

STEVENS MESA - TREND STUDY NO. 15-15

Site Information

Site Description: The study was established in 2004 and is located on a lower elevation gently sloping mesa to the north and west of Mt. Ellen. The site was located on this mesa to monitor use by bison on this winter allotment. This is a very arid site with little available water nearby. Pellet group data for bison and cattle were combined due to the difficulty in differentiating between these species. Bison/cattle was estimated to be light in 2004, but increased to more moderate use in 2009. Deer use has been minimal on the site since 2004. The amount of rabbit droppings was very high on site with high quadrat frequency (Table - Pellet Group Data).

Browse: Four-wing saltbush (*Atriplex canescens*) is the primary preferred browse species on this site. Saltbush has decreased in cover and density and is fairly rare on the site. Use of saltbush has been mostly light, with some heavy use since 2004. The remainder of the browse cover is made up almost entirely of two less desirable species, narrowleaf low rabbitbrush (*Chrysothamnus viscidiflorus* ssp. *stenophyllus*) and broom snakeweed (*Gutierrezia sarothrae*). Both of these two species has shown an increase in density, but a decrease in cover since 2004 (Table - Browse Trends, Table - Browse Characteristics).

Herbaceous Understory: The herbaceous understory is sparse. The grass component is comprised of three native species, galleta (*Hilaria jamesii*), Indian ricegrass (*Oryzopsis hymenoides*), and sand dropseed (*Sporobolus cryptandrus*). Galleta is the most abundant grass. The forb component on this site is provided almost entirely by annual species with little value.

Soil: The soil is a sandy loam with few rocks, is slightly alkaline pH (7.4), and has relatively low amounts of organic matter (Table - Soil Analysis Data). The soil is loose and easily transported by wind. There is a high amount of bare ground cover on the site (Table - Basic Cover), and there is a high amount of wind erosion on this site. The soil erosion condition classification was rated as stable in 2004 and 2009, with some surface litter movement noted in 2009.

Trend Assessments

Browse:

- **2004 to 2009 - down (-2):** Browse species are rare on this site and the preferred browse species, fourwing saltbush, decreased in density by 62% to 340 plants/acre. Cover of fourwing saltbush also decreased from 3% to less than 1%. Saltbush decadence and plants displaying poor vigor increased substantially. The other less desirable browse species, stickyleaf low rabbitbrush and broom snakeweed, both increased in density, but decreased in cover.

Grass:

- **2004 to 2009 - stable (0):** The sum of nested frequency for perennial grass species is similar to 2004 levels while cover has nearly doubled from 1% to 2%. There was a significant increase in nested frequency of galleta, and a significant decrease in nested frequency of Indian ricegrass and sand dropseed.

Forb:

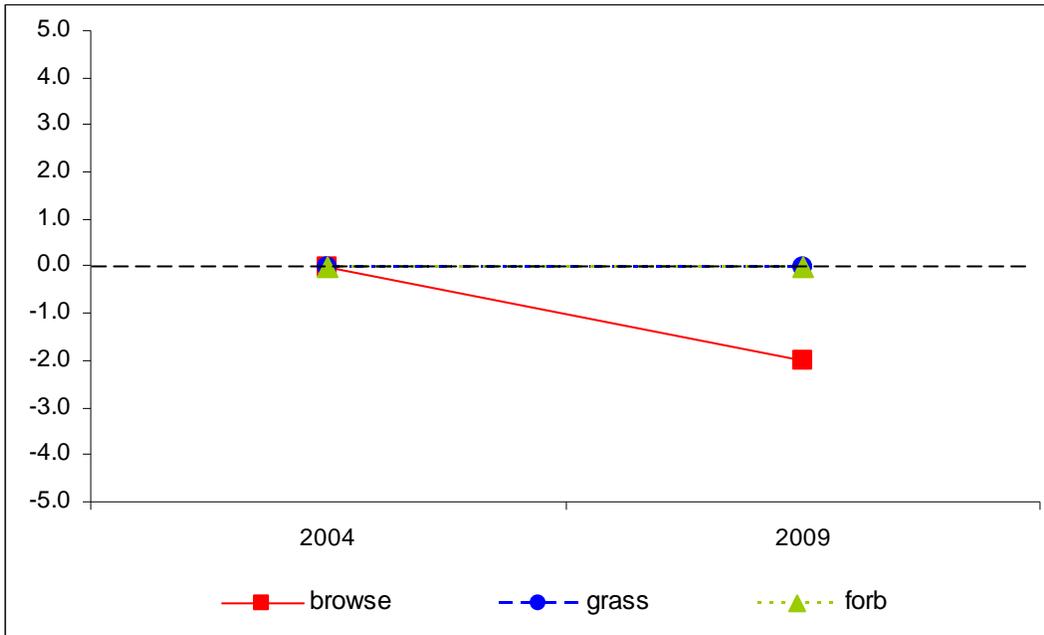
- **2004 to 2009 - stable (0):** The sum of nested frequency for perennial forbs has increased greatly, but perennial forbs are a minor component in the community. Weedy annual forbs have decreased from 8% to 1% cover and nested frequency of annual forbs has decreased 62%.

DEER DESIRABLE COMPONENTS INDEX - LOW POTENTIAL SCALE --
 Management unit 15, study no: 15

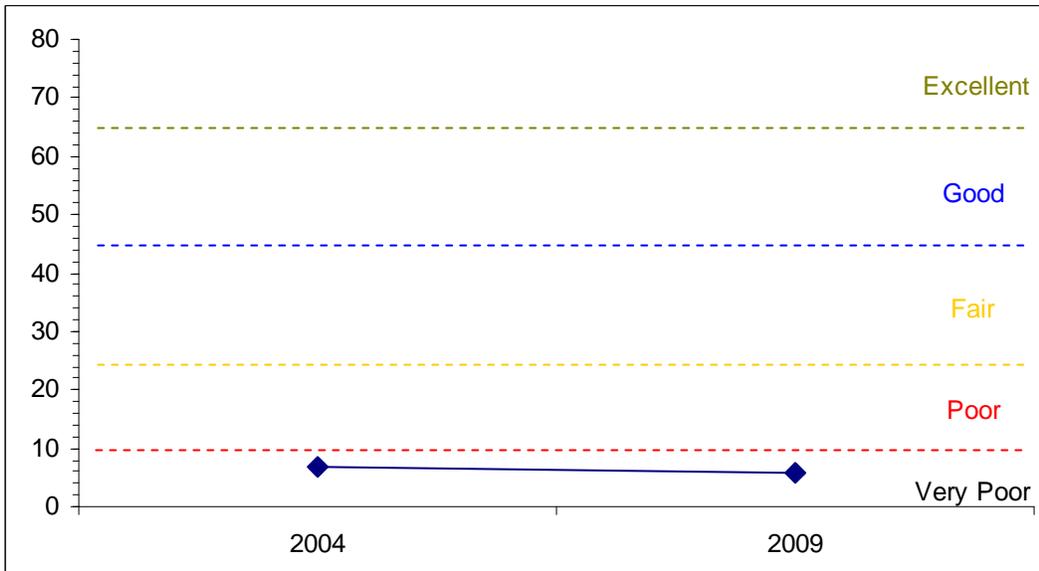
Year	Preferred Browse Cover	Preferred Browse Decadence	Preferred Browse Young	Perennial Grass Cover	Annual Grass Cover	Perennial Forb Cover	Noxious Weeds	Total Score	Ranking
04	4	0	0	2.7	0	0.1	0	6.8	Very Poor
09	0.4	0	0	5.1	0	0.5	0	6.0	Very Poor

Trend Summary

CUMULATIVE RANGE TREND ASSESSMENT--
 Management unit 15, Study no: 15



DEER DESIRABLE COMPONENTS INDEX TREND, LOW POTENTIAL SCALE
 Management unit 15, Study no: 15



HERBACEOUS TRENDS--

Management unit 15, Study no: 15

Type	Species	Nested Frequency		Average Cover %	
		'04	'09	'04	'09
G	<i>Bouteloua gracilis</i>	3	-	.15	-
G	<i>Hilaria jamesii</i>	_a 52	_b 95	.64	2.42
G	<i>Oryzopsis hymenoides</i>	_b 24	_a 14	.26	.08
G	<i>Sporobolus cryptandrus</i>	_b 30	_a 4	.28	.04
Total for Annual Grasses		0	0	0	0
Total for Perennial Grasses		109	113	1.33	2.54
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F	<i>Astragalus</i> sp.	-	2	-	.01
F	<i>Gilia</i> sp. (a)	_b 39	_a 4	.42	.12
F	<i>Halogeton glomeratus</i> (a)	-	1	-	.03
F	<i>Helianthus annuus</i> (a)	2	9	.18	.02
F	<i>Lappula occidentalis</i> (a)	_b 12	_a 1	.11	.00
F	<i>Mentzelia albicaulis</i> (a)	_b 122	_a 6	5.01	.13
F	<i>Oenothera pallida</i>	-	1	-	.03
F	<i>Plantago patagonica</i> (a)	4	3	.01	.00
F	<i>Salsola iberica</i> (a)	_a 31	_b 55	1.78	1.02
F	<i>Sphaeralcea grossulariifolia</i>	_a 9	_b 76	.07	.21
F	<i>Townsendia</i> sp.	2	-	.00	-
Total for Annual Forbs		210	79	7.53	1.33
Total for Perennial Forbs		11	79	0.07	0.25
Total for Forbs		221	158	7.61	1.59

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

BROWSE TRENDS--

Management unit 15, Study no: 15

Type	Species	Strip Frequency		Average Cover %	
		'04	'09	'04	'09
B	<i>Atriplex canescens</i>	28	14	3.17	.15
B	<i>Chrysothamnus viscidiflorus stenophyllus</i>	62	60	9.12	4.01
B	<i>Ephedra viridis</i>	2	3	.00	.15
B	<i>Gutierrezia sarothrae</i>	71	80	4.70	1.64
B	<i>Opuntia</i> sp.	0	1	-	.00
Total for Browse		163	158	16.99	5.96

CANOPY COVER, LINE INTERCEPT--

Management unit 15, Study no: 15

Species	Percent Cover	
	'04	'09
Atriplex canescens	3.29	.10
Chrysothamnus viscidiflorus stenophyllus	8.28	2.36
Ephedra viridis	.33	-
Gutierrezia sarothrae	6.33	1.86

KEY BROWSE ANNUAL LEADER GROWTH--

Management unit 15, Study no: 15

Species	Average leader growth (in)	
	'04	'09
Atriplex canescens	8.2	2.3

BASIC COVER--

Management unit 15, Study no: 15

Cover Type	Average Cover %	
	'04	'09
Vegetation	25.42	9.63
Rock	.02	.05
Pavement	5.69	6.61
Litter	8.71	27.32
Bare Ground	72.12	59.29

SOIL ANALYSIS DATA --

Management unit 15, Study no: 15, Study Name: Steven's Mesa

Effective rooting depth (in)	pH	sandy clay loam			%OM	PPM P	PPM K	ds/m
		%sand	%silt	%clay				
9.3	7.4	63.6	13.8	22.6	0.7	10.9	185.6	0.5

PELLET GROUP DATA--

Management unit 15, Study no: 15

Type	Quadrat Frequency		Days use per acre (ha)	
	'04	'09	'04	'09
Rabbit	47	81	-	-
Deer	-	22	-	1 (3)
Bison/Cattle	6	3	2 (5)	17 (43)

BROWSE CHARACTERISTICS--
 Management unit 15, Study no: 15

		Age class distribution					Utilization			
Year	Plants per Acre (excluding seedlings)	% Young	% Mature	% Decadent	Seedling (plants/acre)	% moderate	% heavy	% poor vigor	Average Height Crown (in)	
<i>Atriplex canescens</i>										
04	900	11	71	18	-	13	7	16	25/29	
09	340	12	6	82	-	6	12	65	27/25	
<i>Chrysothamnus viscidiflorus stenophyllus</i>										
04	4220	0	96	4	-	0	0	.47	10/15	
09	6520	13	79	8	120	0	0	6	7/12	
<i>Ephedra viridis</i>										
04	40	0	100	0	-	0	0	0	8/9	
09	240	50	42	8	-	0	0	0	7/10	
<i>Gutierrezia sarothrae</i>										
04	4720	3	95	2	-	0	0	.84	7/9	
09	9560	30	64	5	180	0	0	3	5/7	
<i>Opuntia sp.</i>										
04	0	0	0	-	-	0	0	0	4/12	
09	20	0	100	-	-	0	0	0	6/19	