

Trend Study 00-6-06

Study site name: Timely Gull Ridge .

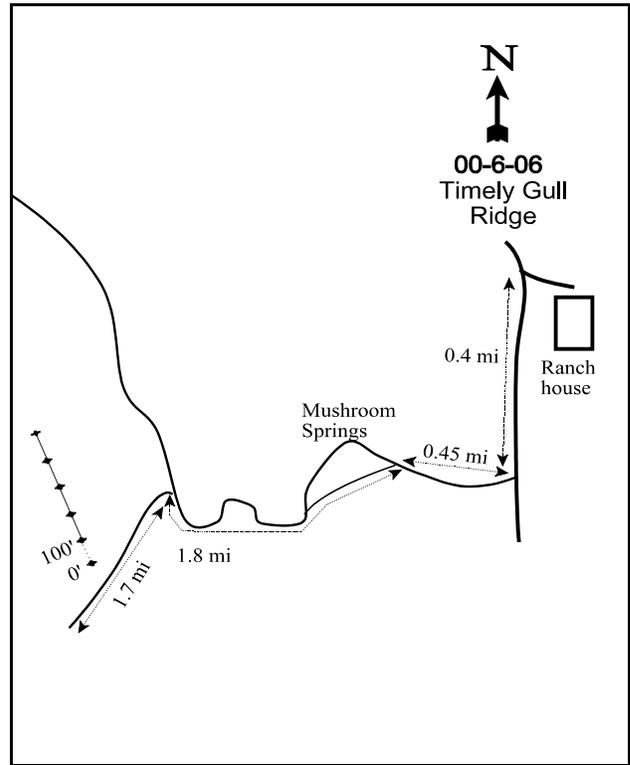
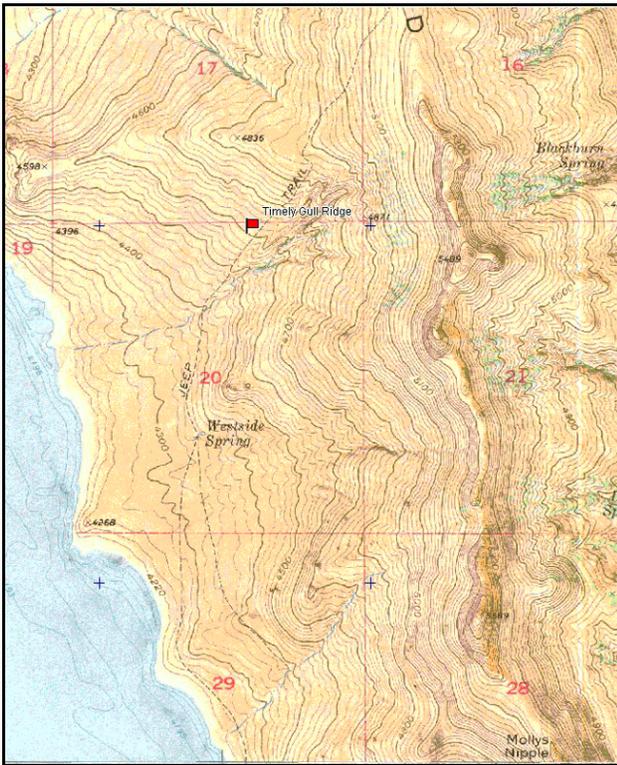
Vegetation type: Annual Grass .

Compass bearing: frequency baseline 260 degrees magnetic.

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

LOCATION DESCRIPTION

From the Ranch House drive 0.4 miles and take a right turn. Travel 0.45 miles where the road forks. Stay left and travel 1.8 miles to another fork in the road. Stay left, from the fork travel 1.7 miles to a witness post which is 30 feet off the right hand side of the road. From the witness post walk 5 paces at a bearing of 260 degrees magnetic to the 0-foot baseline stake. The baseline runs in a direction of 260 degrees magnetic.



Map Name: Timely Gull Ridge

Diagrammatic Sketch

Township 2N, Range 3W, Section 20

UTM NAD 27, UTM 12T 4528112 N 398365 E

DISCUSSION

Timely Gull Ridge - Trend Study No. 00-6

Study Information

This study is located on the west side of Antelope Island about ½ mile above the shoreline and 2/3 mile north of Westside Spring (elevation: 4,600 feet, slope:13%, aspect: southwest). To the east is a large gully with scattered pinyon and juniper on the opposite slope. A group of bison were observed near the study in 2001. A pellet group transect read in 2001 noted light use by both deer and bighorn sheep. Bison use was 19 days use/acre (47 days use/ha). The estimates from the pellet group transect in 2006 were 3 pronghorn and 6 bison days use/acre (7 pdu/ha and 14 bdu/ha). Many bison pats from the previous year were not counted. Pronghorn and bison use was from spring. Two deer were spotted east of the study in 2006.

Soil

The soils are in the Kilburn series, which consists of very deep, somewhat excessively drained, moderately rapidly permeable soils. They are formed in alluvium and colluvium derived dominantly from gneiss, schist, and quartzite on fan terraces, lake terraces, stream terraces, and deltas (USDA-NRCS 2006). These are derived specifically from alluvial deposits from Lake Bonneville. The soil texture is a sandy loam with a neutral pH (6.6). Effective rooting depth was estimated at just over 18 inches. Phosphorus soil concentration was 6 ppm; values less than 6 ppm may limit normal plant growth and development (Tiedemann and Lopez 2004). Organic matter is low at less than 1%. Vegetation cover and litter have been abundant and effective at limiting erosion. Due to the extremely dry conditions prior to sampling in 2001, litter cover had decreased and bare ground slightly increased. The soil erosion condition class was stable in 2006.

Browse

No browse species were sampled in any year due to short, intense, recurring fire intervals.

Herbaceous Understory

Cheatgrass has been the dominant species every year. Cheatgrass made up more than 90% of the total grass cover in 1995 and 1996, decreased to 69% in 2001, then increased to 82% in 2006. Cheatgrass provided about 63% cover in 1995 and 1996 (90% or great each year of the total grass cover). The extremely dry conditions of 2000-2001 in northern Utah caused cheatgrass cover to decrease to 14% in 2001 (69% of total grass cover), but then increased to 49% in 2006 after normal precipitation (82% of total grass cover). Cheatgrass nested frequency also decreased significantly in 2001, but was still high and increased significantly again in 2006. Sixweeks and rattail fescue both decreased in nested frequency in 2001, but increased in 2006. Sand dropseed and purple three-awn are the only perennial grasses that have been sampled since 1996. Other than a large increase in purple three-awn in 2001, these two species have provided less than 2% cover.

Forb cover was scant in 1995 and 1996. In 2001 however, storksbill increased to more than 26% cover. Perennial forbs are rare; moth mullein is the dominant perennial forb species. Moth mullein was sampled first in 1996 and has increased significantly every year in nested frequency and substantially in cover. By 2006, mullein had surpassed storksbill in nested frequency and cover, similar to the Buffalo Scaffold (00-5) study.

1996 TREND ASSESSMENT

There is no browse cover. Cheatgrass, rattail fescue, and six weeks fescue are the dominant herbaceous species and provided the bulk of the vegetation cover. Even if fire is suppressed, it will be extremely difficult to change the composition of the community. The nested frequency of perennial grasses decreased slightly. The grass trend is slightly down. The forb trend is stable. The nested frequency of storksbill decreased significantly and that of moth mullein increased significantly. The nested frequency of perennial forbs increased, but almost exclusively because of moth mullein. The 1995 Desirable Components Index score was very poor due to very low perennial grass and forb cover and high annual grass cover and did not change by 1996.

1995 winter range condition (DC Index) - very poor (-18) Lower potential scale
1996 winter range condition (DC Index) - very poor (-14) Lower potential scale
browse - stable (0) grass - slightly down (-1) forb - stable (0)

2001 TREND ASSESSMENT

There is still no browse cover. The nested frequency of cheatgrass decreased significantly and the nested frequency of perennial grasses, mainly purple three-awn, increased. Annual grass cover decreased from 69% in 1996 to 15% in 2001. The grass trend is up. Storksbill and moth mullein both increased significantly in nested frequency and substantially in cover. The forb trend is down. The DCI score increased due to the decrease in annual grass cover and the increase in perennial grass and forb cover.

winter range condition (DC Index) - very poor-poor (10) Lower potential scale
browse - stable (0) grass - up (+2) forb - down (-2)

2006 TREND ASSESSMENT

The soil trend is stable. The relative bare ground cover is low and litter and vegetation cover are high. The soil erosion condition rating was stable. There is still no browse cover. The grass trend is down. The nested frequencies of cheatgrass, rattail fescue, and sixweeks fescue all increased significantly. The cover of each of the annual grass species increased substantially as well. Both of the perennial grasses, purple three-awn and sand dropseed, nested frequencies decreased significantly. Bulbous bluegrass was sampled for the first time. The forb trend is slightly up. The nested frequency of moth mullein increased significantly and cover increased substantially. Storksbill cover decreased substantially and nested frequency decreased significantly. The net change of storksbill and moth mullein is a total decrease in combined nested frequency and cover, which is positive. The DCI score declined due to the decrease in perennial grass cover and increased annual grass cover.

winter range condition (DC Index) - very poor (-6) Lower potential scale
browse - stable (0) grass - down (-2) forb - slightly up (+1)

HERBACEOUS TRENDS --
Management unit 00 , Study no: 6

Type	Species	Nested Frequency				Average Cover %			
		'95	'96	'01	'06	'95	'96	'01	'06
G	Aristida purpurea	_a 25	_a 11	_c 142	_b 66	.32	.12	4.08	1.54
G	Bromus tectorum (a)	_b 499	_b 499	_a 471	_b 492	61.79	63.37	13.82	49.13
G	Festuca myuros (a)	_a 75	_b 163	_b 135	_c 302	.69	3.75	.56	7.87
G	Poa bulbosa	-	-	-	4	-	-	-	.01
G	Poa fendleriana	3	-	-	-	.01	-	-	-
G	Sporobolus cryptandrus	_b 55	_b 47	_b 67	_a 12	.88	1.51	1.22	.23
G	Vulpia octoflora (a)	_d 344	_c 257	_a 66	_b 155	1.99	1.85	.34	1.00
Total for Annual Grasses		918	919	672	949	64.47	68.98	14.72	58.01
Total for Perennial Grasses		83	58	209	82	1.21	1.63	5.31	1.78
Total for Grasses		1001	977	881	1031	65.68	70.62	20.03	59.80
F	Agoseris heterophylla (a)	8	-	-	-	.02	-	-	-
F	Calochortus nuttallii	-	-	3	-	-	-	.01	-
F	Draba nemorosa (a)	_a 12	_a 23	_a 24	_b 108	.01	.03	.04	.21
F	Epilobium brachycarpum (a)	-	-	-	2	-	-	-	.00
F	Erodium cicutarium (a)	_c 430	_b 342	_d 456	_a 209	3.79	2.78	26.70	4.27
F	Helianthus annuus (a)	-	-	-	4	-	-	-	.01
F	Tragopogon dubius	-	1	-	-	-	.00	-	-
F	Verbascum blattaria	_a -	_b 29	_c 94	_d 226	-	1.58	8.14	12.63
Total for Annual Forbs		450	365	480	323	3.82	2.81	26.74	4.50
Total for Perennial Forbs		0	30	97	226	0	1.59	8.15	12.62
Total for Forbs		450	395	577	549	3.82	4.41	34.90	17.13

BASIC COVER --
Management unit 00 , Study no: 6

Cover Type	Average Cover %			
	'95	'96	'01	'06
Vegetation	73.59	68.52	56.05	71.03
Rock	2.95	.18	.03	.01
Pavement	0	1.54	10.95	9.54
Litter	66.70	79.70	32.95	28.75
Cryptogams	.52	.35	0	.03
Bare Ground	.12	.05	1.85	2.20

SOIL ANALYSIS DATA --

Herd Unit 00, Study no: 06, Timely Gull Ridge

Effective rooting depth (in)	Temp °F (depth)	PH	Sandy loam			%0M	PPM P	PPM K	dS/m
			%sand	%silt	%clay				
18.2	65.8 (16.5)	6.6	76.9	10.1	13.0	0.9	6.0	89.6	0.4

PELLET GROUP DATA --

Management unit 00 , Study no: 6

Type	Quadrat Frequency			
	'95	'96	'01	'06
Bighorn Sheep	-	-	2	-
Deer	-	-	5	-
Buffalo	1	1	8	5
Antelope	-	-	-	1

Days use per acre (ha)	
'01	'06
2 (5)	-
5 (13)	-
19 (47)	6 (14)
-	3 (7)