

GOOSEBERRY - TREND STUDY NO. 25R-1-09

Vegetation Type: Pinyon-Juniper

Range Type: Crucial Deer Winter, Substantial Elk Winter

NRCS Ecological Site Description: Not Available

Land Ownership: USFS

Elevation: 6,200 ft (1,890 m)

Aspect: Northwest

Slope: 5%-7%

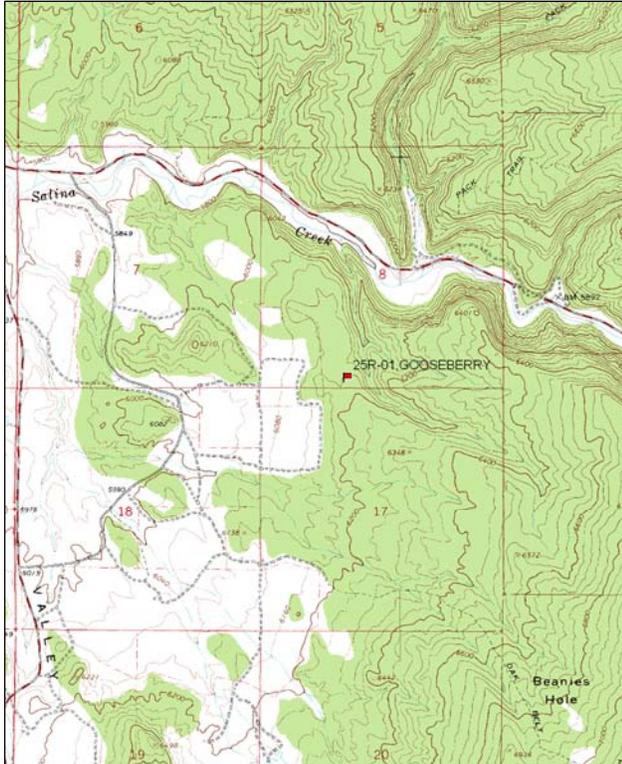
Transect bearing: 140 degrees magnetic

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

Directions:

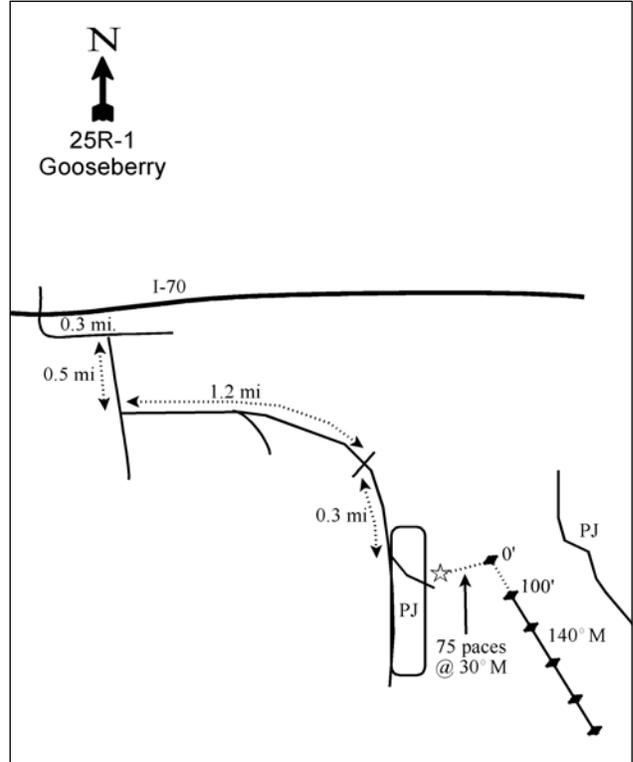
Take exit #61 from I-70 and turn south. Go 0.3 miles to a right turn. Take this turn and go 0.5 miles to a left (east) turn. Take this turn and go 0.6 miles to a fork. Take the left fork and go 0.6 miles to a gate. Go another 0.3 miles past the gate to a small road leading into the chaining. The half-high witness post is located inside the chaining where the road ends. The browse tag for the transect is #150.

Map name: Gooseberry Creek



Township: 22S, Range: 2E, Section: 32

Diagrammatic Sketch:



GPS: NAD 83, UTM 12S 438147 E 4306265 N

GOOSEBERRY - TREND STUDY NO. 25R-1

Site Information

Site Description: The study was established in the summer 1997 prior to being chained in the fall of 1997. The chaining was done to improve wildlife habitat to try and prevent deer from going onto nearby alfalfa fields to the west. Prior to treatment, the site was dominated by pinyon pine (*Pinus edulis*) and Utah juniper (*Juniperus osteosperma*). It presently supports a few heavily grazed seeded grasses and forbs. Pellet group data estimated light use by deer and elk in 1997 and 2009, with no pellets sampled in 2004. Estimated cattle use was moderate in 2004 and 2009 (Table - Pellet Group Data).

Browse: Pinyon and juniper was the dominate browse species before the chaining and accounted for the majority of the browse canopy cover. Following the chaining, there is still good cover of pinyon and juniper surrounding the site, but the trees provided no measurable cover on the study site (Table - Canopy Cover). Prior to the chaining, pinyon was estimated at 104 trees/acre with an average diameter of 5.4 inches. Juniper was estimated at 112 trees/acre with an average diameter of 19.1 inches. No preferred browse was observed before or after the chaining and only broom snakeweed (*Gutierrezia sarothrae*) was found after the chaining.

Herbaceous Understory: Prior to the chaining, the herbaceous understory was dominated by cheatgrass (*Bromus tectorum*) and a few native grasses such as Indian ricegrass (*Oryzopsis hymenoides*) and bottlebrush squirreltail (*Sitanion hystrix*) at low cover and frequency. Forbs consisted of a few small annual species. Following the treatment, perennial grasses such as crested wheatgrass (*Agropyron cristatum*) and intermediate wheatgrass (*A. intermedium*) established well and became the dominant grass species on the site. Cheatgrass was still found on the site, but decreased significantly from 1997 observations. The introduced species alfalfa (*Medicago sativa*) is now the dominant perennial forb on the site (Table - Herbaceous Trends).

Soil: The soil is a light brown loam with a neutral pH (7.1) and is moderately high in organic matter (Table - Soil Analysis Data). Rock is prevalent on the surface and throughout the profile. Bare ground increased following the chaining with a large decrease in litter (Table - Basic Cover). Typically litter is greater after a chaining, but in this case the slash from the chaining was piled into clumps. Erosion is minimal due to the heavily armored surface from pavement and rock. The erosion condition class determined soil movement as stable in 2004 and 2006.

Trend Assessments

Browse:

- **1997 to 2004 - stable (0):** Pinyon and juniper trees were successfully removed from the site, but no preferred browse species are found on this site and the broom snakeweed on the site may rapidly become a weed problem.
- **2004 to 2009 - stable (0):** The density of broom snakeweed increased from 2,280 plants/acre to 3,360 plants/acre, but line-intercept, canopy cover remained similar.

Grass:

- **1997 to 2004 - up (+2):** Perennial grass sum of nested frequency increased nearly over two-fold and cover increased from 1% to 9%. Three seeded species, crested wheatgrass, intermediate wheatgrass and orchardgrass (*Dactylis glomerata*) were sampled following the treatment with crested and intermediate wheatgrass becoming the dominant species on the site. Cheatgrass nested frequency decreased significantly and cover decreased from 2% to less than 1%.
- **2004 to 2009 - slightly up (+1):** The sum of nested frequency of perennial grasses increased by 15%, though cover remained identical. Sandberg bluegrass (*Poa secunda*) increased significantly in nested frequency. Cheatgrass decreased slightly in nested frequency and cover, though the decrease was not significant.

Forb:

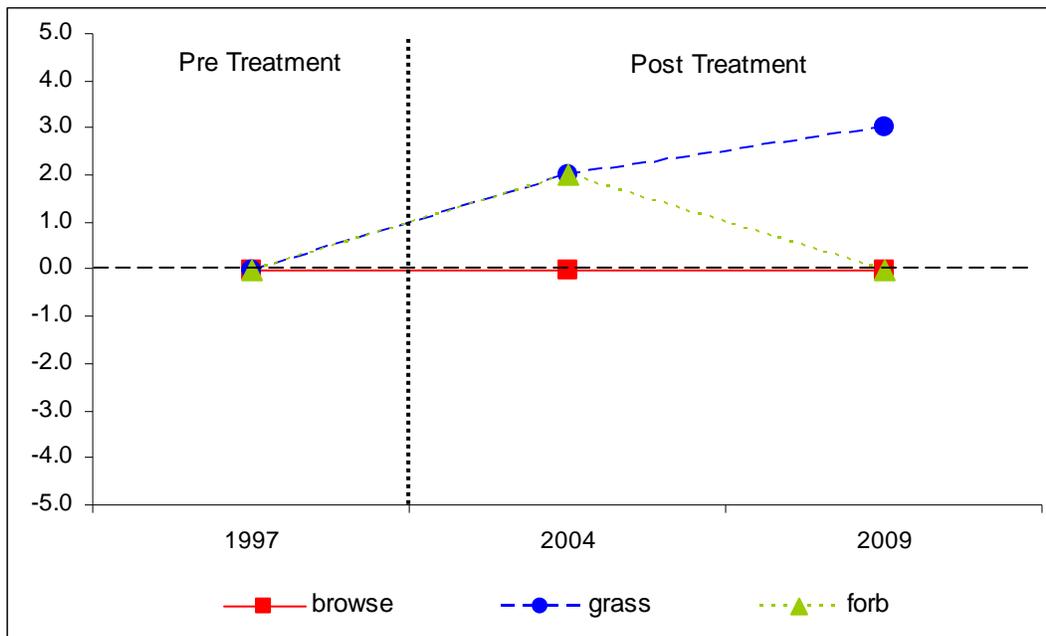
- **1997 to 2004 - up (+2):** The perennial forb sum of nested frequency increased by seven-fold and cover increased from less than 1% to over 5%. Two seeded species, alfalfa and small burnet (*Sanguisorba minor*), were sampled and alfalfa became the dominant perennial forb species on the site.
- **2004 to 2009 - down (-2):** There was a 31% decrease in the sum of nested frequency of perennial forbs, though cover remained good at over 4%. There was a significant decrease in the nested frequency of the dominant forb alfalfa. Although the trend is down, perennial forb sum of nested frequency and cover are improved over the pre-treatment condition.

DEER DESIRABLE COMPONENTS INDEX - MID-LEVEL POTENTIAL SCALE --
Management unit 25R, study no: 1

Year	Preferred Browse Cover	Preferred Browse Decadence	Preferred Browse Young	Perennial Grass Cover	Annual Grass Cover	Perennial Forb Cover	Noxious Weeds	Total Score	Ranking
97	0.0	0.0	0.0	2.3	-1.2	1.2	0.0	2.3	Very Poor
04	0.0	0.0	0.0	17.2	-0.6	10.0	0.0	26.6	Very Poor
09	0.0	0.0	0.0	17.2	-0.5	8.9	0.0	25.6	Very Poor

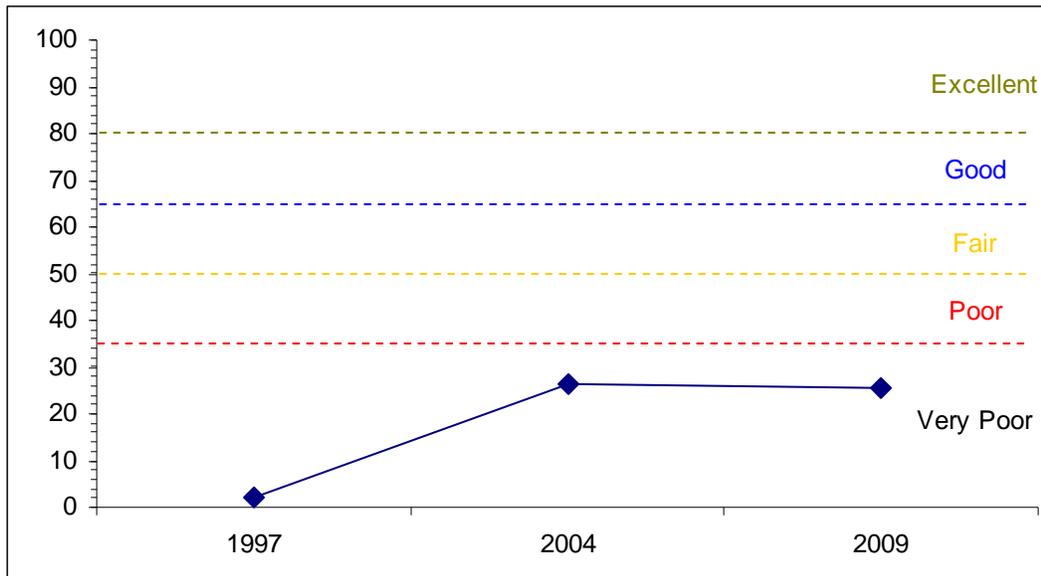
Trend Summary

CUMULATIVE RANGE TREND ASSESSMENT--
Management unit 25R Study no: 1



DEER DESIRABLE COMPONENTS INDEX TREND, MID-LEVEL POTENTIAL

Management unit 25R, Study no: 1



HERBACEOUS TRENDS--

Management unit 25R, Study no: 1

Type	Species	Nested Frequency			Average Cover %		
		'97	'04	'09	'97	'04	'09
G	Agropyron cristatum	a ⁻	b ¹³⁵	b ¹³⁵	-	4.57	4.15
G	Agropyron intermedium	a ⁻	b ¹¹²	b ¹²⁷	-	3.18	3.23
G	Bromus tectorum (a)	b ²³⁵	a ¹⁰⁰	a ⁷⁵	1.55	.82	.71
G	Carex sp.	b ¹⁵	a ⁻	a ⁻	.15	-	-
G	Dactylis glomerata	a ⁻	b ²¹	a ⁴	-	.16	.06
G	Oryzopsis hymenoides	b ⁵¹	a ⁴	a ⁶	.66	.05	.13
G	Poa fendleriana	a ⁻	a ⁻	b ⁶	-	.00	.16
G	Poa pratensis	-	-	-	-	.00	-
G	Poa secunda	a ²⁵	a ³⁸	b ⁶²	.14	.58	.66
G	Sitanion hystrix	b ²⁷	a ³	ab ²¹	.18	.03	.20
G	Vulpia octoflora (a)	b ¹⁹	a ⁻	a ⁻	.03	-	-
Total for Annual Grasses		254	100	75	1.59	0.81	0.71
Total for Perennial Grasses		118	313	361	1.14	8.59	8.59
Total for Grasses		372	413	436	2.74	9.40	9.31
F	Alyssum alyssoides (a)	b ²³⁵	a ⁸⁴	c ²⁹¹	1.11	.24	3.47
F	Arenaria sp.	-	-	4	-	-	.03
F	Chenopodium fremontii (a)	-	7	-	-	.04	-
F	Chorispora tenella (a)	-	-	3	-	-	.03
F	Cirsium sp.	-	1	5	-	.15	.09
F	Crepis acuminata	-	-	2	-	-	.00
F	Cryptantha sp.	b ²⁵	ab ¹⁷	a ¹	.53	.20	.00
F	Descurainia pinnata (a)	a ⁻	b ¹⁴	b ²¹	-	.14	.27
F	Erigeron pumilus	-	3	-	-	.00	-
F	Eriogonum cernuum (a)	5	-	-	.01	-	-

Type	Species	Nested Frequency			Average Cover %		
		'97	'04	'09	'97	'04	'09
F	Eriogonum inflatum	-	-	1	-	-	.00
F	Gilia sp. (a)	a ⁻	b ¹⁹	a ⁻	-	.08	-
F	Lappula occidentalis (a)	7	-	-	.01	-	-
F	Leucelene ericoides	7	-	-	.07	-	-
F	Medicago sativa	a ⁻	c ¹⁴⁸	b ¹⁰⁵	-	4.19	3.20
F	Phlox austromontana	-	2	3	-	.03	.15
F	Physaria sp.	-	3	3	-	.00	.01
F	Ranunculus testiculatus (a)	ab ⁵¹	b ⁷⁸	a ²⁷	.14	.49	.13
F	Sanguisorba minor	a ⁻	b ²⁵	b ¹⁷	-	.46	.72
F	Senecio integerrimus	-	2	-	-	.00	-
F	Senecio multilobatus	a ⁻	b ²⁸	a ¹	-	.10	.03
F	Streptanthus cordatus	-	2	-	-	.00	-
F	Tragopogon dubius	-	-	8	-	-	.09
F	Unknown forb-perennial	a ⁻	a ⁻	b ⁹	-	-	.13
Total for Annual Forbs		298	202	342	1.28	1.00	3.90
Total for Perennial Forbs		32	231	159	0.60	5.17	4.47
Total for Forbs		330	433	501	1.88	6.17	8.38

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

BROWSE TRENDS--

Management unit 25R, Study no: 1

Type	Species	Strip Frequency			Average Cover %		
		'97	'04	'09	'97	'04	'09
B	Gutierrezia sarothrae	15	28	38	.25	1.08	2.36
B	Juniperus osteosperma	2	0	0	5.34	-	-
B	Opuntia sp.	26	0	0	.47	-	-
B	Pinus edulis	4	1	0	6.31	-	-
Total for Browse		47	29	38	12.37	1.08	2.36

CANOPY COVER, LINE INTERCEPT--

Management unit 25R, Study no: 1

Species	Percent Cover		
	'97	'04	'09
Gutierrezia sarothrae	-	2.26	2.50
Juniperus osteosperma	14.00	-	-
Pinus edulis	12.39	-	-

POINT-QUARTER TREE DATA--

Management unit 25R, Study no: 1

Species	Trees per Acre	Average diameter (in)
	'97	'97
Juniperus osteosperma	112	19.1
Pinus edulis	104	5.4

BASIC COVER--

Management unit 25R, Study no: 1

Cover Type	Average Cover %		
	'97	'04	'09
Vegetation	18.26	14.71	26.04
Rock	7.30	6.22	3.86
Pavement	5.50	9.72	5.73
Litter	61.62	29.93	32.91
Cryptogams	.65	.18	1.30
Bare Ground	20.44	46.09	37.12

SOIL ANALYSIS DATA --

Management unit 25R, Study no: 1, Study Name: Gooseberry

Effective rooting depth (in)	pH	loam			%OM	PPM P	PPM K	ds/m
		%sand	%silt	%clay				
10.9	7.1	38	35.4	26.6	4	16.1	192	2.9

PELLET GROUP DATA--

Management unit 25R, Study no: 1

Type	Quadrat Frequency			Days use per acre (ha)		
	'97	'04	'09	'97	'04	'09
Rabbit	9	49	38	-	-	-
Elk	2	2	6	18 (45)	-	15 (36)
Deer	9	1	5	13 (33)	-	1 (2)
Cattle	-	10	9	-	40 (98)	29 (72)

BROWSE CHARACTERISTICS--

Management unit 25R, Study no: 1

		Age class distribution					Utilization			
Year	Plants per Acre (excluding seedlings)	% Young	% Mature	% Decadent	Seedling (plants/acre)	% moderate	% heavy	% poor vigor	Average Height Crown (in)	
Cercocarpus montanus										
97	40	0	100	-	-	0	100	0	21/21	
04	0	0	0	-	-	0	0	0	19/16	
09	0	0	0	-	-	0	0	0	28/33	
Ephedra viridis										
97	0	0	0	-	-	0	0	0	-/-	
04	0	0	0	-	-	0	0	0	-/-	
09	0	0	0	-	-	0	0	0	35/36	
Gutierrezia sarothrae										
97	1140	5	95	0	20	0	0	4	10/10	
04	2280	1	97	2	-	0	0	.87	9/11	
09	3360	2	98	0	-	0	0	0	8/10	
Juniperus osteosperma										
97	40	0	100	-	-	0	0	0	-/-	
04	0	0	0	-	-	0	0	0	-/-	
09	0	0	0	-	-	0	0	0	-/-	

		Age class distribution			Utilization				
Year	Plants per Acre (excluding seedlings)	% Young	% Mature	% Decadent	Seedling (plants/acre)	% moderate	% heavy	% poor vigor	Average Height Crown (in)
Leptodactylon pungens									
97	0	0	0	0	-	0	0	0	-/-
04	0	0	0	0	-	0	0	0	-/-
09	60	0	67	33	-	0	0	0	5/7
Opuntia sp.									
97	980	0	98	2	-	0	0	2	3/5
04	0	0	0	0	-	0	0	0	-/-
09	0	0	0	0	-	0	0	0	-/-
Pinus edulis									
97	80	0	100	-	40	0	0	0	-/-
04	20	100	0	-	-	0	0	0	-/-
09	0	0	0	-	-	0	0	0	-/-