

Trend Study 00-5-06

Study site name: Buffalo Scaffold.

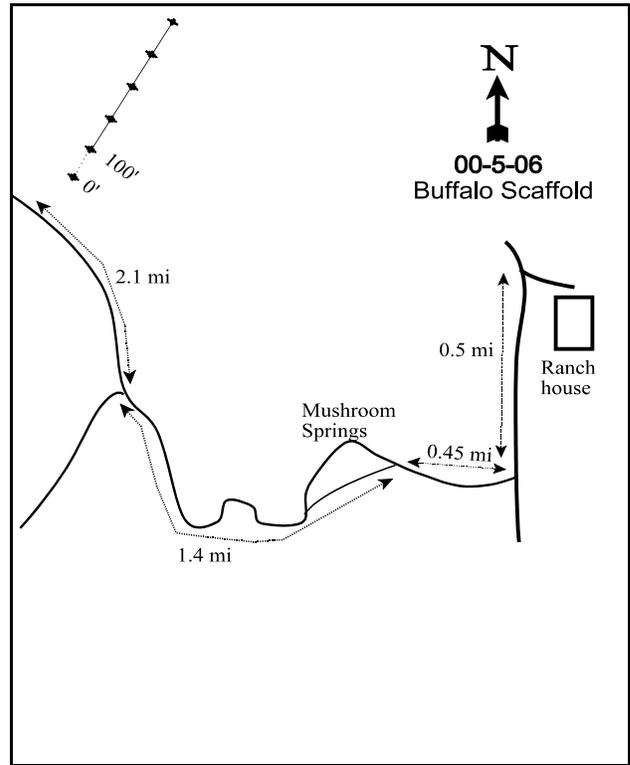
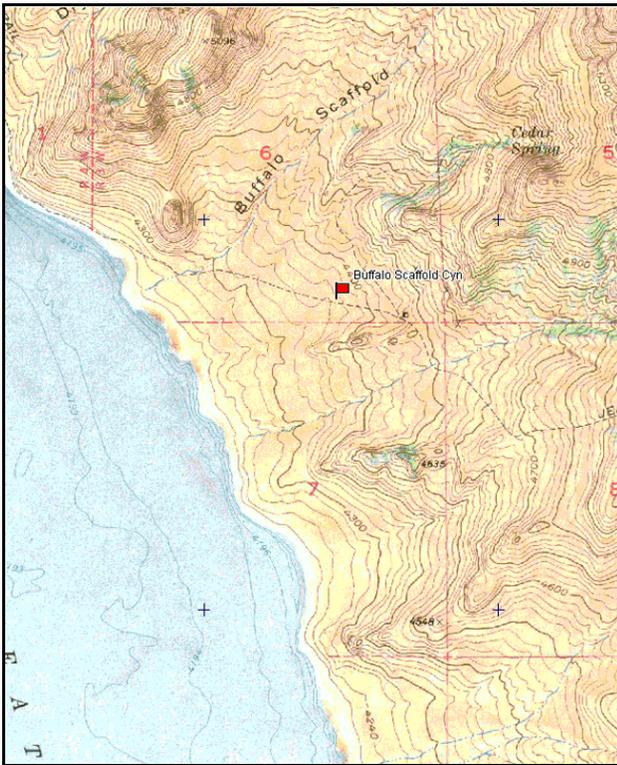
Vegetation type: Annual Grass.

Compass bearing: frequency baseline 110 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 0.5 miles to a fork. Turn right and drive another 0.45 miles to a fork. Turn right, and drive 1.4 miles to a fork by the Sentry Mountain Peak. Stay right, and drive 2.1 miles to witness post on the right side of the road at the bottom of a hill in a meadow. From the witness post walk 34 steps at a bearing of 110 degrees magnetic to the 0-foot baseline stake. The baseline runs in a direction of 340 degrees magnetic.



Map Name: Antelope Island

Diagrammatic Sketch

Township 2N, Range 3W, Section 6

UTM NAD 27, UTM 12T 4531522 N 396874 E

DISCUSSION

Buffalo Scaffold - Trend Study No. 00-5

Study Information

This study is located on the west side of Antelope Island about ½ mile south of Buffalo Scaffold Canyon (elevation: 4,360 feet, slope: 5-8%, aspect: southwest). The shoreline of the Great Salt Lake is about ¾ mile to the west. Fire burned the area sometime prior to establishment in 1995 and it is now dominated by annual herbaceous species. Bison pats and bighorn sheep pellets were sampled by a pellet group transect read in 2001. Use by bighorn sheep was light, while that of bison was estimated at 12 days use/acre (30 days use/ha). The pellet group transect data in 2006 was estimated at 1 pronghorn and 21 bison days use/acre (2 pdu/ha and 52 bdu/ha). Some of the bison pats were from the current summer, but the majority were from spring and winter.

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 (6.8). Effective rooting depth is estimated at under 13 inches. There is a slight color change in the soil profile about 8 inches below the soil surface. Organic matter is very low at less than 1%. Very little rock was encountered within the soil profile. Vegetation and litter cover have been high in all sampling years most of which was provided by annual species. The cover value for bare ground has been low at less than 1%. The erosion condition class score was stable in 2006.

Browse

No browse species have been sampled. Frequent fire intervals have effectively removed the browse component from the surrounding area.

Herbaceous Understory

Annual grasses dominate the area; they provided 78% cover in 1995, 61% in 1996, 28% in 2001, and 42% in 2006. In 1995 and 1996, nearly 90% of the grass cover was contributed by cheatgrass and rattail fescue. Due to the extremely dry conditions in Northern Utah in 2000-2001, these species decreased in cover and nested frequency in 2001. In 2006, cheatgrass cover increased, but nested frequency did not change. Rattail fescue nested frequency decreased significantly and cover did not change. Perennial grasses nearly doubled in nested frequency in 2001. This increase is due mainly to the increase in purple three-awn and bulbous bluegrass, both low value species. Purple three-awn nested frequency decreased significantly in 2006. Sand dropseed is the only high value perennial grass, but is in low abundance.

Storksbill was the dominant forb previous to 2006, but moth mullein provided more cover and nested frequency in 2006. It was noted in 1996 that there were many old stalks from annual sunflower, but no plants were sampled until 2006. Other species sampled are prickly lettuce, yellow salsify, and sego lily. None of these species provide significant cover.

1996 TREND ASSESSMENT

Browse species were not sampled during either reading. Rattail fescue and cheatgrass dominate and compete with perennial species. Cheatgrass and rattail fescue nested frequencies did not change. Purple three-awn nested frequency increased which is good to get an increase in a perennial species, even if they provide little forage value. Mutton bluegrass, one of the two desirable grasses, decreased significantly and was not sampled in 1996. The grass trend is slightly up, although the composition is poor. The forb trend is stable. Storksbill nested frequency decreased significantly, but the nested frequency of moth mullein increased significantly. Storksbill was replaced by the mullein. The 1995 Desirable Components Index score was very

poor due to the lack of browse cover, high annual grass cover, and only moderate perennial grass cover. It did not change by 1996.

1995 winter range condition (DC Index) - very poor (-6) Lower potential scale
1996 winter range condition (DC Index) - very poor (-3) Lower potential scale
browse - stable (0) grass - slightly up (+1) forb - stable (0)

2001 TREND ASSESSMENT

There is no browse. The grass trend is up. Both cheatgrass and rattail fescue significantly decreased in nested frequency. The cover of annual grasses decreased from 61 to 28% (91% of the grass cover to 53%). The nested frequency of perennial grasses increased, but the increase in perennial grass frequency comes primarily from two low value species (purple three-awn and bulbous bluegrass); both species increased significantly. The forb trend is down. The nested frequency of storksbill increased significantly and that of moth mullein decreased significantly, but the combined cover of both species increased from 5 to 18%. The nested frequency of sego lily increased significantly, but it provides little cover and forage. The DCI score increased slightly because of the decrease in annual grass 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 browse trend remained stable with no browse. The grass trend is down. The most beneficial perennial grass species, sand dropseed, decreased significantly in nested frequency and provides less than 1% cover. Cheatgrass nested frequency did not change, but cheatgrass cover increased due to the increased precipitation. Purple three-awn nested frequency also decreased significantly. The forb trend is slightly up. The nested frequency of prickly lettuce increased significantly. The nested frequency of storksbill decreased significantly and cover decreased from 12 to 1%. Unfortunately, moth mullein nested frequency increased significantly and cover also increased. The DCI score decreased to very poor due to increased annual grass cover and decreased perennial 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: 5

T y p e	Species	Nested Frequency				Average Cover %			
		'95	'96	'01	'06	'95	'96	'01	'06
G	Aristida purpurea	_a 74	_b 147	_c 216	_b 163	3.39	4.82	17.06	12.67
G	Bromus tectorum (a)	_b 483	_b 484	_a 448	_a 455	41.41	27.39	22.23	35.62
G	Festuca myuros (a)	_c 458	_c 465	_b 315	_a 256	29.28	32.27	6.05	5.57
G	Poa bulbosa	_a 35	_a 6	_b 120	_b 124	.17	.01	5.44	.83
G	Poa fendleriana	_b 20	_a -	_a -	_a -	1.59	-	-	-
G	Sporobolus cryptandrus	_b 67	_b 64	_b 84	_a 21	1.31	.96	2.21	.12
G	Vulpia octoflora (a)	_b 156	_a 37	_a 26	_a 19	7.74	.98	.08	.58
Total for Annual Grasses		1097	986	789	730	78.44	60.66	28.36	41.77
Total for Perennial Grasses		196	217	420	308	6.47	5.78	24.71	13.62
Total for Grasses		1293	1203	1209	1038	84.92	66.45	53.08	55.40
F	Agoseris heterophylla (a)	_b 9	_a -	_a -	_a -	.02	-	-	-
F	Calochortus nuttallii	_b 37	_a 9	_c 62	_a 11	.10	.01	.19	.04
F	Draba nemorosa (a)	-	-	6	5	-	-	.01	.01
F	Erodium cicutarium (a)	_d 407	_b 265	_c 342	_a 154	8.93	2.24	11.95	.72
F	Fritillaria sp.	3	-	-	-	.00	-	-	-
F	Helianthus annuus (a)	_a -	_a -	_a -	_b 36	-	-	-	.07
F	Lactuca serriola	_a 1	_a 5	_a 1	_b 49	.00	.01	.00	.08
F	Sisymbrium altissimum (a)	-	-	-	2	-	-	-	.15
F	Tragopogon dubius	-	11	1	2	-	.02	.03	.00
F	Veronica biloba (a)	-	-	2	-	-	-	.06	-
F	Verbascum blattaria	_a 20	_c 190	_b 149	_d 237	.40	2.74	5.78	8.94
Total for Annual Forbs		416	265	350	197	8.96	2.24	12.02	0.95
Total for Perennial Forbs		61	215	213	299	0.52	2.78	6.01	9.07
Total for Forbs		477	480	563	496	9.48	5.03	18.04	10.03

BASIC COVER --
Management unit 00 , Study no: 5

Cover Type	Average Cover %			
	'95	'96	'01	'06
Vegetation	79.72	62.80	75.09	66.75
Rock	.45	.00	.03	.03
Pavement	.00	.69	.25	.04
Litter	78.74	79.65	38.20	40.95
Bare Ground	.18	.10	.47	.63

SOIL ANALYSIS DATA --

Herd Unit 00, Study no: 05, Buffalo Scaffold

Effective rooting depth (in)	Temp °F (depth)	PH	Sandy loam			%0M	PPM P	PPM K	dS/m
			%sand	%silt	%clay				
12.7	64.4 (12.4)	6.8	56.7	24.0	19.3	0.9	10.8	208.0	0.7

PELLET GROUP DATA --

Management unit 00 , Study no: 5

Type	Quadrat Frequency			
	'95	'96	'01	'06
Deer	-	2	1	-
Buffalo	2	1	3	6

Days use per acre (ha)	
'01	'06
1 (2)	1 (3)
12 (30)	21 (52)