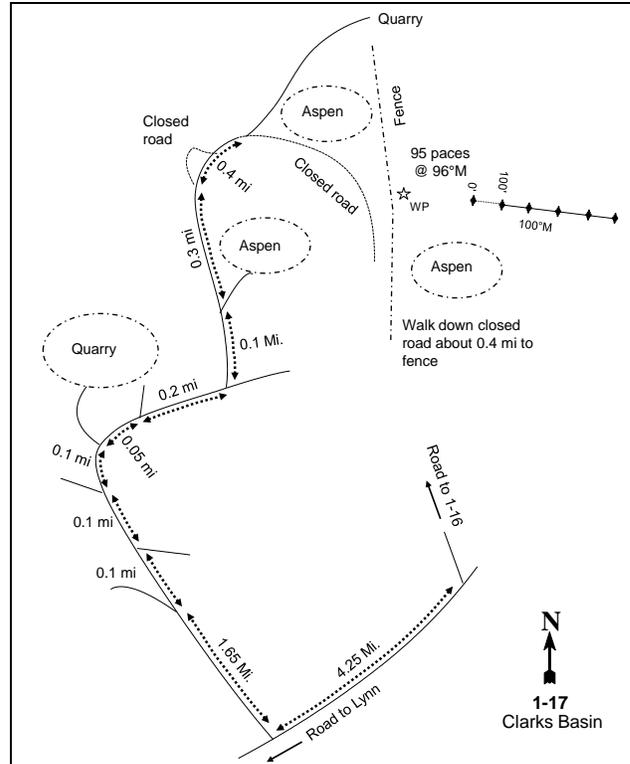
From U-30, travel up the road towards Lynn to Clark's Basin for 13.05 miles. Take a right and drive 1.65 miles to a fork in the road. Stay right and continue for another 0.35 on the main road to a quarry. Stay right (far right) and continue for 0.2 miles. Take a left turn and proceed 0.4 miles to a wet meadow and a spring where the road has been moved. Go through the stream and continue 0.4 miles to a spot where the road has been closed. From here, walk down the hill on the old, closed road about 0.4 miles to a witness post near the fence. From the witness post, walk 95 paces at a bearing of 96 degrees magnetic to the 0-foot baseline stake marked by browse tag #443. The baseline runs 100 degrees magnetic.

Map Name: Lynn Reservoir



Township: 13N Range: 16W Section: 14

Diagrammatic Sketch:



GPS: NAD 83, UTM 12S 281472 E 4636746 N

CLARK'S BASIN - TREND STUDY NO. 1-17

Site Information

Site Description: The study samples a mixed mountain brush community near an aspen clone in the Clark's Basin area. The study is located on a bench between a ridge to the north and Clark's Basin Creek to the south. The area is considered important fawning habitat for deer. This area is administered by the Sawtooth National Forest as part of the Rosette allotment. The fence just to the west of the site divides this allotment from the Clark's Basin allotment. Water is readily available in nearby springs and livestock water developments. There was standing water on parts of the study in 2011 due to the late, wet, and cold spring. This area of the study is characterized as a wet meadow, and is dominated by herbaceous species. Deer pellet groups were sampled in moderate abundance in 2001 and 2006, but low abundance in 2011. Presence by other wildlife species appears to be minimal. Sampled cattle and sheep sign has been minimal since 2001 (Table - Pellet Group Data).

Browse: The site is a mixed mountain brush community with a good grass and forb understory. Several preferred browse species occupy the site including Utah serviceberry (*Amelanchier utahensis*), black sagebrush (*Artemisia nova*), mountain big sagebrush (*A. tridentata* ssp. *vaseyana*), antelope bitterbrush (*Purshia tridentata*), and Woods rose (*Rosa woodsii*). The dominant browse is mountain big sagebrush, which provides the majority of browse cover (Table - Browse Trends). Mountain big sagebrush has a moderately dense population of mostly lightly used plants. Decadence and poor vigor have increased throughout the study, and both were moderate in 2011. The moderately dense population of serviceberry displays moderate to heavy use. The small population of antelope bitterbrush has steadily increased in density over the course of the study. Utilization of these shrubs has been moderate to heavy. Decadence and poor vigor of serviceberry and bitterbrush have decreased, and both were low in 2011. Some black sagebrush occurs in patches along sampling belts 3 and 4 at moderate density, and displays mostly light use. Less preferred browse species sampled include rubber rabbitbrush (*Chrysothamnus nauseosus*), mountain low rabbitbrush (*C. viscidiflorus* spp. *lanceolatus*), Oregon grape (*Mahonia repens*), mountain snowberry (*Symphoricarpos oreophilus*), and gray horsebrush (*Tetradymia canescens*) (Table - Browse Characteristics).

Herbaceous Understory: The herbaceous understory is diverse and abundant. Grass composition is comprised of native perennial species, including several wet meadow species. The dominant species include thickspike wheatgrass (*Agropyron dasystachyum*), Kentucky bluegrass (*Poa pratensis*), and Sandberg bluegrass (*P. secunda*). Forbs are very diverse and abundant. Several useful species occur including Wyoming painted-cup (*Castilleja linariaefolia*), silvery lupine (*Lupinus argenteus*), lambstongue groundsel (*Senecio integerrimus*), sulfur eriogonum (*Eriogonum umbellatum*), and low penstemon (*Penstemon humilus*) (Table - Herbaceous Trends).

Soil: The soil is in the Bullump-Sonlet-Rodrof association, likely as part of the Bullump component. These soils occur on drainage ways, with parent material consisting of colluvium and alluvium derived from quartzite and mica schist (Soil Survey Staff 2011). Soil texture is a clay loam with a neutral reaction (pH 6.8) (Table - Soil Analysis Data). There is abundant vegetation and litter cover (Table - Basic Cover). The soil erosion condition was classified as stable in 2001 and 2006, but was slight in 2011.

Trend Assessments

Browse:

- **1996 to 2001 - stable (0):** There was a high number of dead sagebrush in 1996, along the first 200 feet of the baseline, which appear to have died several years prior to study establishment. Density of sagebrush decreased 9% from 3,500 plants/acre to 3,180 plants/acre, but cover increased from 17% to 20%. Black sagebrush increased 41% from 1,560 plants/acre to 2,200 plants/acre, but cover remained similar at 4%. Decadence of serviceberry decreased from 41% to 7%, and poor vigor decreased from

18% to 0%. Decadence of bitterbrush decreased from 33% to 18%, and poor vigor decreased from 14% to 5%.

- **2001 to 2006 - stable (0):** Density and cover of preferred browse species remained similar. Decadence of black sagebrush increased from 7% to 23%, and decadence of mountain big sagebrush increased from 8% to 19%.
- **2006 to 2011 - stable (0):** Mountain big sagebrush increased 21% in density from 3,180 plants/acre to 3,840 plants/acre, but cover decreased from 20% to 14%. Decadence of mountain big sagebrush increased to 25%, and poor vigor increased from 10% to 23%. Other preferred browse species had similar densities and covers. Many of the browse species were just coming out of dormancy due to the late, wet, and cold spring.

Grass:

- **1996 to 2001 - stable (0):** There was little change in the sum of nested frequency of perennial grasses, though cover increased from 14% to 21%.
- **2001 to 2006 - slightly down (-1):** The sum of nested frequency of perennial grasses decreased by 12%, and cover decreased to 10%.
- **2006 to 2011 - stable (0):** There was a slight decrease in the sum of nested frequency of perennial grasses, but cover increased to 19%.

Forb:

- **1996 to 2001 - slightly down (-1):** The sum of nested frequency of perennial forbs decreased by 15%, though cover increased from 8% to 13%.
- **2001 to 2006 - slightly up (+1):** The perennial forb sum of nested frequency increased by 11%, but cover remained similar at 13%.
- **2006 to 2011 - slightly up (+1):** There was a 10% increase in the sum of nested frequency of perennial forbs, but cover decreased to 8%.

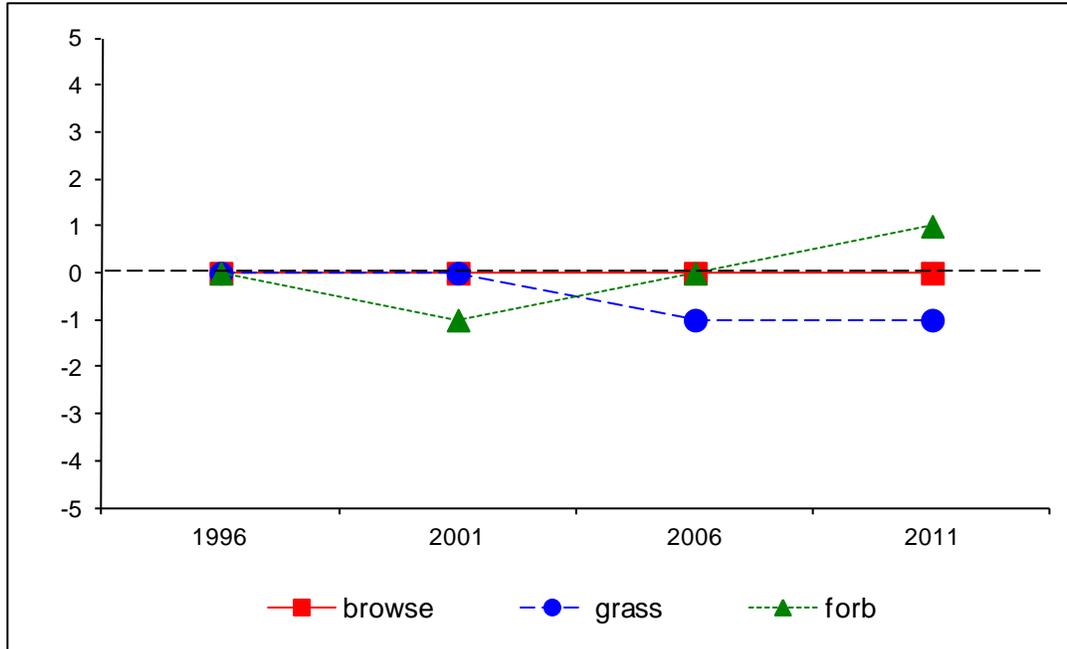
DEER DESIRABLE COMPONENTS INDEX - MID-LEVEL POTENTIAL SCALE --

Management unit 1, study no: 17

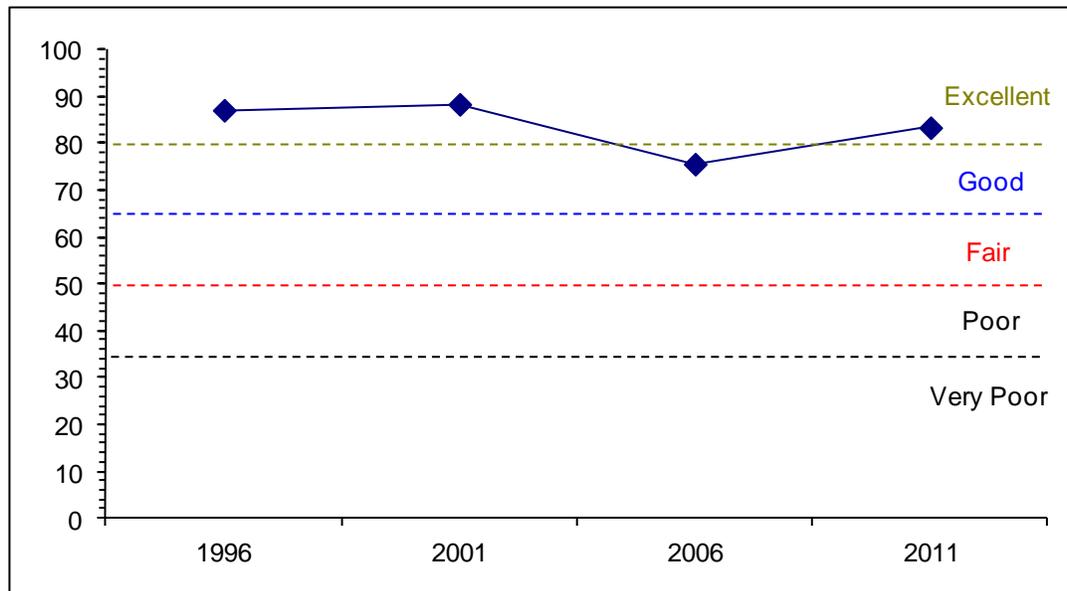
Year	Preferred Browse Cover	Preferred Browse Decadence	Preferred Browse Young	Perennial Grass Cover	Annual Grass Cover	Perennial Forb Cover	Noxious Weeds	Total Score	Ranking
96	30.0	13.2	5.2	28.7	0.0	10.0	0.0	87.1	Excellent
01	30.0	12.6	5.8	30.0	0.0	10.0	0.0	88.4	Excellent
06	30.0	10.3	5.6	19.7	0.0	10.0	0.0	75.6	Good
11	29.1	10.3	4.1	30.0	0.0	10.0	0.0	83.4	Excellent

Trend Summary

CUMULATIVE RANGE TREND ASSESSMENT--
 Management unit 1 Study no: 17



DEER DESIRABLE COMPONENTS INDEX TREND, MID-LEVEL POTENTIAL--
 Management unit 1, Study no: 17



HERBACEOUS TRENDS--
Management unit 01, Study no: 17

Type	Species	Nested Frequency				Average Cover %			
		'96	'01	'06	'11	'96	'01	'06	'11
G	Agropyron dasystachyum	bc279	c299	ab233	a202	6.03	7.03	2.67	3.15
G	Agropyron spicatum	46	24	22	29	1.37	1.22	.60	1.08
G	Bromus tectorum (a)	17	25	17	4	.06	.06	.03	.01
G	Carex douglasii	c52	b25	bc28	a-	1.12	1.00	.18	-
G	Carex sp.	-	8	3	3	-	.18	.18	.15
G	Elymus cinereus	-	4	2	7	-	.98	.38	.78
G	Juncus balticus	a-	a-	b24	b23	-	-	.62	.42
G	Koeleria cristata	4	9	14	-	.06	.21	.16	-
G	Melica bulbosa	4	5	17	-	.04	.06	.21	-
G	Poa bulbosa	-	2	1	-	-	.03	.00	-
G	Poa fendleriana	6	14	3	-	.16	.35	.07	-
G	Poa pratensis	a49	b159	b150	b172	1.04	5.79	3.45	6.01
G	Poa secunda	b216	a148	a116	a126	4.51	3.81	1.31	7.42
Total for Annual Grasses		17	25	17	4	0.06	0.06	0.03	0.00
Total for Perennial Grasses		656	697	613	562	14.36	20.69	9.86	19.02
Total for Grasses		673	722	630	566	14.42	20.75	9.89	19.03
F	Achillea millefolium	a62	a53	b78	a55	.57	.79	1.31	.49
F	Agoseris glauca	ab112	a48	b87	b125	.69	.40	.61	1.00
F	Allium sp.	a22	bc92	b79	c132	.06	.42	.19	.55
F	Antennaria rosea	-	1	6	10	-	.03	.06	.04
F	Arabis sp.	8	-	6	1	.02	-	.02	.00
F	Aster sp.	a178	b192	a166	a66	2.19	5.29	3.84	.66
F	Astragalus beckwithii	1	3	-	-	.03	.04	.00	-
F	Astragalus cibarius	8	18	6	8	.39	.08	.07	.04
F	Astragalus convallarius	-	2	8	-	-	.15	.07	-
F	Astragalus sp.	5	-	3	-	.06	-	.03	-
F	Balsamorhiza sagittata	-	-	-	-	-	-	.03	-
F	Calochortus nuttallii	4	-	-	4	.01	-	-	.01
F	Castilleja linariaefolia	1	6	-	-	.03	.30	-	-
F	Cirsium sp.	a3	ab11	b25	ab9	.07	.31	.19	.08
F	Collinsia parviflora (a)	c287	b228	a121	b206	2.28	2.41	.39	1.28
F	Collomia linearis (a)	c85	ab24	bc49	a13	.20	.06	.12	.03
F	Comandra pallida	a15	b50	ab23	a18	.06	.66	.20	.04
F	Crepis acuminata	3	8	12	6	.00	.07	.56	.16
F	Crepis intermedia	b10	a-	a-	a-	.05	-	-	-
F	Cryptantha sp.	7	-	15	3	.01	-	.03	.01
F	Cymopterus sp.	12	-	3	3	.04	-	.03	.00
F	Cynoglossum officinale	1	-	-	-	.03	-	-	-
F	Delphinium nuttallianum	a7	a17	a9	b71	.02	.06	.02	.42
F	Delphinium occidentale	ab2	a1	bc18	c21	.03	.00	.14	.05
F	Epilobium brachycarpum (a)	a-	a-	c122	b6	-	-	2.23	.02
F	Equisetum sp.	4	3	4	-	.01	.00	.01	-
F	Eriogonum umbellatum	16	12	1	10	.12	.39	.15	.08

Type	Species	Nested Frequency				Average Cover %			
		'96	'01	'06	'11	'96	'01	'06	'11
F	Galium bifolium (a)	a-	a-	a11	b29	-	-	.07	.38
F	Gayophytum ramosissimum(a)	a-	b23	a-	a1	-	.04	-	.00
F	Geranium sp.	a1	a1	a2	b20	.01	.03	.00	.22
F	Gilia sp. (a)	-	1	-	-	-	.00	-	-
F	Hackelia patens	10	2	4	13	.04	.03	.33	.22
F	Hydrophyllum capitatum	a-	a-	b45	b57	-	-	.66	.85
F	Hymenoxys acaulis	b41	b35	a-	a-	.39	.93	-	-
F	Iva axillaris	a-	a-	b13	a-	-	-	.49	-
F	Lithophragma parviflora	-	-	4	4	-	-	.00	.01
F	Lithospermum ruderales	-	-	4	2	-	-	.19	.03
F	Lomatium triternatum	2	16	-	10	.01	.30	-	.04
F	Lupinus argenteus	a4	ab6	b21	ab16	.19	.40	.62	.06
F	Lupinus sp.	-	-	-	7	-	-	-	.01
F	Machaeranthera spp	b53	a3	a-	a-	.10	.00	-	-
F	Microsteris gracilis (a)	a-	d87	b9	c35	-	.18	.02	.10
F	Nemophila breviflora (a)	a-	a-	b28	b32	-	-	.32	.36
F	Penstemon humilis	ab7	a6	ab12	b25	.01	.16	.12	.39
F	Phlox longifolia	68	75	68	42	.36	.27	.26	.22
F	Polygonum douglasii (a)	a9	a10	b110	a13	.02	.02	.33	.05
F	Ranunculus inamoenus	a-	a-	a-	b9	-	-	-	.08
F	Schoenocrambe linifolia	-	1	-	-	-	.03	-	-
F	Sedum lanceolatum	-	-	3	-	-	-	.00	-
F	Senecio integerrimus	ab77	a40	b79	b93	1.19	.62	1.73	1.09
F	Senecio multilobatus	-	2	-	-	-	.00	-	-
F	Taraxacum officinale	bc30	c43	ab14	a4	.16	.21	.05	.01
F	Tragopogon dubius (a)	3	2	-	10	.01	.18	-	.05
F	Trifolium sp.	-	4	-	-	-	.00	-	-
F	Unknown forb-annual (a)	3	-	-	-	.15	-	-	-
F	Unknown forb-perennial	b32	a-	a-	a-	.22	-	-	-
F	Veronica biloba (a)	a3	ab29	c148	b47	.03	.13	.93	.18
F	Viguiera multiflora	b70	a3	a-	a-	.14	.03	-	-
F	Viola sp.	ab15	a6	b33	c93	.35	.01	.18	.56
F	Wyethia amplexicaulis	4	3	1	-	.18	.18	.00	-
F	Zigadenus paniculatus	14	12	11	14	.12	.23	.32	.07
Total for Annual Forbs		390	404	598	392	2.71	3.03	4.42	2.48
Total for Perennial Forbs		909	775	863	951	8.02	12.49	12.59	7.56
Total for Forbs		1299	1179	1461	1343	10.73	15.53	17.01	10.05

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

BROWSE TRENDS--

Management unit 01, Study no: 17

T y p e	Species	Strip Frequency				Average Cover %			
		'96	'01	'06	'11	'96	'01	'06	'11
B	Amelanchier utahensis	16	15	15	13	1.56	2.82	2.72	3.04
B	Artemisia nova	16	21	26	27	3.40	4.13	2.21	3.00
B	Artemisia tridentata vaseyana	76	73	73	76	17.25	20.02	20.17	13.65
B	Chrysothamnus nauseosus	2	3	1	0	-	.03	.03	-
B	Chrysothamnus viscidiflorus lanceolatus	38	39	40	19	1.82	1.41	2.70	.18
B	Mahonia repens	3	8	15	10	.01	.87	.96	.19
B	Purshia tridentata	18	19	26	27	1.07	1.78	2.07	2.10
B	Rosa woodsii	10	12	11	10	.51	.87	.60	.43
B	Symphoricarpos oreophilus	58	56	64	66	6.44	4.87	5.77	6.23
B	Tetradymia canescens	3	3	2	3	-	.38	-	.03
Total for Browse		132	140	159	135	32.10	37.22	37.26	28.87

CANOPY COVER, LINE INTERCEPT--

Management unit 01, Study no: 17

Species	Percent Cover	
	'06	'11
Amelanchier utahensis	3.25	3.59
Artemisia nova	4.59	3.45
Artemisia tridentata vaseyana	25.10	18.61
Chrysothamnus nauseosus	.15	-
Chrysothamnus viscidiflorus lanceolatus	2.00	.10
Mahonia repens	.45	.23
Purshia tridentata	5.15	7.33
Rosa woodsii	.33	.63
Symphoricarpos oreophilus	8.55	12.26
Tetradymia canescens	-	.20

KEY BROWSE ANNUAL LEADER GROWTH--

Management unit 01, Study no: 17

Species	Average leader growth (in)		
	'01	'06	'11
Amelanchier utahensis	2.1	2.1	0.6
Artemisia tridentata vaseyana	2.0	1.5	1.9
Purshia tridentata	2.9	0.8	0.2

BASIC COVER--

Management unit 01, Study no: 17

Cover Type	Average Cover %			
	'96	'01	'06	'11
Vegetation	55.89	68.40	56.25	52.43
Rock	2.41	2.63	2.47	1.87
Pavement	2.48	2.58	2.78	2.54
Litter	52.18	51.50	40.47	45.13
Cryptogams	.31	.22	.10	.06
Bare Ground	9.58	7.31	14.65	16.46

SOIL ANALYSIS DATA --

Management unit 01, Study no: 17, Study Name: Clark's Basin

Effective rooting depth (in)	pH	Clay-Loam			%OM	PPM P	PPM K	ds/m
		%sand	%silt	%clay				
20.5	6.8	31.7	35.0	33.3	3.3	24.2	553.6	0.5

PELLET GROUP DATA--

Management unit 01, Study no: 17

Type	Quadrat Frequency				Days use per acre (ha)		
	'96	'01	'06	'11	'01	'06	'11
Rabbit	2	1	9	-	-	-	-
Elk	-	-	1	-	-	-	1 (3)
Deer	4	10	13	8	34 (84)	31 (76)	10 (25)
Cattle	6	2	4	2	2 (5)	11 (27)	12 (30)
Sheep	-	-	-	-	-	6 (15)	9 (23)

BROWSE CHARACTERISTICS--

Management unit 01, Study no: 17

Year	Plants per Acre (excluding seedlings)	Age class distribution			Seedling (plants/acre)	Utilization		% poor vigor	Average Height Crown (in)
		% Young	% Mature	% Decadent		% moderate	% heavy		
Amelanchier utahensis									
96	340	24	35	41	-	65	18	18	27/32
01	300	27	67	7	-	27	27	0	34/39
06	300	20	80	0	280	33	20	0	37/42
11	300	0	100	0	-	33	20	0	43/48
Artemisia nova									
96	1560	5	92	3	-	72	14	3	9/19
01	2200	5	87	7	240	0	0	4	8/18
06	2160	25	52	23	2140	8	.92	10	10/19
11	2440	32	65	3	200	2	0	3	10/20
Artemisia tridentata vaseyana									
96	3500	9	89	2	100	26	.57	.57	20/30
01	3180	9	82	8	300	.62	.62	3	22/33
06	3180	9	72	19	780	8	4	10	23/35
11	3840	6	69	25	40	4	2	23	21/33

Year	Plants per Acre (excluding seedlings)	Age class distribution			Seedling (plants/acre)	Utilization		% poor vigor	Average Height Crown (in)
		% Young	% Mature	% Decadent		% moderate	% heavy		
Chrysothamnus nauseosus									
96	40	0	50	50	-	50	50	0	15/19
01	80	25	75	0	-	0	25	0	20/21
06	40	0	0	100	-	0	0	100	-/-
11	0	0	0	0	-	0	0	0	-/-
Chrysothamnus viscidiflorus lanceolatus									
96	1600	9	85	6	40	19	0	0	13/18
01	1520	7	83	11	20	0	0	0	12/15
06	1440	7	86	7	-	0	0	3	13/20
11	480	0	79	21	-	8	17	8	11/15
Eriogonum microthecum									
96	0	0	0	-	-	0	0	0	-/-
01	0	0	0	-	-	0	0	0	-/-
06	0	0	0	-	-	0	0	0	6/17
11	0	0	0	-	-	0	0	0	-/-
Mahonia repens									
96	100	0	100	-	-	0	0	0	3/4
01	1820	20	80	-	-	0	0	0	6/7
06	2620	0	100	-	-	0	0	0	5/5
11	600	0	100	-	-	27	0	0	5/6
Opuntia sp.									
96	0	0	0	-	-	0	0	0	-/-
01	0	0	0	-	-	0	0	0	-/-
06	0	0	0	-	-	0	0	0	-/-
11	0	0	0	-	-	0	0	0	5/17
Purshia tridentata									
96	420	5	62	33	-	38	48	14	17/28
01	440	18	64	18	-	36	45	5	19/40
06	640	0	100	0	60	28	66	0	19/43
11	720	0	100	0	-	25	31	3	21/40
Ribes sp.									
96	0	0	0	-	-	0	0	0	11/26
01	0	0	0	-	-	0	0	0	-/-
06	0	0	0	-	-	0	0	0	-/-
11	0	0	0	-	-	0	0	0	42/42
Rosa woodsii									
96	780	67	33	0	-	0	0	0	19/17
01	1020	47	53	0	-	0	0	0	15/13
06	640	34	63	3	-	3	0	0	22/21
11	1300	5	95	0	-	0	0	0	16/16

		Age class distribution					Utilization			
Year	Plants per Acre (excluding seedlings)	% Young	% Mature	% Decadent	Seedling (plants/acre)	% moderate	% heavy	% poor vigor	Average Height Crown (in)	
<i>Symphoricarpos oreophilus</i>										
96	2920	25	72	3	200	17	1	.68	16/27	
01	2060	15	76	10	40	.97	0	6	14/26	
06	3660	30	69	2	-	0	0	.54	14/26	
11	3500	5	95	0	-	2	0	0	15/26	
<i>Tetradymia canescens</i>										
96	100	0	100	0	-	60	0	0	15/18	
01	140	29	43	29	-	0	0	14	10/12	
06	60	0	67	33	120	0	0	0	13/19	
11	60	0	67	33	-	0	67	33	15/27	