

Trend Study 1-17-06

Study site name: Clark's Basin .

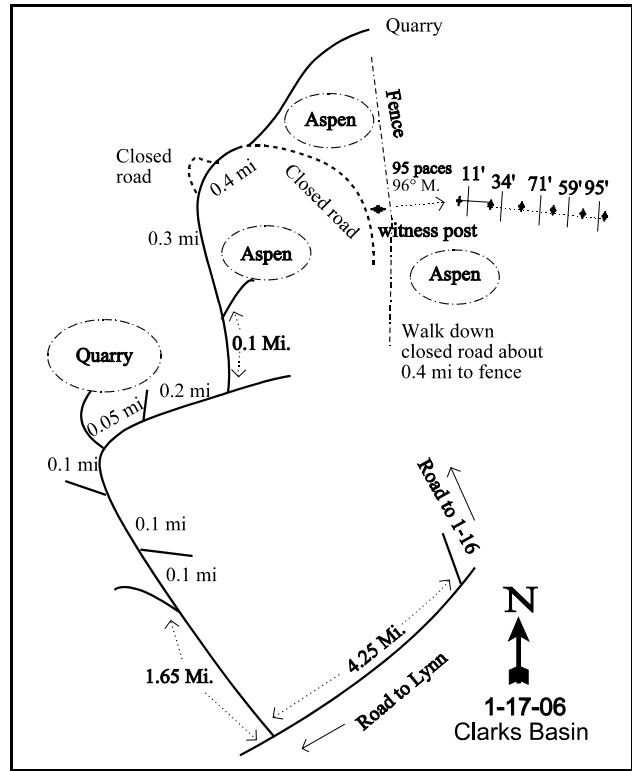
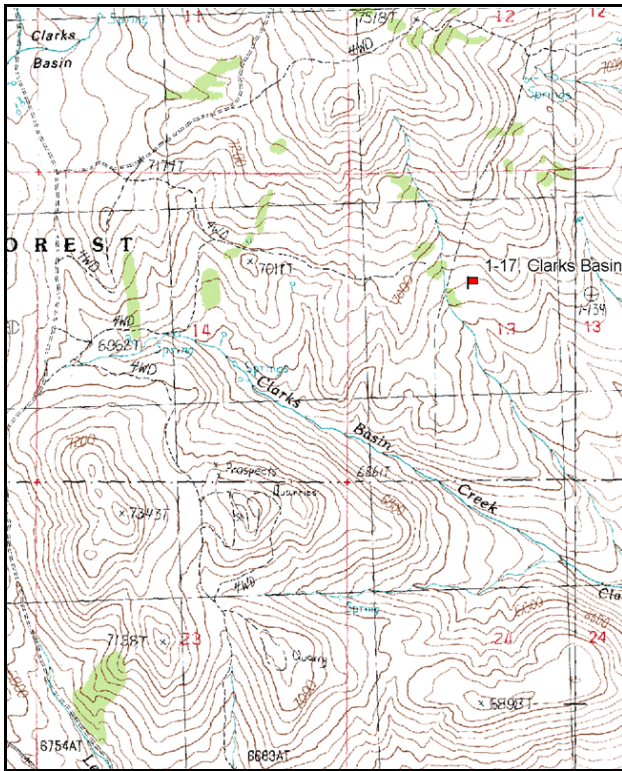
Vegetation type: Mountain Brush .

Compass bearing: frequency baseline 100 degrees magnetic.

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

LOCATION DESCRIPTION

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, proceed 0.4 miles to a wet meadow and a spring where the road has a 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

Diagrammatic Sketch

Township 13N , Range 16W , Section 14

UTM NAD 27 , UTM 12T 4636539 N, 281537 E

DISCUSSION

Clark's Basin - Trend Study No. 1-17

Study Information

This trend study was established in 1996 and samples a mixed mountain brush community (elevation: 6,860 feet, slope: 3-5%, aspect: south) near an aspen clone in the Clark's Basin area. The area is administered by the Sawtooth National Forest and is considered important fawning habitat for deer. The study is located on a bench between a ridge to the north and Clark's Basin Creek to the south. This area is grazed by livestock as part of the Rosette allotment. The fence just to the west of the site divides this allotment from the Clark's Basin allotment. A total of 2,000 sheep are allotted from May 16 to July 11. Cattle are allotted from June 16 to July 3. Water is readily available in nearby springs and livestock water developments. A pellet group transect in 2001 estimated 34 deer days use/acre and 2 cows days use/acre (84 ddu/ha and 5 cdu/ha). In 2006, 31 deer, 11 cow, and 6 sheep days use/acre (76 ddu/ha, 27 cdu/ha, and 15 sdu/ha) were estimated.

Soil

The Bullump soil series consist of deep and very deep, well drained soils that formed in colluvium derived from quartzite, welded tuff, chert, argillite, shale, conglomerate, and rhyolite with a component of loess (USDA-NRCS 2006). Soil texture is a clay loam with a neutral reaction (6.8 pH). Effective rooting depth is a little over 20 inches. Erosion is not a problem due to the abundant herbaceous cover and little exposed bare soil. The erosion condition was classified as stable in 2001 and 2006.

Browse

The site is a mixed mountain brush type with a good grass and forb understory, which can provide important early summer forage for deer. Several preferred browse species occupy the site including: serviceberry, black sagebrush, basin big sagebrush, antelope bitterbrush, and woods rose. The dominant browse is mountain big sagebrush, which provides about 20% cover. Mountain big sagebrush density was estimated at 3,180 plants/acre in 2001 and 2006. Decadence increased from 2% of the population in 1996 to 8% in 2001 to 19% in 2006. Utilization was light each time the study was sampled. There was a high number of dead sagebrush along the first 200 feet of the baseline which appear to have died several years ago. This area is characterized as a wet meadow, where it is difficult for sagebrush to grow.

Serviceberry displays moderate to heavy use. Decadence was moderately high at 41% in 1996, but improved to only 7% in 2001 and zero plants were classified as decadent in 2006. Serviceberry provides on average about 3% cover. Antelope bitterbrush density has increased from 440 plants/acre in 2001 to 640 plants/acre in 2006. Bitterbrush cover has averaged about 2%. Utilization of these shrubs has been moderate to heavy. Decadence has decreased from 33% in 1996 to 0% in 2006.

Some black sagebrush occurs in patches along sampling belts 3 and 4 with an estimated density of about 2,200 plants/acre, with about 3% cover. Less preferred browse include: rubber rabbitbrush, mountain low rabbitbrush, creeping barberry, snowberry, and gray horsebrush.

Herbaceous Understory

The herbaceous understory is diverse and abundant. Nine perennial grass, two sedge, and one rush species have been sampled. The dominant species include thickspike wheatgrass, Kentucky bluegrass, and Sandberg bluegrass. Thickspike wheatgrass nested frequency declined significantly in 2006 and cover decreased from 7% to 3%. Bluebunch wheatgrass significantly declined between 1996 and 2006. Baltic rush was first sampled in 2006. This is an increaser species, which could be an indication of over use on this wet meadow.

Forbs are extremely diverse with at least 56 species sampled. Perennial forbs have produced about 13% cover in 2001 and 2006. Several useful species occur including: paintbrush, silvery lupine, lambstongue groundsel, sulfur eriogonum, and Penstemon.

2001 TREND ASSESSMENT

The five preferred browse species make up on average 92% of the total browse cover. The overall trend for browse is stable. The herbaceous understory continues to be diverse and abundant. The grass trend is stable. The sum of nested frequency for perennial grasses show a very slight increase, however Sandberg bluegrass decreased while Kentucky bluegrass increased. This could be a sign of heavy grazing as Kentucky bluegrass increases with grazing. The forb trend is slightly down, as the sum of nested frequency of perennial forbs decreased. The DCI score is excellent, with an abundant and healthy browse component along with an abundance of grasses and forbs.

1996 winter range condition (DC Index) - excellent (86) Mid-level potential scale
2001 winter range condition (DC Index) - excellent (88) Mid-level potential scale
browse - stable (0) grass - stable (0) forb - slightly down (-1)

2006 TREND ASSESSMENT

The browse trend is stable. Density and cover for preferred species has remained stable. Percent decadence has increased for black sagebrush and mountain big sagebrush, but are still only moderate. Bitterbrush density has increased and vigor is good. The grass trend is slightly down. Sum of nested frequency for perennial species has decreased 12%. Also, increaser species like Kentucky bluegrass and a rush species are more dominant than they were in 1996 when the study was established. The forb trend is slightly up with increased abundance of perennials. Poverty weed (*Iva axillaris*) was sampled for the first time. This is also an increaser under grazing. The DCI score decreased to good with a decrease of perennial grass cover.

winter range condition (DC Index) - good (75) Mid-level potential scale
browse - stable (0) grass - slightly down (-1) forb - slightly up (+1)

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

T y p e	Species	Nested Frequency			Average Cover %		
		'96	'01	'06	'96	'01	'06
G	Agropyron dasystachyum	_{ab} 279	_b 299	_a 233	6.03	7.03	2.67
G	Agropyron spicatum	_b 46	_{ab} 24	_a 22	1.37	1.22	.60
G	Bromus tectorum (a)	17	25	17	.06	.06	.03
G	Carex douglasii	_b 52	_a 25	_{ab} 28	1.12	1.00	.18
G	Carex sp.	-	8	3	-	.18	.18
G	Elymus cinereus	-	4	2	-	.98	.38
G	Juncus balticus	_a -	_a -	_b 24	-	-	.62
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	_a 49	_b 159	_b 150	1.04	5.79	3.45
G	Poa secunda	_b 216	_a 148	_a 116	4.51	3.81	1.31
Total for Annual Grasses		17	25	17	0.06	0.06	0.03
Total for Perennial Grasses		656	697	613	14.36	20.69	9.86

Type	Species	Nested Frequency			Average Cover %		
		'96	'01	'06	'96	'01	'06
		Total for Grasses					
F	<i>Achillea millefolium</i>	_a 62	_a 53	_b 78	.57	.79	1.31
F	<i>Agoseris glauca</i>	_b 112	_a 48	_b 87	.69	.40	.61
F	<i>Allium</i> sp.	_a 22	_b 92	_b 79	.06	.42	.19
F	<i>Antennaria rosea</i>	-	1	6	-	.03	.06
F	<i>Arabis</i> sp.	8	-	6	.02	-	.02
F	<i>Astragalus beckwithii</i>	1	3	-	.03	.04	.00
F	<i>Astragalus cibaricus</i>	8	18	6	.39	.08	.07
F	<i>Astragalus convallarius</i>	-	2	8	-	.15	.07
F	<i>Aster</i> sp.	178	192	166	2.19	5.29	3.84
F	<i>Astragalus</i> sp.	5	-	3	.06	-	.03
F	<i>Balsamorhiza sagittata</i>	-	-	-	-	-	.03
F	<i>Castilleja linariaefolia</i>	1	6	-	.03	.30	-
F	<i>Calochortus nuttallii</i>	4	-	-	.01	-	-
F	<i>Cirsium</i> sp.	_a 3	_{ab} 11	_b 25	.07	.31	.19
F	<i>Collomia linearis</i> (a)	_b 85	_a 24	_{ab} 49	.20	.06	.12
F	<i>Comandra pallida</i>	_a 15	_b 50	_a 23	.06	.66	.20
F	<i>Collinsia parviflora</i> (a)	_c 287	_b 228	_a 121	2.28	2.41	.39
F	<i>Crepis acuminata</i>	3	8	12	.00	.07	.56
F	<i>Crepis intermedia</i>	_b 10	_a -	_a -	.05	-	-
F	<i>Cryptantha</i> sp.	_{ab} 7	_a -	_b 15	.01	-	.03
F	<i>Cymopterus</i> sp.	12	-	3	.04	-	.03
F	<i>Cynoglossum officinale</i>	1	-	-	.03	-	-
F	<i>Delphinium nuttallianum</i>	7	17	9	.02	.06	.02
F	<i>Delphinium occidentale</i>	_a 2	_a 1	_b 18	.03	.00	.14
F	<i>Epilobium brachycarpum</i> (a)	_a -	_a -	_b 122	-	-	2.23
F	<i>Equisetum</i> sp.	4	3	4	.01	.00	.01
F	<i>Eriogonum umbellatum</i>	16	12	1	.12	.39	.15
F	<i>Galium bifolium</i> (a)	-	-	11	-	-	.07
F	<i>Gayophytum ramosissimum</i> (a)	_a -	_b 23	_a -	-	.04	-
F	<i>Geranium</i> sp.	1	1	2	.01	.03	.00
F	<i>Gilia</i> sp. (a)	-	1	-	-	.00	-
F	<i>Hackelia patens</i>	10	2	4	.04	.03	.33
F	<i>Hymenoxys acaulis</i>	_b 41	_b 35	_a -	.39	.93	-
F	<i>Hydrophyllum capitatum</i>	_a -	_a -	_b 45	-	-	.66
F	<i>Iva axillaris</i>	_a -	_a -	_b 13	-	-	.49

Type	Species	Nested Frequency			Average Cover %		
		'96	'01	'06	'96	'01	'06
F	Lithophragma parviflora	-	-	4	-	-	.00
F	Lithospermum ruderale	-	-	4	-	-	.19
F	Lomatium triternatum	_a 2	_b 16	_a -	.01	.30	-
F	Lupinus argenteus	_a 4	_a 6	_b 21	.19	.40	.62
F	Machaeranthera spp	_b 53	_a 3	_a -	.10	.00	-
F	Microsteris gracilis (a)	_a -	_c 87	_b 9	-	.18	.02
F	Nemophila breviflora (a)	_a -	_a -	_b 28	-	-	.32
F	Penstemon humilis	7	6	12	.01	.16	.12
F	Phlox longifolia	68	75	68	.36	.27	.26
F	Polygonum douglasii (a)	_a 9	_a 10	_b 110	.02	.02	.33
F	Schoenocrambe linifolia	-	1	-	-	.03	-
F	Senecio integerrimus	_{ab} 77	_a 40	_b 79	1.19	.62	1.73
F	Sedum lanceolatum	-	-	3	-	-	.00
F	Senecio multilobatus	-	2	-	-	.00	-
F	Taraxacum officinale	_{ab} 30	_b 43	_a 14	.16	.21	.05
F	Tragopogon dubius	3	2	-	.01	.18	-
F	Trifolium sp.	-	4	-	-	.00	-
F	Unknown forb-annual (a)	3	-	-	.15	-	-
F	Unknown forb-perennial	32	-	-	.22	-	-
F	Veronica biloba (a)	_a 3	_a 29	_b 148	.03	.13	.93
F	Viguiera multiflora	_b 70	_a 3	_a -	.14	.03	-
F	Viola sp.	_b 15	_a 6	_c 33	.35	.01	.18
F	Wyethia amplexicaulis	4	3	1	.18	.18	.00
F	Zigadenus paniculatus	14	12	11	.12	.23	.32
Total for Annual Forbs		387	402	598	2.69	2.85	4.42
Total for Perennial Forbs		912	777	863	8.04	12.67	12.59
Total for Forbs		1299	1179	1461	10.73	15.53	17.01

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

BROWSE TRENDS --

Management unit 01 , Study no: 17

Type	Species	Strip Frequency			Average Cover %		
		'96	'01	'06	'96	'01	'06
B	Amelanchier utahensis	16	15	15	1.56	2.82	2.72
B	Artemisia nova	16	21	26	3.40	4.13	2.21
B	Artemisia tridentata vaseyana	76	73	73	17.25	20.02	20.17
B	Chrysothamnus nauseosus	2	3	1	-	.03	.03
B	Chrysothamnus viscidiflorus lanceolatus	38	39	40	1.82	1.41	2.70
B	Mahonia repens	3	8	15	.01	.87	.96
B	Purshia tridentata	18	19	26	1.07	1.78	2.07
B	Rosa woodsii	10	12	11	.51	.87	.60
B	Symphoricarpos oreophilus	58	56	64	6.44	4.87	5.77
B	Tetradymia canescens	3	3	2	-	.38	-
Total for Browse		240	249	273	32.10	37.22	37.26

CANOPY COVER, LINE INTERCEPT --

Management unit 01 , Study no: 17

Species	Percent Cover '06
Amelanchier utahensis	3.25
Artemisia nova	4.59
Artemisia tridentata vaseyana	25.10
Chrysothamnus nauseosus	.15
Chrysothamnus viscidiflorus lanceolatus	2.00
Mahonia repens	.45
Purshia tridentata	5.15
Rosa woodsii	.33
Symphoricarpos oreophilus	8.55

KEY BROWSE ANNUAL LEADER GROWTH --

Management unit 01 , Study no: 17

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

BASIC COVER --

Management unit 01 , Study no: 17

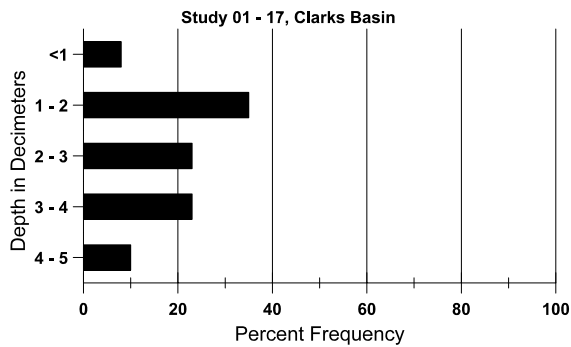
Cover Type	Average Cover %		
	'96	'01	'06
Vegetation	55.89	68.40	56.25
Rock	2.41	2.63	2.47
Pavement	2.48	2.58	2.78
Litter	52.18	51.50	40.47
Cryptogams	.31	.22	.10
Bare Ground	9.58	7.31	14.65

SOIL ANALYSIS DATA --

Herd Unit 01, Study no: 17, Clarks Basin

Effective rooting depth (in)	Temp °F (depth)	PH	Clay loam			%OM	PPM P	PPM K	dS/m
			%sand	%silt	%clay				
20.5	50.0 (19.7)	6.8	31.7	35	33.3	3.3	24.2	553.6	0.5

Stoniness Index



PELLET GROUP DATA --

Management unit 01 , Study no: 17

Type	Quadrat Frequency		
	'96	'01	'06
Rabbit	2	1	9
Elk	-	-	1
Deer	4	10	13
Cattle	6	2	4
Sheep	-	-	-

Days use per acre (ha)	
'01	'06
-	-
-	-
34 (84)	31 (76)
2 (5)	11 (27)
-	6 (15)

BROWSE CHARACTERISTICS --
Management unit 01 , Study no: 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)
Amelanchier utahensis												
96	340	-	80	120	140	-	65	18	41	18	18	27/32
01	300	-	80	200	20	-	27	27	7	-	0	34/39
06	300	280	60	240	-	-	33	20	0	-	0	37/42
Artemisia nova												
96	1560	-	80	1440	40	40	72	14	3	3	3	9/19
01	2200	240	120	1920	160	80	0	0	7	4	4	8/18
06	2160	2140	540	1120	500	140	8	.92	23	10	10	10/19
Artemisia tridentata vaseyana												
96	3500	100	300	3120	80	640	26	.57	2	.57	.57	20/30
01	3180	300	300	2620	260	280	.62	.62	8	.62	3	22/33
06	3180	780	280	2280	620	480	8	4	19	9	10	23/35
Chrysothamnus nauseosus												
96	40	-	-	20	20	-	50	50	50	-	0	15/19
01	80	-	20	60	-	-	0	25	0	-	0	20/21
06	40	-	-	-	40	-	0	0	100	100	100	-/-
Chrysothamnus viscidiflorus lanceolatus												
96	1600	40	140	1360	100	-	19	0	6	-	0	13/18
01	1520	20	100	1260	160	20	0	0	11	-	0	12/15
06	1440	-	100	1240	100	-	0	0	7	3	3	13/20
Eriogonum microthecum												
96	0	-	-	-	-	-	0	0	-	-	0	-/-
01	0	-	-	-	-	-	0	0	-	-	0	-/-
06	0	-	-	-	-	-	0	0	-	-	0	6/17
Mahonia repens												
96	100	-	-	100	-	-	0	0	-	-	0	3/4
01	1820	-	360	1460	-	-	0	0	-	-	0	6/7
06	2620	-	-	2620	-	-	0	0	-	-	0	5/5
Purshia tridentata												
96	420	-	20	260	140	-	38	48	33	14	14	17/28
01	440	-	80	280	80	-	36	45	18	5	5	19/40
06	640	60	-	640	-	-	28	66	0	-	0	19/43

		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)
Ribes sp.												
96	0	-	-	-	-	-	0	0	-	-	0	11/26
01	0	-	-	-	-	-	0	0	-	-	0	-/-
06	0	-	-	-	-	-	0	0	-	-	0	-/-
Rosa woodsii												
96	780	-	520	260	-	-	0	0	0	-	0	19/17
01	1020	-	480	540	-	-	0	0	0	-	0	15/13
06	640	-	220	400	20	-	3	0	3	-	0	22/21
Symphoricarpos oreophilus												
96	2920	200	720	2100	100	40	17	1	3	.68	.68	16/27
01	2060	40	300	1560	200	60	.97	0	10	6	6	14/26
06	3660	-	1080	2520	60	-	0	0	2	.54	.54	14/26
Tetradymia canescens												
96	100	-	-	100	-	-	60	0	0	-	0	15/18
01	140	-	40	60	40	-	0	0	29	14	14	10/12
06	60	120	-	40	20	-	0	0	33	-	0	13/19