

Trend Study 28-16-08

Study site name: Asay Bench.

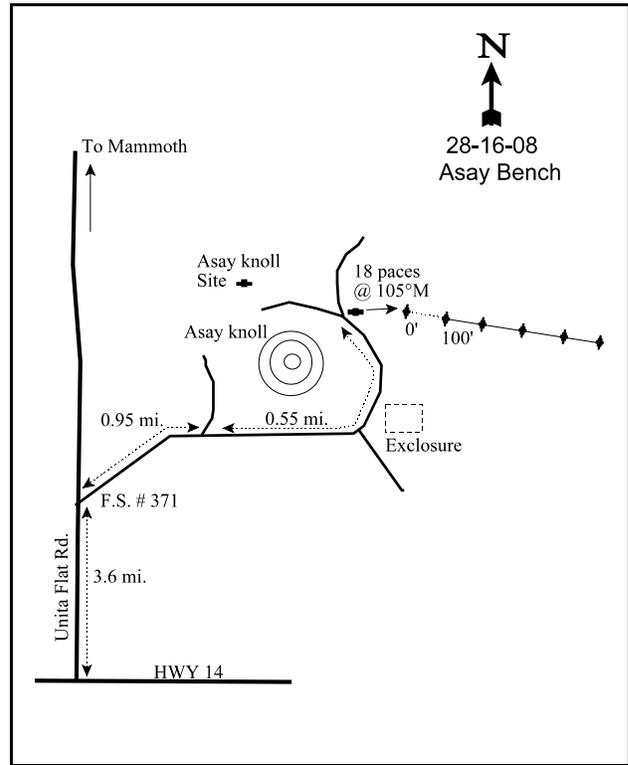
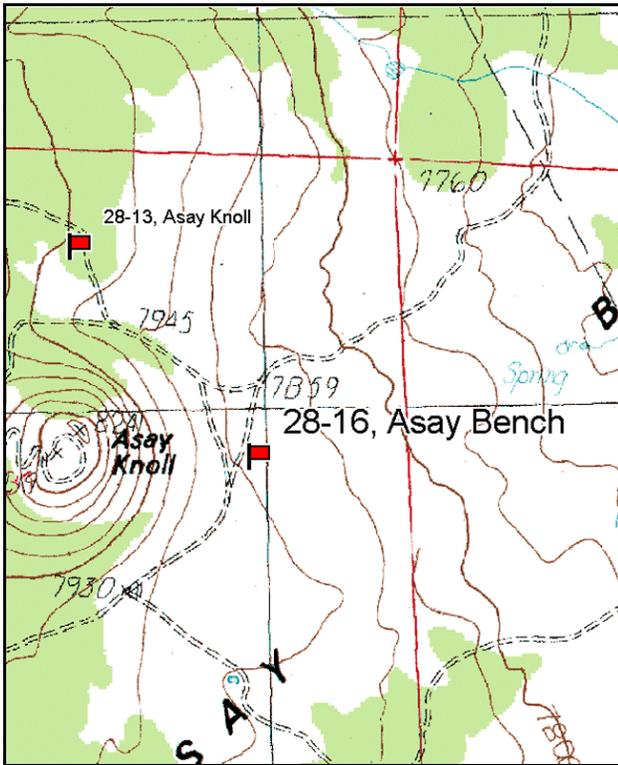
Vegetation type: Mountain Brush.

Compass bearing: frequency baseline 65 degrees magnetic.

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

LOCATION DESCRIPTION

Start at the junction of Highway 14 and Uinta Flat Road, which is just east of mile post 33 on Hwy 14. Drive north on Uinta Flat Road for 3.6 miles to a fork going east (F.S. Rd. 371). Drive east for 1.0 miles crossing over a cattleguard and coming to a fork on the left (north). Continue straight (right) for 0.55 miles to a fork (an enclosure should be passed on the right before the fork). The witness post is on the east (right) side of the road just past the right fork. From the witness post the 0-foot stake is 18 paces at 105 degrees magnetic. The 0-foot stake is marked by browse tag #165.



Map Name: Asay Bench

Diagrammatic Sketch

Township 37S, Range 6W, Section 31

GPS: NAD 83, UTM 12S 361875 E, 4157011 N

DISCUSSION

Asay Bench - Trend Study No. 28-16

Study Information

This study was placed just under a half mile east of the Asay Knoll (28-9) trend study and samples a mountain brush community dominated by mountain big sagebrush and bitterbrush [elevation:7,900 feet (2,408 m), slope: 4%, aspect: northeast]. The study was established in 2003 to replace trend study 28-9 which sampled marginal big game transitional range. Pellet group transect data collected on site in 2003 estimated 20 elk, 19 deer, and 7 cow days use/acre (50 edu/ha, 48 ddu/ha, and 18 cdu/ha). Pellet group data in 2008 estimated 61 deer, 13 elk, and 12 cow days use/acre (150 ddu/ha, 33 edu/ha, and 29 cdu/ha).

Soils

Soils are derived from basalt parent material and have moderate depth with the effective rooting depth measured at over 11 inches. Soils are loam in texture and have a slightly acidic pH (6.2). Relative combined average vegetation and litter cover is high at 74%-82% since 2003. Relative average bare ground has been moderate at 20% in 2003, decreasing to 11% in 2008. Erosion is low for the most part although some of the shrub interspaces show shrink and swell cracking. An erosion condition class assessment rated soils as stable in 2003 and 2008.

Browse

Mountain big sagebrush (*Artemisia tridentata* ssp. *vaseyana*) and bitterbrush (*Purshia tridentata*) combined to provide 81% of the total browse cover in 2003 and 86% in 2008. Mountain big sagebrush density averaged 6,600 plants/acre in the two sample years. Average height of sagebrush was 18 inches in both years. The sagebrush population is mostly mature and decadence was low in 2003, but increased markedly in 2008. Vigor has remained mostly good in the sagebrush population, though it did decline slightly in 2008. Recruitment of young plants has been moderate. Utilization of sagebrush has been mostly light to moderate, with some scattered heavy use. Bitterbrush density averaged 2,250 plants/acre over the two sample years. Decadence of bitterbrush was very high in 2003. It decreased in 2008, but was still high. The proportion of plants displaying poor vigor was moderate in 2003, but improved in 2008. Recruitment of young bitterbrush plants is fairly poor. Utilization of bitterbrush has been moderate to very heavy, with the heaviest use in 2003. Other browse sampled on the site include snowberry (*Symphoricarpos oreophilus*), a few very large serviceberry plants (*Amelanchier utahensis*), stickyleaf low rabbitbrush (*Chrysothamnus viscidiflorus viscidiflorus*), broom snakeweed (*Gutierrezia sarothrae*), Wood's rose (*Rosa woodsii*), and gray horsebrush (*Tetradymia canescens*).

Herbaceous Understory

The herbaceous understory is moderately diverse but most of the species are not very abundant. Mutton bluegrass (*Poa fendleriana*) was by far the most abundant species in the understory. A total of 12 perennial grasses have been sampled since 2003. The most common species include prairie Junegrass (*Koeleria cristata*), Letterman needlegrass (*Stipa lettermani*), and needle-and-thread grass (*Stipa comata*). Grasses showed no utilization. Several important perennial species that were sampled in low numbers include pale agoseris (*Agoseris glauca*), segolily (*Calochortus nuttallii*), low fleabane (*Erigeron pumilus*), and redroot eriogonum (*Eriogonum racemosum*).

2003 DESIRABLE COMPONENTS INDEX

winter range condition (DCI) - fair (62) Mid-level potential scale

2008 TREND ASSESSMENT

Trend for browse is stable. Density of mountain big sagebrush declined slightly from 2003 to 6,440 plants/acre. Decadence in the population increased to 65%, and plants displaying poor vigor increased slightly

to 19%. Recruitment of sagebrush improved slightly with young plants comprising 11% of the population. Countering some of the negative trend in the sagebrush population, density of the preferred browse, bitterbrush, increased slightly. Decadence of bitterbrush improved markedly, but is still high at 45%. Vigor in the population also improved with the proportion of plants displaying poor vigor declining to 12%. Recruitment of young bitterbrush plants remained poor. Trend for grasses is up. Sum of nested frequency of perennial grasses was high and increased 26% from 2003. Production of perennial grasses also increased to 21% of the total cover. There was a significant increase in the nested frequency of intermediate wheatgrass (*Agropyron intermedium*), mutton bluegrass, and Letterman needlegrass. Trend for forbs is up, but forbs are still rare. Sum of nested frequency of perennial forbs increased by 63% since 2003, and production of perennial forbs doubled to just over 1%. There was a significant increase in the nested frequency of pale agoseris, cudweed sagewort (*Artemisia ludoviciana*), and segolily.

winter range condition (DCI) - fair-good (65) Mid-level potential scale
browse - stable (0) grass - up (+2) forb - up (+2)

HERBACEOUS TRENDS --
 Management unit 28 , Study no: 16

Type	Species	Nested Frequency		Average Cover %	
		'03	'08	'03	'08
G	<i>Agropyron dasystachyum</i>	3	17	.06	.20
G	<i>Agropyron intermedium</i>	_a 3	_b 10	.03	.33
G	<i>Bouteloua gracilis</i>	1	6	.00	.16
G	<i>Bromus inermis</i>	-	6	-	.03
G	<i>Carex</i> sp.	3	8	.06	.06
G	<i>Koeleria cristata</i>	109	73	1.50	.69
G	<i>Poa fendleriana</i>	_b 249	_a 339	9.31	17.07
G	<i>Poa pratensis</i>	_b 11	_a -	.60	-
G	<i>Poa secunda</i>	_b 29	_a 3	.60	.00
G	<i>Sitanion hystrix</i>	3	-	.01	-
G	<i>Stipa comata</i>	24	45	.34	.80
G	<i>Stipa lettermani</i>	_a 41	_b 94	.56	2.05
Total for Annual Grasses		0	0	0	0
Total for Perennial Grasses		476	601	13.11	21.43
Total for Grasses		476	601	13.11	21.43
F	<i>Agoseris glauca</i>	_a 25	_b 42	.10	.21
F	<i>Antennaria rosea</i>	7	7	.04	.19
F	<i>Arabis</i> sp.	13	4	.02	.01
F	<i>Artemisia ludoviciana</i>	_a 15	_b 24	.11	.14
F	<i>Astragalus</i> sp.	-	11	-	.09
F	<i>Calochortus nuttallii</i>	_a 18	_b 99	.03	.39
F	<i>Comandra pallida</i>	3	-	.03	-

T y p e	Species	Nested Frequency		Average Cover %	
		'03	'08	'03	'08
F	<i>Collinsia parviflora</i> (a)	167	167	.72	.61
F	<i>Crepis acuminata</i>	3	-	.01	-
F	<i>Delphinium nuttallianum</i>	2	4	.00	.01
F	<i>Erigeron flagellaris</i>	1	-	.00	-
F	<i>Erigeron pumilus</i>	_b 35	_a 16	.10	.08
F	<i>Eriogonum racemosum</i>	6	8	.03	.09
F	<i>Eriogonum umbellatum</i>	2	-	.00	-
F	<i>Gayophytum ramosissimum</i> (a)	_b 85	_a 2	.24	.01
F	<i>Lactuca serriola</i>	2	-	.00	-
F	<i>Microsteris gracilis</i> (a)	_b 166	_a 60	.84	.15
F	<i>Plantago patagonica</i> (a)	_a -	_b 32	-	.11
F	<i>Polygonum douglasii</i> (a)	5	6	.01	.04
Total for Annual Forbs		423	267	1.82	0.93
Total for Perennial Forbs		132	215	0.52	1.23
Total for Forbs		555	482	2.34	2.16

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

BROWSE TRENDS --

Management unit 28 , Study no: 16

T y p e	Species	Strip Frequency		Average Cover %	
		'03	'08	'03	'08
B	<i>Amelanchier utahensis</i>	2	1	.00	.00
B	<i>Artemisia tridentata vaseyana</i>	90	94	13.83	11.36
B	<i>Chrysothamnus viscidiflorus viscidiflorus</i>	64	80	3.49	3.72
B	<i>Gutierrezia sarothrae</i>	19	0	1.33	-
B	<i>Opuntia</i> sp.	0	3	-	.00
B	<i>Purshia tridentata</i>	71	77	14.19	15.21
B	<i>Rosa woodsii</i>	2	1	.03	.03
B	<i>Symphoricarpos oreophilus</i>	7	7	1.86	.45
B	<i>Tetradymia canescens</i>	1	1	.03	.00
Total for Browse		256	264	34.78	30.79

CANOPY COVER, LINE INTERCEPT --
 Management unit 28 , Study no: 16

Species	Percent Cover	
	'03	'08
Amelanchier utahensis	.05	.03
Artemisia tridentata vaseyana	17.11	20.88
Chrysothamnus viscidiflorus viscidiflorus	1.93	4.68
Gutierrezia sarothrae	.66	-
Purshia tridentata	10.13	18.83
Rosa woodsii	.03	-
Symphoricarpos oreophilus	1.39	.66

KEY BROWSE ANNUAL LEADER GROWTH --
 Management unit 28 , Study no: 16

Species	Average leader growth (in)	
	'03	'08
Artemisia tridentata vaseyana	1.7	1.1
Purshia tridentata	2.1	1.1

BASIC COVER --
 Management unit 28 , Study no: 16

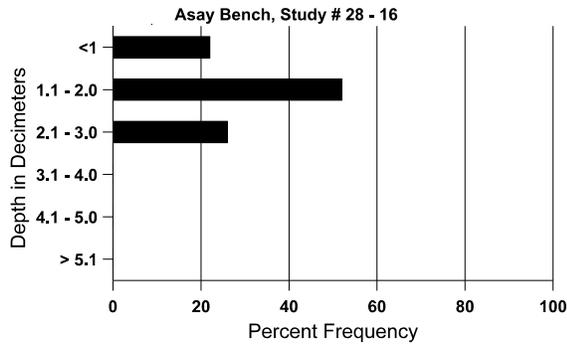
Cover Type	Average Cover %	
	'03	'08
Vegetation	49.34	59.40
Rock	5.65	2.99
Pavement	1.37	4.62
Litter	40.23	36.27
Cryptogams	.15	.01
Bare Ground	23.70	13.17

SOIL ANALYSIS DATA --

Management unit 28, Study no: 16, Study Name: Asay Bench

Effective rooting depth (in)	Temp °F (depth)	pH	loam			%OM	PPM P	PPM K	ds/m
			% sand	% silt	% clay				
11.4	61.4 (16.4)	6.2	36.6	39.2	24.2	2.9	28.4	572.8	0.6

Stoniness Index



PELLET GROUP DATA --

Management unit 28 , Study no: 16

Type	Quadrat Frequency		Days use per acre (ha)	
	'03	'08	'03	'08
Rabbit	2	8	-	-
Elk	12	18	20 (50)	13 (33)
Deer	5	16	19 (50)	61 (150)
Cattle	5	8	7 (18)	12 (29)

BROWSE CHARACTERISTICS --
Management unit 28 , Study no: 16

		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												
03	40	-	-	-	40	-	0	0	100	50	50	-/-
08	20	-	-	-	20	-	0	0	100	100	100	18/20
Artemisia tridentata vaseyana												
03	6760	-	580	5200	980	460	33	2	14	3	3	18/19
08	6440	100	680	1600	4160	720	27	4	65	12	19	18/24
Chrysothamnus viscidiflorus viscidiflorus												
03	5080	-	120	4780	180	-	1	0	4	2	2	7/9
08	5320	40	360	3960	1000	40	23	.75	19	1	2	6/12
Gutierrezia sarothrae												
03	2640	-	-	2640	-	-	0	0	-	-	0	6/7
08	0	-	-	-	-	-	0	0	-	-	0	-/-
Opuntia sp.												
03	0	-	-	-	-	-	0	0	-	-	0	3/9
08	60	-	-	60	-	-	0	0	-	-	33	5/11
Purshia tridentata												
03	2120	-	80	380	1660	-	20	77	78	31	32	19/31
08	2380	20	100	1220	1060	100	62	5	45	5	12	23/43
Ribes cereum inebrians												
03	0	-	-	-	-	-	0	0	-	-	0	41/54
08	0	-	-	-	-	-	0	0	-	-	0	-/-
Rosa woodsii												
03	80	-	80	-	-	-	0	0	-	-	0	5/4
08	40	-	40	-	-	-	0	0	-	-	0	-/-
Symphoricarpos oreophilus												
03	200	-	20	160	20	-	0	0	10	-	0	17/25
08	180	20	-	80	100	-	11	11	56	11	11	18/27
Tetradymia canescens												
03	20	-	-	20	-	-	0	0	0	-	0	9/13
08	20	-	-	-	20	-	100	0	100	-	0	-/-