

Trend Study 30-62-08

Study site name: North Hills.

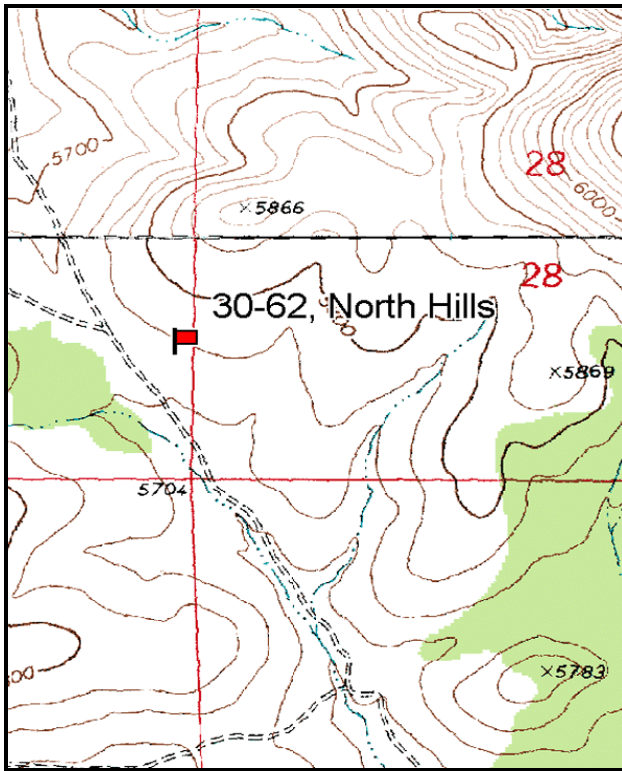
Vegetation type: Cliffrose-sagebrush.

Compass bearing: frequency baseline 0 degrees magnetic.

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

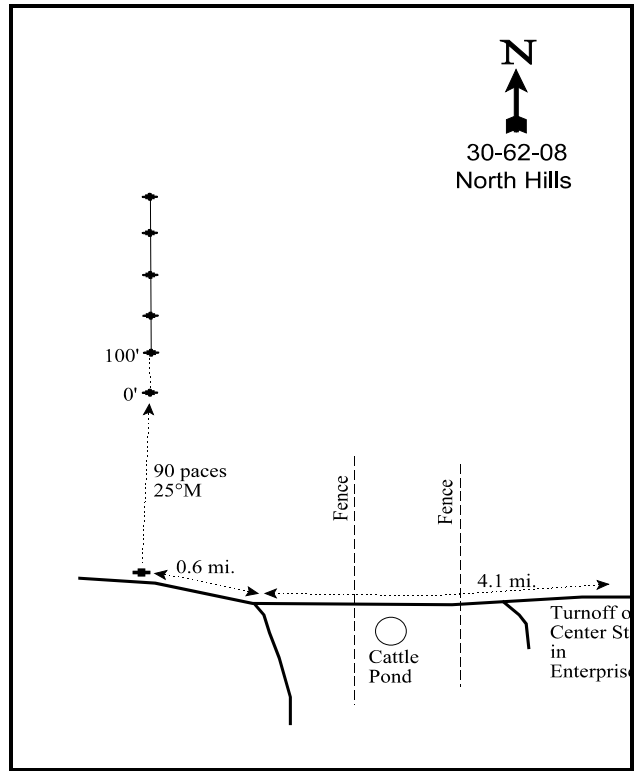
LOCATION DESCRIPTION

Starting from the town of Enterprise, turn north on 2nd West and pass over a bridge. From the bridge, drive 0.6 miles to just past 375 West and turn right on Old Modena Rd right before a fire hydrant On Old Modena Rd., travel 4.1 miles passing study 30-52 and a couple of fences to a fork on the left. Continue straight on the road for another 0.6 miles to the witness post on the right side of the road. The 0-foot stake is 90 paces at 25 degrees magnetic. The 0-foot stake is marked by browse tag # 434. The study is marked by green steel "T" fence posts approximately 12 to 14 inches in height.



Map Name: Hebron

Township 36S, Range 17W, Section 28



Diagrammatic Sketch

GPS: NAD 83, UTM 12S 255292 E, 4167606 N

DISCUSSION

North Hills - Trend Study No. 30-62

Study Information

This study was established in 2003, and is located about five miles northwest of the town of Enterprise [elevation: 5,800 feet (1,768 m), slope: 11%, aspect: southwest]. The study samples a mountain big sagebrush (*Artemisia tridentata* ssp. *vaseyana*) and Stansbury cliffrose (*Cowania mexicana* ssp. *stansburiana*) winter range. Pellet group transect data estimated deer use to be light in 2003 (25 deer days use/acre:63 ddu/ha), and moderate in 2008 (41 ddu/acre:101 ddu/ha). There was a lot of horse use noted, but only one horse pellet group was sampled in 2008.

Soil

Soil is moderately shallow with effective rooting depth averaging just over 13 inches. Deeper soil depth measurements were limited by rock and a calcium carbonate layer which started at about 9 inches in depth. This layer does not appear to be a barrier to roots however. Soil texture is a clay loam and reactivity is neutral (pH of 7.1). There is little unprotected bare ground exposed with a relative bare ground cover of 6%-11% in 2003 and 2008. The soil erosion condition class was rated as stable in 2003 and 2008.

Browse

The site supports a moderate stand of mountain big sagebrush with a few scattered Stansbury cliffrose. Sagebrush density has increased slightly from 2003 to 4,580 plants/acre in 2008. Sagebrush plants have had normal vigor, but the number of decadent plants was high at 46% in both 2003 and 2008. Recruitment of young sagebrush plants has been poor with no young plants sampled in 2008. Use of sagebrush was light to moderate in 2003 and 2008.

Cliffrose density is low but increased slightly from 2003 to 140 plants/acre in 2008. These are large tree-like plants averaging nearly 6 feet in height. Use was heavy on available plants in both sample years. Vigor was normal in 2003, but the proportion of plants displaying poor vigor increased in 2008. The number of decadent plants was also low in 2003, but increased markedly in 2008.

The site had also supported a very small number of heavily hedged antelope bitterbrush (*Purshia tridentata*) in 2003, but no bitterbrush plants were sampled in 2008. Broom snakeweed (*Gutierrezia sarothrae*) increased in density from 2003 to 2008, but decreased in line-intercept cover.

Herbaceous Understory

The herbaceous understory is poor. There were six species of perennial and two species of annual grasses sampled on the site. The annual, cheatgrass (*Bromus tectorum*), provided from 65%-67% of the total grass cover during the two sample years. The most common perennial grasses include galleta (*Hilaria jamesii*) and bottlebrush squirreltail (*Sitanion hystrix*). Several forbs were found on the site but most are rare in their occurrence. Total forb cover totaled less than 1% in both sample years.

2003 DESIRABLE COMPONENTS INDEX

winter range condition (DCI) - very poor (21) Mid-level potential scale

2008 TREND ASSESSMENT

The trend for browse is slightly up, but the community could be considered at risk due to the high decadence of the primary browse species, mountain big sagebrush and Stansbury cliffrose, and because of the dominance of cheatgrass in the understory. Density of sagebrush increased by 26% from 3,380 plants/acre in 2003 to 4,580 plants/acre in 2008. Sagebrush vigor has remained normal, but decadence has been high at 46% in both sample years. Recruitment of sagebrush has declined with no young plants being sampled in 2008. Cliffrose density increased 43% from 80 plants/acre in 2003 to 140 plants/acre. The proportion of cliffrose plants displaying poor vigor increased to 29%, and decadence increased to 57%. The density of the increaser species, broom snakeweed, increased 39% from 2,480 plants/acre in 2003 to 4,060 plants/acre, but the line-intercept cover and average size of mature plants decreased slightly. The trend for grasses is slightly down, but, as mentioned above, is dominated by cheatgrass. The sum of nested frequency of perennial grasses increased, but so did the sum of nested frequency of annual grasses. Galleta, mutton bluegrass (*Poa fendleriana*), bottlebrush squirreltail, and cheatgrass all increased significantly in nested frequency from 2003. Cheatgrass cover increased from 19% of the total vegetative cover in 2003 to 31%. Trend for forbs is stable, but forbs are rare. There was an increase in the sum of nested frequency of perennial forbs, but cover of perennial forbs decreased.

winter range condition (DCI) - very poor (28) Mid-level potential scale

browse - slightly up (+1) grass - slightly down (-1) forb - stable (0)

HERBACEOUS TRENDS --

Management unit 30 , Study no: 62

T y p e	Species	Nested Frequency		Average Cover %	
		'03	'08	'03	'08
G	Bromus japonicus (a)	1	-	.00	-
G	Bromus tectorum (a)	_a 174	_b 389	4.39	12.34
G	Hilaria jamesii	_a 81	_b 121	1.36	4.38
G	Oryzopsis hymenoides	11	1	.19	.00
G	Poa fendleriana	_a 5	_b 23	.04	.41
G	Poa secunda	14	7	.11	.10
G	Sitanion hystrix	49	47	.29	1.09
G	Vulpia octoflora (a)	_b 86	_a 61	.32	.13
Total for Annual Grasses		261	450	4.72	12.47
Total for Perennial Grasses		160	199	2.01	5.99
Total for Grasses		421	649	6.73	18.46
F	Astragalus sp.	-	3	-	.01
F	Brodiaea pulchella	_a -	_b 26	-	.06
F	Calochortus nuttallii	12	6	.02	.01
F	Compositae	5	12	.21	.03
F	Collinsia parviflora (a)	_a -	_b 43	-	.11

T y p e	Species	Nested Frequency		Average Cover %	
		'03	'08	'03	'08
F	Descurainia pinnata (a)	-	2	-	.00
F	Draba sp. (a)	_a 5	_b 27	.01	.06
F	Gilia sp. (a)	25	14	.13	.03
F	Lupinus argenteus	3	-	.01	-
F	Lupinus sp. (a)	_a -	_b 19	-	.05
F	Mentzelia sp.	_a -	_b 16	-	.03
F	Microsteris gracilis (a)	2	27	.01	.06
F	Microseris lindeyi	-	1	-	.00
F	Navarretia intertexta (a)	32	40	.19	.10
F	Phlox longifolia	2	-	.00	-
F	Sphaeralcea grossulariifolia	4	5	.04	.01
Total for Annual Forbs		64	172	0.35	0.43
Total for Perennial Forbs		26	69	0.29	0.16
Total for Forbs		90	241	0.64	0.60

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

BROWSE TRENDS --

Management unit 30 , Study no: 62

T y p e	Species	Strip Frequency		Average Cover %	
		'03	'08	'03	'08
B	Artemisia tridentata vaseyana	83	73	13.61	17.47
B	Cowania mexicana stansburiana	4	6	.30	1.66
B	Coryphantha vivipara	1	0	.00	-
B	Gutierrezia sarothrae	37	46	1.56	1.27
B	Purshia tridentata	1	0	.63	-
Total for Browse		126	125	16.11	20.42

CANOPY COVER, LINE INTERCEPT --

Management unit 30 , Study no: 62

Species	Percent Cover	
	'03	'08
Artemisia tridentata vaseyana	16.11	17.88
Cowania mexicana stansburiana	.58	.90
Gutierrezia sarothrae	1.56	.73
Purshia tridentata	.33	-

KEY BROWSE ANNUAL LEADER GROWTH --

Management unit 30 , Study no: 62

Species	Average leader growth (in)	
	'03	'08
Artemisia tridentata vaseyana	4.2	0.9
Cowania mexicana stansburiana	1.2	0.6

POINT-QUARTER TREE DATA --

Management unit 30 , Study no: 62

Species	Trees per Acre	
	'03	'08
Juniperus osteosperma	<18	19

Average diameter (in)	
'03	'08
-	6.4

BASIC COVER --

Management unit 30 , Study no: 62

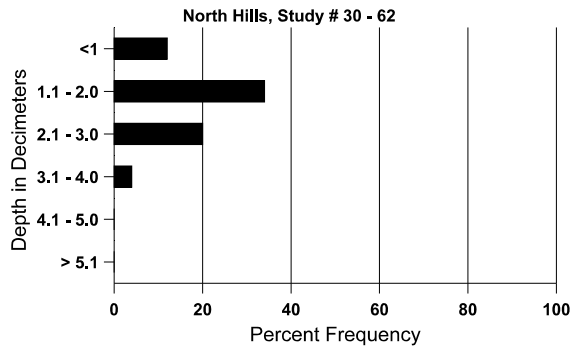
Cover Type	Average Cover %	
	'03	'08
Vegetation	28.15	38.67
Rock	19.44	21.10
Pavement	12.29	11.91
Litter	36.87	39.17
Cryptogams	.07	.43
Bare Ground	11.86	7.59

SOIL ANALYSIS DATA --

Management unit 30, Study no: 62, Study Name: North Hills

Effective rooting depth (in)	Temp °F (depth)	pH	clay loam			%OM	PPM P	PPM K	ds/m
			% sand	% silt	% clay				
13.2	71.4 (14.0)	7.1	34.6	36.7	28.7	1.2	5.1	422.4	0.4

Stoniness Index



PELLET GROUP DATA --

Management unit 30 , Study no: 62

Type	Quadrat Frequency	
	'03	'08
Rabbit	31	70
Horse	-	2
Elk	-	1
Deer	19	36
Cattle	-	2

Days use per acre (ha)	
'03	'08
-	-
-	1 (1)
-	-
25 (63)	41 (101)
-	-

BROWSE CHARACTERISTICS --
Management unit 30 , Study no: 62

		Age class distribution (plants per acre)					Utilization					
Y	Plants per Acre (excluding seedlings)	Seedling	Young	Mature	Decadent	Dead	% moderate	% heavy	% decadent	% dying	% poor vigor	Average Height Crown (in)
<i>Artemisia tridentata vaseyana</i>												
03	3380	20	40	1780	1560	1240	22	8	46	20	20	23/31
08	2740	80	-	1640	1100	980	21	4	40	16	16	24/38
<i>Chrysothamnus parryi</i>												
03	0	-	-	-	-	-	0	0	-	-	0	6/15
08	0	-	-	-	-	-	0	0	-	-	0	-/-
<i>Cowania mexicana stansburiana</i>												
03	80	20	20	60	-	20	25	75	0	-	0	57/50
08	140	20	-	60	80	-	0	71	57	29	29	70/67
<i>Coryphantha vivipara</i>												
03	20	-	-	20	-	-	0	0	-	-	0	-/-
08	0	-	-	-	-	-	0	0	-	-	0	-/-
<i>Ephedra viridis</i>												
03	0	-	-	-	-	-	0	0	-	-	0	-/-
08	0	-	-	-	-	-	0	0	-	-	0	27/45
<i>Gutierrezia sarothrae</i>												
03	2480	40	40	2320	120	580	0	0	5	.80	.80	8/10
08	4060	1980	100	3760	200	420	.49	0	5	2	2	5/6
<i>Purshia tridentata</i>												
03	20	-	-	-	20	-	0	100	100	100	100	10/21
08	0	-	-	-	-	-	0	0	0	-	0	-/-
<i>Yucca sp.</i>												
03	0	-	-	-	-	-	0	0	-	-	0	28/35
08	0	-	-	-	-	-	0	0	-	-	0	28/30