

Trend Study 17-10-96

Study site name: Upper Big Hollow .

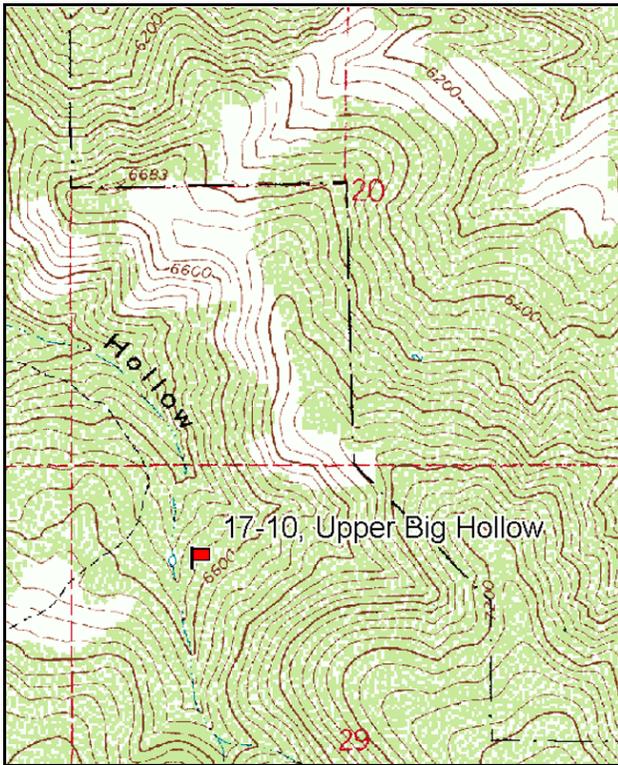
Vegetation type: Gambel Oakbrush .

Compass bearing: frequency baseline 167 degrees magnetic.

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

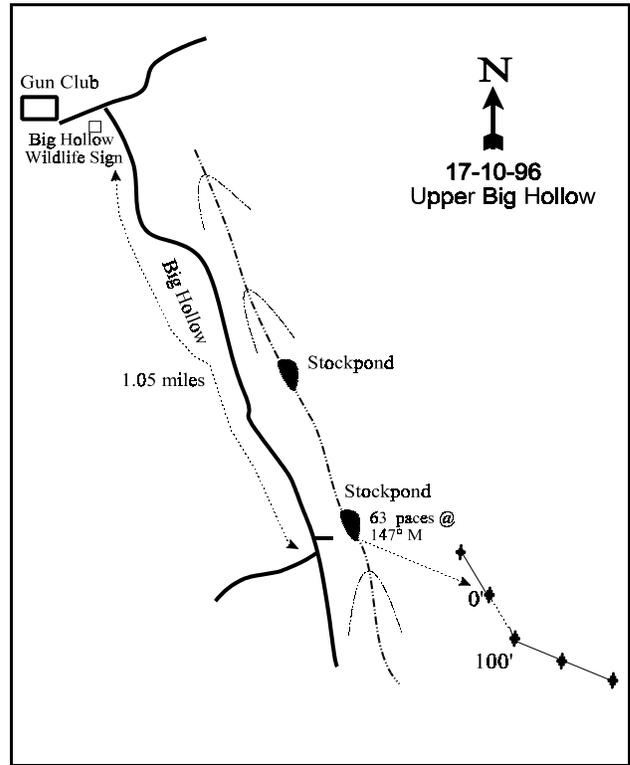
LOCATION DESCRIPTION

Beginning at the Heber Valley gun club located at the mouth of Big Hollow, proceed west for 0.10 miles to the main road which goes up Big Hollow. Proceed southerly up Big Hollow for 1.05 miles to a small turnoff (slightly above the second stockpond). From the southeast corner of the stockpond, walk 63 paces at an azimuth of 147 degrees magnetic, to the 0-foot baseline stake. The frequency baseline is marked by green steel "T" fenceposts approximately 12 to 18 inches in height.



Map Name: Charleston

Township 4S, Range 5E, Section 29



Diagrammatic Sketch

GPS: NAD 27, UTM 12S 4477497 N 465063 E

DISCUSSION

Upper Big Hollow - Trend Study No. 17-10

***SUSPENDED - This site was suspended in 2002. The narrative and data tables are included from the 1996 report.

This study is located on Division property in the upper part of Big Hollow, an area used for transitional range by deer during spring and fall and to some extent for fawn rearing in summer. Winter use is restricted to open, mild winters. The area is grazed by cattle and there is a stock pond about 150 yards down the slope. Elevation at the site is 6,600 feet, slope is 20% to 25%, and exposure is west to northwest. The range type is Gambel oakbrush, which was burned and seeded in 1976. The area is currently characterized by a vigorous seeded grass understory, a patchy overstory of resprouted oak and other fire tolerant shrubs, and a moderate number of mountain big sagebrush.

Textural analysis indicates a clay soil with a pH of 6.1. Soil temperature is 41°F measured at 15 inches. The soil is moderately deep with rocks on the soil surface and throughout the profile. Gravel on the soil surface helps protect the soil from erosion. Erosion does not appear to be occurring presently, but many shrubs are pedestalled on the uphill slope indicating soil movement in the past. The accelerated erosion which occurred immediately after the fire has been largely arrested. Vegetative cover is estimated to be 45%, nearly half of which is contributed by grasses. Rock and pavement cover combine to provide 8% cover. Litter cover is estimated at 48%, contributed by perennial grasses and leaves from the surrounding oakbrush. Bare ground cover is estimated at 8% with little soil movement visible.

Mountain big sagebrush has an estimated density of 1,600 plants/acre. These plants exhibit light to moderate utilization and good vigor in 1996. Decadency has declined since 1989 to only 6%. Since 1989, age structure has remained nearly the same with 1/3 of the population classified as young and 2/3 classified as mature. The size of the oakbrush on the burn in Upper Big Hollow has stabilized. Seeded grasses are abundant and seem to be competing well with the oak. The clones on the site are mostly 3-5 feet in height while the clones above and below the site are 8-12 feet in height. Utilization has declined since 1989 when many of the plants were classified as moderately hedged. Snowberry has an estimated density of 440 plants/acre with light hedging. Saskatoon serviceberry show moderate to heavy utilization with an estimated density of 260 plants/acre.

The vigorous and productive seeded grasses continue to thrive in the herbaceous understory. Sheep fescue offers the most grass cover and has significantly increased in nested frequency since 1983. Kentucky bluegrass has significantly increased since 1989. Other abundant grasses include intermediate wheatgrass, smooth brome, and orchard grass. Sum of nested frequency for forbs has decreased since 1983 with a high in 1989. Alfalfa continues to be important in the community and has not significantly changed over any of the years. Wild onion, which was numerous in the past, was only sampled once in 1996. Longleaf phlox also decreased significantly since 1989.

1983 APPARENT TREND ASSESSMENT

Soil trend is improving with the buildup of litter and organic matter. Vegetative cover is good and probably increasing. Vegetative composition is becoming more oak dominated with a concurrent small decrease in grass productivity. Other shrub species are currently stable but may decline in the future. Forb density is lower than optimum and is affected by competition with grasses and shrubs.

1989 TREND ASSESSMENT

The amount of bare soil declined from 30 to 20% due to increases in vegetative cover and pavement. The soil trend is improving. Trend for browse is up. Mountain big sagebrush increased in density, and young plants are abundant. Serviceberry also slightly increased in density. Oakbrush expansion may eventually have a negative impact on the understory, but it currently receives enough utilization and competition to slow any increase. The herbaceous understory has an upward trend with sum of nested frequency of grasses and forbs showing large increases. Composition and diversity are good.

TREND ASSESSMENT

soil - slightly up (4)

browse - up (5)

herbaceous understory - up (5)

1996 TREND ASSESSMENT

Soil on the site appears to be stable with adequate vegetative and litter cover to protect against erosion. Mountain big sagebrush has a healthy age structure with young plants coming into the community. The oakbrush around the site have stayed nearly the same size since 1989 and do not appear to be encroaching into the sagebrush-grass opening. The browse trend is stable. Sum of nested frequency for grasses has stayed nearly the same since 1989. The perennial grasses provide good soil protection and forage for wildlife. Sum of nested frequency for forbs has greatly declined since 1989 with many of the perennial species showing significant decreases. Alfalfa continues to do well while many of the native species appear to be decreasing in abundance. Herbaceous trend is slightly downward.

TREND ASSESSMENT

soil - stable (3)

browse - stable (3)

herbaceous understory - slightly downward (2)

HERBACEOUS TRENDS --

Herd unit 17 , Study no: 10

T y p e	Species	Nested Frequency			Quadrat Frequency			Average Cover %
		'83	'89	'96	'83	'89	'96	
G	Agropyron cristatum	5	3	-	3	1	-	-
G	Agropyron intermedium	_a 83	_b 159	_b 111	32	56	41	3.04
G	Agropyron spicatum	6	2	7	3	1	3	.12
G	Bromus inermis	_a 132	_b 191	_{ab} 167	54	66	57	3.40
G	Dactylis glomerata	89	111	87	42	45	37	3.05
G	Festuca ovina	_a 45	_{ab} 66	_b 95	19	30	39	6.89
G	Poa fendleriana	17	30	19	9	13	7	.45
G	Poa pratensis	_a 42	_a 32	_b 104	16	14	33	3.74
G	Poa secunda	_a -	_c 40	_b 18	-	18	8	.06
G	Stipa lettermani	-	-	10	-	-	4	.07
Total for Annual Grasses		0	0	0	0	0	0	0
Total for Perennial Grasses		419	634	618	178	244	229	20.85
Total for Grasses		419	634	618	178	244	229	20.85

Type	Species	Nested Frequency			Quadrat Frequency			Average Cover %
		'83	'89	'96	'83	'89	'96	'96
F	<i>Achillea millefolium</i>	34	21	13	13	10	5	.24
F	<i>Agoseris glauca</i>	_a 8	_b 65	_a 2	4	29	2	.01
F	<i>Alyssum alyssoides</i> (a)	-	-	8	-	-	3	.01
F	<i>Allium</i> spp.	_b 53	_c 199	_a 1	26	76	1	.00
F	<i>Arabis</i> spp.	_a 16	_b 64	_a 19	11	29	10	.08
F	<i>Astragalus</i> spp.	4	4	-	2	2	-	-
F	<i>Calochortus nuttallii</i>	_b 10	_{ab} 8	_a -	5	3	-	-
F	<i>Cirsium</i> spp.	-	3	-	-	1	-	-
F	<i>Collinsia parviflora</i> (a)	-	-	4	-	-	2	.01
F	<i>Crepis acuminata</i>	_a -	_b 16	_a -	-	8	-	-
F	<i>Epilobium brachycarpum</i> (a)	-	-	51	-	-	23	.16
F	<i>Eriogonum racemosum</i>	1	-	-	1	-	-	-
F	<i>Helianthus annuus</i> (a)	-	2	-	-	1	-	-
F	<i>Lathyrus brachycalyx</i>	3	12	8	1	6	5	.30
F	<i>Lathyrus pauciflorus</i>	1	-	-	1	-	-	-
F	<i>Lactuca pulchella</i>	_b 6	_a -	_a -	5	-	-	-
F	<i>Lomatium triternatum</i>	-	5	-	-	2	-	.00
F	<i>Machaeranthera canescens</i>	-	2	-	-	1	-	-
F	<i>Medicago sativa</i>	78	99	83	34	45	40	2.10
F	<i>Microsteris gracilis</i> (a)	-	-	9	-	-	3	.01
F	<i>Orthocarpus</i> spp. (a)	3	-	7	1	-	4	.12
F	<i>Phlox longifolia</i>	_a 25	_b 99	_a 10	14	44	5	.05
F	<i>Polygonum douglasii</i> (a)	-	-	36	-	-	19	.11
F	<i>Taraxacum officinale</i>	2	-	3	1	-	1	.00
F	<i>Tragopogon dubius</i>	6	2	1	3	1	1	.03
F	<i>Viguiera multiflora</i>	_c 86	_b 40	_a 11	38	22	5	.07
F	<i>Zigadenus paniculatus</i>	1	4	1	1	2	1	.00
Total for Annual Forbs		3	2	115	1	1	54	0.44
Total for Perennial Forbs		334	643	152	160	281	76	2.93
Total for Forbs		337	645	267	161	282	130	3.38

Values with different subscript letters are significantly different at alpha = 0.10 (annuals excluded)

BROWSE TRENDS --

Herd unit 17 , Study no: 10

Type	Species	Strip Frequency	Average Cover %
		'96	'96
B	Amelanchier alnifolia	11	.70
B	Artemisia tridentata vaseyana	41	4.15
B	Chrysothamnus nauseosus consimilis	1	-
B	Chrysothamnus viscidiflorus viscidiflorus	2	-
B	Gutierrezia sarothrae	14	-
B	Quercus gambelii	32	11.56
B	Symphoricarpos oreophilus	17	.80
Total for Browse		118	17.21

CANOPY COVER -- LINE INTERCEPT

Herd unit 17 , Study no: 10

Species	Percent Cover
	'96
Quercus gambelii	24.4

BASIC COVER --

Herd unit 17 , Study no: 10

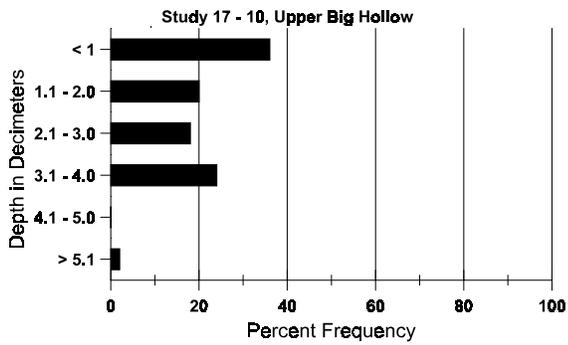
Cover Type	Nested Frequency	Average Cover %		
		'96	'83	'89
Vegetation	368	4.50	14.50	44.76
Rock	226	8.25	6.25	6.83
Pavement	152	7.75	16.75	1.21
Litter	393	49.00	42.25	48.45
Cryptogams	55	.25	.50	.53
Bare Ground	192	30.25	19.75	7.69

SOIL ANALYSIS DATA --

Herd Unit 17, Study no: 10, Upper Big Hollow

Effective rooting depth (in)	Temp °F (depth)	pH	%sand	%silt	%clay	%0M	PPM P	PPM K	dS/m
14.7	41.4 (15.4)	6.1	34.2	21.4	44.4	3.3	7.9	217.6	.4

Stoniness Index



PELLET GROUP FREQUENCY --

Herd unit 17 , Study no: 10

Type	Quadrat Frequency '96
Rabbit	1
Elk	3
Deer	3
Cattle	2

BROWSE CHARACTERISTICS --

Herd unit 17 , Study no: 10

A Y G R E	Form Class (No. of Plants)	Vigor Class				Plants Per Acre	Average (inches) Ht. Cr.		Total				
		1	2	3	4		1	2					
Amelanchier alnifolia													
Y	83	-	-	-	-	-	-	-	-	0		0	
	89	-	-	-	-	-	-	-	-	0		0	
	96	-	-	2	-	-	-	-	-	2		2	
M	83	2	2	-	-	-	-	-	-	4	-	-	4
	89	4	2	-	-	-	-	-	-	6	-	-	6
	96	2	4	5	-	-	-	-	-	11	-	-	11
% Plants Showing		<u>Moderate Use</u>		<u>Heavy Use</u>		<u>Poor Vigor</u>		<u>%Change</u>					
'83		50%		00%		00%		+34%					
'89		33%		00%		00%		+23%					
'96		31%		54%		00%							
Total Plants/Acre (excluding Dead & Seedlings)						'83	133	Dec:	-				
						'89	200		-				
						'96	260		-				

A Y R E	Form Class (No. of Plants)									Vigor Class				Plants Per Acre	Average (inches) Ht. Cr.		Total
	1	2	3	4	5	6	7	8	9	1	2	3	4				
<i>Artemisia tridentata vaseyana</i>																	
S	83	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	89	1	-	-	-	-	-	-	-	-	-	-	-	33			1
	96	3	-	-	1	-	-	-	-	-	-	-	-	80			4
Y	83	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	89	12	6	-	-	-	-	-	-	-	-	-	-	600			18
	96	23	2	-	1	-	-	-	-	-	-	-	-	520			26
M	83	15	2	-	-	-	-	-	-	-	-	-	-	566	15	16	17
	89	10	17	-	-	-	-	-	-	-	-	-	-	900	20	28	27
	96	31	13	4	1	-	-	-	-	-	-	-	-	980	21	36	49
D	83	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	89	3	4	-	-	-	-	-	-	-	-	-	-	233			7
	96	-	1	-	-	-	-	-	-	-	-	-	1	100			5
X	83	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	89	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	96	-	-	-	-	-	-	-	-	-	-	-	-	20			1
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>						
'83		12%			00%			00%			+67%						
'89		52%			00%			00%			-8%						
'96		20%			05%			03%									
Total Plants/Acre (excluding Dead & Seedlings)												'83	566	Dec:	0%		
												'89	1733		13%		
												'96	1600		6%		
<i>Chrysothamnus nauseosus consimilis</i>																	
M	83	1	-	-	-	-	-	-	-	-	-	-	-	33	20	14	1
	89	1	-	-	-	-	-	-	-	-	-	-	-	33	20	21	1
	96	-	-	-	1	-	-	-	-	-	-	-	-	20	37	28	1
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>						
'83		00%			00%			00%			+0%						
'89		00%			00%			00%			-39%						
'96		00%			00%			00%									
Total Plants/Acre (excluding Dead & Seedlings)												'83	33	Dec:	-		
												'89	33		-		
												'96	20		-		
<i>Chrysothamnus viscidiflorus viscidiflorus</i>																	
M	83	8	-	-	-	-	-	-	-	-	-	-	-	266	11	14	8
	89	10	-	-	-	-	-	-	-	-	-	-	-	333	13	17	10
	96	-	-	-	2	-	-	-	-	-	-	-	-	40	16	20	2
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>						
'83		00%			00%			00%			+20%						
'89		00%			00%			00%			-88%						
'96		00%			00%			00%									
Total Plants/Acre (excluding Dead & Seedlings)												'83	266	Dec:	-		
												'89	333		-		
												'96	40		-		

A Y G R E	Form Class (No. of Plants)	Vigor Class				Plants Per Acre	Average (inches) Ht. Cr.	Total								
		1	2	3	4											
<i>Gutierrezia sarothrae</i>																
Y	83	-	-	-	-	-	-	-	-	-	-	-	0		0	
	89	-	-	-	-	-	-	-	-	-	-	-	0		0	
	96	29	7	-	6	-	-	-	-	-	42	-	-	840		42
M	83	-	-	-	-	-	-	-	-	-	-	-	0	-	0	
	89	-	-	-	-	-	-	-	-	-	-	-	0	-	0	
	96	10	-	-	15	-	-	-	-	-	25	-	-	500	-	25
D	83	-	-	-	-	-	-	-	-	-	-	-	0		0	
	89	-	-	-	-	-	-	-	-	-	-	-	0		0	
	96	3	2	-	1	-	-	-	-	-	6	-	-	120		6
X	83	-	-	-	-	-	-	-	-	-	-	-	0		0	
	89	-	-	-	-	-	-	-	-	-	-	-	0		0	
	96	-	-	-	-	-	-	-	-	-	-	-	60		3	
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>					
'83		00%			00%			00%								
'89		00%			00%			00%								
'96		12%			00%			00%								
Total Plants/Acre (excluding Dead & Seedlings)										'83	0	Dec:	0%			
										'89	0		0%			
										'96	1460		8%			
<i>Quercus gambelii</i>																
S	83	-	-	-	-	-	-	-	-	-	-	-	0		0	
	89	3	-	-	8	-	-	-	-	-	11	-	-	366		11
	96	5	-	-	2	-	-	-	-	-	7	-	-	140		7
Y	83	10	-	-	-	-	-	-	-	10	-	-	333		10	
	89	31	25	-	9	-	-	6	-	33	38	-	2366		71	
	96	41	-	-	-	-	-	-	-	38	3	-	820		41	
M	83	42	8	-	-	-	-	-	-	45	5	-	1666	36	29	50
	89	6	23	-	-	-	-	-	-	29	-	-	966	46	28	29
	96	91	3	-	5	-	-	8	-	96	11	-	2140	42	51	107
D	83	-	-	-	-	-	-	-	-	-	-	-	0		0	
	89	5	23	-	-	-	-	-	-	-	28	-	933		28	
	96	2	-	-	1	-	-	-	-	3	-	-	60		3	
X	83	-	-	-	-	-	-	-	-	-	-	-	0		0	
	89	-	-	-	-	-	-	-	-	-	-	-	0		0	
	96	-	-	-	-	-	-	-	-	-	-	-	80		4	
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>					
'83		13%			00%			00%			+53%					
'89		55%			00%			00%			-29%					
'96		02%			00%			00%								
Total Plants/Acre (excluding Dead & Seedlings)										'83	1999	Dec:	0%			
										'89	4265		22%			
										'96	3020		2%			

A G E	Y R	Form Class (No. of Plants)									Vigor Class				Plants Per Acre	Average (inches) Ht. Cr.		Total
		1	2	3	4	5	6	7	8	9	1	2	3	4				
Symphoricarpos oreophilus																		
Y	83	2	-	-	-	-	-	-	-	-	1	-	1	-	66		2	
	89	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	96	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
M	83	12	4	-	-	-	-	-	-	-	11	5	-	-	533	19	23	16
	89	32	-	-	1	-	-	-	-	-	33	-	-	-	1100	22	26	33
	96	18	-	-	4	-	-	-	-	-	22	-	-	-	440	21	37	22
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'83		22%			00%			06%			+46%							
'89		00%			00%			00%			-60%							
'96		00%			00%			00%										
Total Plants/Acre (excluding Dead & Seedlings)												'83	599	Dec:	-			
												'89	1100		-			
												'96	440		-			