

Trend Study 23-4-08

Study site name: Poverty Flat .

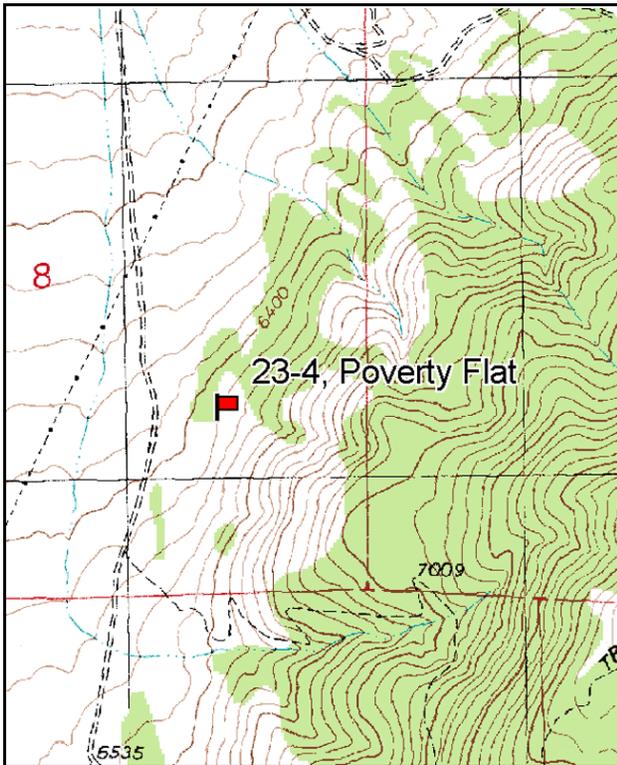
Vegetation type: Wyoming Big Sagebrush .

Compass bearing: frequency baseline 162 degrees magnetic. (Line 3 & 4 175°M)

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

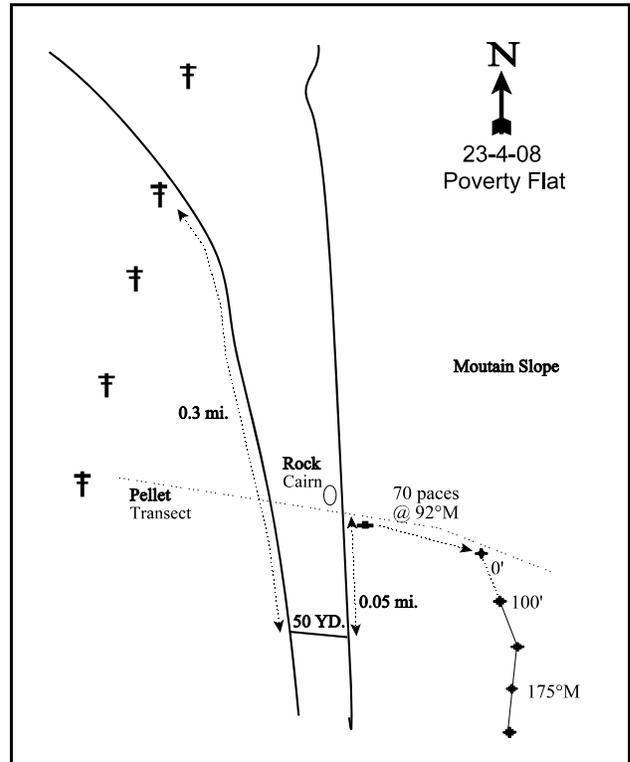
LOCATION DESCRIPTION

From 600 South and Main in Monroe, turn southwest on Jones Road, a gravel road coming in at a 45 degree angle. Proceed 3.4 miles to a junction, stay left. Go up this road 1.7 miles to a fork. Stay right, go 0.5 miles and pass under a powerline. Continue 0.3 miles further to a fork, turn left. Go about 50 yards then turn left again. Go another 0.05 miles (about 150 yards) to a witness post on the east side of the road. Walk up slope to the 5th yellow stake. The frequency baseline begins 12 feet south of the 5th yellow stake east of the road (about 365 feet from road).



Map Name: Monroe

Township 26S, Range 3W, Section 8



Diagrammatic Sketch

GPS: NAD 83, UTM 12S 400165 E, 4267348 N

DISCUSSION

Poverty Flat - Trend Study No. 23-4

Study Information

This study is located on the west side of the Monroe Mountains on the foothills above Poverty Flat, south of the town of Monroe [elevation: 6,450 feet (1,966 m), slope: 20%-25%, aspect: northwest]. A wildfire burned the area in 1997, eliminating all of the preferred browse. The land is administered by the BLM, and is part of a sheep allotment. Sheep use is more concentrated on the flat, and the hillside where the transect is located is grazed only as the animals trail to and from summer pasture on the forest. No livestock sign was noted in 1998 or 2003, but cattle use was estimated at 5 days use/acre (13 cdu/ha) in 2008. Big game use was moderate-heavy prior to the burn, as evidenced by numerous pellet groups, hedging, and antler drops. Several carcasses were found near the study in 1985 and 1991, indicating winter losses. Deer use was estimated at 19 days use/acre (47 ddu/ha) in 1998 and 57 days use/acre (141 ddu/ha) in 2003 and 2008. Elk use was estimated at 2 days use/acre (5 edu/ha) in 1998, 5 days use/acre (12 edu/ha) in 2003, and 13 days use/acre (33 edu/ha) in 2008.

Soil

The soils are a loam with a neutral reaction (pH 6.7). Combined vegetation and litter cover increased from 25% in 1998 to 62% in 2003 and 57% in 2008. Relative rock cover was 47% in 1998, 30% in 2003, and 39% in 2008. Large rocks are found in concentrated areas along the baseline. Relative pavement cover decreased from 18% in 1998 to 2%-3% in 2003 and 2008, and relative bare ground cover decreased from 10% in 1998 to 1% by 2008. The soil erosion condition was classified as stable in 2003 and 2008.

Browse

Before the fire in 1997, the browse component consisted of a stand of Utah juniper (*Juniperus osteosperma*) with an understory of Wyoming big sagebrush (*Artemisia tridentata* ssp. *wyomingensis*). Most juniper trees were killed by the fire. Sagebrush density was 5,399 plants/acre in 1985 and 7,733 plants/acre in 1991. It was reduced to 40 plants/acre by 1998, increased to 400 plants/acre in 2003, and no sagebrush were sampled within the density strips in 2008. Decadence was high each year sagebrush, ranging from 20% to 50% of the population. Young recruitment decreased from 21% of the population in 1985 to 5% by 2003. Browse use was moderate-heavy in 1985 and 1991, and mostly light in 1998 and 2003.

Forage kochia (*Kochia prostrata*) and fourwing saltbush (*Atriplex canescens*) were seeded after the burn. Kochia density was 40 plants/acre in 2003 and 1,200 plants/acre in 2008. All sampled plants were mature in 2003, by 2008, 28% were young and 72% were mature. The population exhibited good vigor, and browse use was light-moderate in 2003 and heavy in 2008. Fourwing saltbush and blue elderberry (*Sambucus cerulea*) were seen in low densities in 2003 and 2008.

Herbaceous Understory

Total grass cover was 10% in 1998, 29% in 2003, and 24% in 2008. Cheatgrass (*Bromus tectorum*) provided 86% of the total grass cover in 1998 and 2003, and 60% in 2008. Bottlebrush squirreltail (*Sitanion hystrix*), Sandberg bluegrass (*Poa secunda*), and Indian ricegrass (*Oryzopsis hymenoides*) have been sampled since 1985, but provided little cover. Crested wheatgrass (*Agropyron cristatum*) and intermediate wheatgrass (*Agropyron intermedium*) were seeded after the fire and provided 2% and 6% combined cover in 2003 and 2008, respectively. These species were light-moderately grazed in 2008.

Total forb cover was 2% in 1998 and 2003, and less than 1% in 2008. Annual species dominate the forb component. Coyote tobacco (*Nicotiana attenuata*) and tumbled mustard (*Sisymbrium altissimum*) have provided the majority of the forb cover since 1998.

1991 TREND ASSESSMENT

The browse trend is stable. Sagebrush density increased 43%, however, decadence increased from 20% of the population to 34%. Young recruitment decreased from 21% of the population to 15%. Plants exhibiting poor vigor were sampled for the first time and comprised 33% of the population. The trend for grass is slightly down. The sum of nested frequency for perennial grasses decreased slightly. The trend for forbs is stable. Few forbs were sampled.

browse - stable (0)

grass - slightly down (-1)

forb - stable (0)

1998 TREND ASSESSMENT

The trend for browse is down. The fire eliminated almost all of the sagebrush population, and density was reduced to 40 plants/acre. Half of the sampled plants were young, and half were decadent. The trend for grass is stable. The sum of nested frequency for perennial grasses changed little. The trend for forbs is stable. Few forbs were sampled. The winter range condition, determined by the Desirable Components Index (DCI), was rated as very poor due to the lack of preferred browse, low perennial herbaceous cover, and moderate cheatgrass cover.

winter range condition (DCI) - very poor (-2) Low potential scale

browse - down (-2)

grass - stable (0)

forb - stable (0)

2003 TREND ASSESSMENT

The browse trend is slightly up. Sagebrush density increased substantially, however, decadence remained high at 30% of the population, and young recruitment was low at 5%. Twenty-five percent of the population displayed poor vigor. Forage kochia, fourwing saltbush, and blue elderberry were sampled for the first time. The trend for grass is slightly down. The sum of nested frequency for perennial grasses increased slightly, and crested wheatgrass and intermediate wheatgrass were sampled for the first time. However, cheatgrass increased significantly in nested frequency, and quadrat frequency increased from 61% to 92%. The trend for forbs is stable. Few forbs were sampled. The DCI rating remained very poor.

winter range condition (DCI) - very poor (-8) Low potential scale

browse - slightly up (+1)

grass - slightly down (-1)

forb - stable (0)

2008 TREND ASSESSMENT

The trend for browse is stable. Sagebrush was not sampled within the density strips, and fourwing saltbush and blue elderberry remained at low densities. Forage kochia density increased from 40 plants/acre to 1,200 plants/acre, and young recruitment was high at 28% of the population. The trend for grass is slightly up. The sum of nested frequency for perennial grasses increased 40%, and intermediate wheatgrass increased significantly in nested frequency. Cheatgrass decreased significantly in nested frequency, but quadrat frequency remained high at 85%. The trend for forbs is stable. Few forbs were sampled. The DCI rating remained very poor.

winter range condition (DCI) - very poor (11) Low potential scale

browse - stable (0)

grass - slightly up (+1)

forb - stable (0)

HERBACEOUS TRENDS --
Management unit 23 , Study no: 4

Type	Species	Nested Frequency					Average Cover %		
		'85	'91	'98	'03	'08	'98	'03	'08
G	<i>Agropyron cristatum</i>	a-	a-	a-	b ⁵⁸	b ⁶⁵	-	2.25	4.31
G	<i>Agropyron intermedium</i>	a-	a-	a-	a ⁴	b ²⁷	-	.16	2.00
G	<i>Bromus tectorum</i> (a)	-	-	a ¹⁶⁰	c ³¹⁶	b ²⁷⁵	9.03	25.35	14.32
G	<i>Elymus cinereus</i>	-	-	-	-	-	-	-	.00
G	<i>Oryzopsis hymenoides</i>	4	-	1	4	5	.03	.22	.83
G	<i>Poa secunda</i>	7	7	5	13	17	.18	.35	.25
G	<i>Sitanion hystrix</i>	b ⁷⁷	ab ⁴⁸	ab ⁶⁰	a ³⁷	a ⁴²	1.24	1.02	1.51
G	<i>Sporobolus cryptandrus</i>	-	-	-	-	6	-	-	.68
Total for Annual Grasses		0	0	160	316	275	9.03	25.35	14.32
Total for Perennial Grasses		88	55	66	116	162	1.44	4.00	9.61
Total for Grasses		88	55	226	432	437	10.48	29.35	23.94
F	<i>Alyssum alyssoides</i> (a)	-	-	-	1	-	-	.00	-
F	<i>Argemone munita</i>	-	-	2	-	-	.15	-	-
F	<i>Astragalus</i> sp.	1	-	-	-	-	-	-	-
F	<i>Calochortus nuttallii</i>	-	-	1	-	-	.00	-	-
F	<i>Castilleja</i> sp.	-	-	1	-	-	.00	-	-
F	<i>Descurainia pinnata</i> (a)	-	-	ab ⁴	b ⁹	a-	.04	.07	-
F	<i>Erigeron pumilus</i>	1	3	-	-	-	-	-	-
F	<i>Euphorbia</i> sp.	-	-	5	-	-	.04	-	-
F	<i>Lappula occidentalis</i> (a)	-	-	4	-	-	.01	-	-
F	<i>Lactuca serriola</i>	-	-	-	7	2	-	.04	.03
F	<i>Leucelene ericoides</i>	a-	a-	b ¹⁵	a-	a-	.33	-	-
F	<i>Lupinus argenteus</i>	-	-	3	-	-	.15	-	-
F	<i>Nicotiana attenuata</i> (a)	-	-	3	-	-	1.06	-	-
F	<i>Sisymbrium altissimum</i> (a)	-	1	a-	b ³⁵	b ¹⁸	-	2.07	.39
F	Unknown forb-perennial	-	-	-	-	-	.38	-	-
Total for Annual Forbs		0	1	11	45	18	1.11	2.15	0.39
Total for Perennial Forbs		2	3	27	7	2	1.07	0.03	0.03
Total for Forbs		2	4	38	52	20	2.18	2.19	0.42

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

BROWSE TRENDS --

Management unit 23 , Study no: 4

Type	Species	Strip Frequency			Average Cover %		
		'98	'03	'08	'98	'03	'08
B	<i>Artemisia tridentata wyomingensis</i>	2	13	0	.00	2.31	-
B	<i>Atriplex canescens</i>	0	1	1	-	.00	.00
B	<i>Chrysothamnus nauseosus</i>	0	0	1	-	-	.00
B	<i>Coryphantha sp.</i>	0	0	2	-	-	.00
B	<i>Gutierrezia sarothrae</i>	10	12	8	.16	.22	.15
B	<i>Juniperus osteosperma</i>	0	1	0	.63	.38	-
B	<i>Kochia prostrata</i>	0	2	8	-	.03	1.57
B	<i>Sambucus cerulea</i>	0	1	1	-	.00	.15
Total for Browse		12	30	21	0.79	2.95	1.88

CANOPY COVER, LINE INTERCEPT --

Management unit 23 , Study no: 4

Species	Percent Cover	
	'03	'08
<i>Artemisia tridentata wyomingensis</i>	1.48	-
<i>Atriplex canescens</i>	.53	.48
<i>Gutierrezia sarothrae</i>	.85	.31
<i>Juniperus osteosperma</i>	3.40	3.33
<i>Kochia prostrata</i>	.40	1.91
<i>Sambucus cerulea</i>	-	.35

POINT-QUARTER TREE DATA --

Management unit 23 , Study no: 4

Species	Trees per Acre		
	'98	'03	'08
<i>Juniperus osteosperma</i>	26	<18	<18
<i>Pinus edulis</i>	20	<18	<18

Average diameter (in)		
'98	'03	'08
9	-	-
1.6	-	-

BASIC COVER --

Management unit 23 , Study no: 4

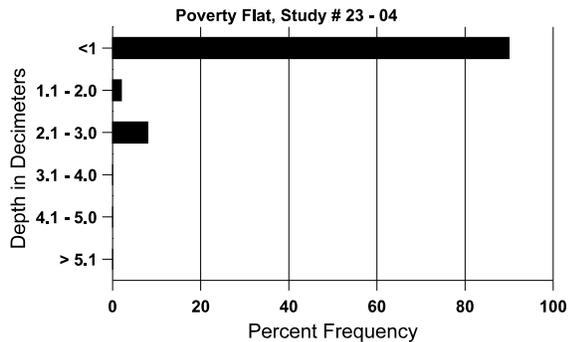
Cover Type	Average Cover %				
	'85	'91	'98	'03	'08
Vegetation	3.25	2.75	14.86	33.31	27.56
Rock	28.75	25.25	48.72	33.97	44.57
Pavement	24.00	28.00	18.13	1.89	3.33
Litter	41.50	33.25	11.90	35.83	38.18
Cryptogams	.25	0	.06	.15	0
Bare Ground	2.25	10.75	9.93	7.62	1.22

SOIL ANALYSIS DATA --

Management unit 23, Study no: 4, Study Name: Poverty Flat

Effective rooting depth (in)	Temp °F (depth)	pH	loam			%OM	PPM P	PPM K	ds/m
			%sand	%silt	%clay				
11.1	81.0 (12.6)	6.7	44.0	35.4	20.6	4.8	26.2	163.2	0.8

Stoniness Index



PELLET GROUP DATA --

Management unit 23 , Study no: 4

Type	Quadrat Frequency		
	'98	'03	'08
Rabbit	-	8	38
Elk	1	1	9
Deer	3	21	27
Cattle	-	-	-

Days use per acre (ha)		
'98	'03	'08
-	-	-
2 (5)	5 (12)	13 (33)
19 (47)	57 (141)	57 (141)
-	-	5 (13)

BROWSE CHARACTERISTICS --
Management unit 23 , Study no: 4

		Age class distribution (plants per acre)					Utilization					
Year	Plants per Acre (excluding seedlings)	Seedling	Young	Mature	Decadent	Dead	% moderate	% heavy	% decadent	% dying	% poor vigor	Average Height Crown (in)
<i>Artemisia tridentata wyomingensis</i>												
85	5398	533	1133	3199	1066	-	58	9	20	-	0	20/23
91	7731	733	1133	3999	2599	-	38	41	34	2	33	15/17
98	40	-	20	-	20	660	0	0	50	-	0	-/-
03	400	-	20	260	120	360	10	0	30	25	25	19/23
08	0	-	-	-	-	60	0	0	0	-	0	15/30
<i>Atriplex canescens</i>												
85	0	-	-	-	-	-	0	0	-	-	0	-/-
91	0	-	-	-	-	-	0	0	-	-	0	-/-
98	0	-	-	-	-	-	0	0	-	-	0	-/-
03	20	-	-	20	-	-	0	0	-	-	0	32/48
08	20	-	-	20	-	-	0	0	-	-	0	44/98
<i>Chrysothamnus nauseosus</i>												
85	0	-	-	-	-	-	0	0	-	-	0	-/-
91	0	-	-	-	-	-	0	0	-	-	0	-/-
98	0	-	-	-	-	-	0	0	-	-	0	-/-
03	0	-	-	-	-	-	0	0	-	-	0	-/-
08	20	-	-	20	-	-	0	0	-	-	0	25/37
<i>Coryphantha sp.</i>												
85	0	-	-	-	-	-	0	0	-	-	0	-/-
91	0	-	-	-	-	-	0	0	-	-	0	-/-
98	0	-	-	-	-	-	0	0	-	-	0	-/-
03	0	-	-	-	-	-	0	0	-	-	0	-/-
08	40	-	-	40	-	-	0	0	-	-	0	4/8
<i>Echinocereus sp.</i>												
85	0	-	-	-	-	-	0	0	-	-	0	-/-
91	66	-	-	66	-	-	0	0	-	-	0	5/6
98	0	-	-	-	-	-	0	0	-	-	0	-/-
03	0	-	-	-	-	-	0	0	-	-	0	4/7
08	0	-	-	-	-	-	0	0	-	-	0	-/-

		Age class distribution (plants per acre)					Utilization					
Year	Plants per Acre (excluding seedlings)	Seedling	Young	Mature	Decadent	Dead	% moderate	% heavy	% decadent	% dying	% poor vigor	Average Height Crown (in)
Gutierrezia sarothrae												
85	0	-	-	-	-	-	0	0	0	-	0	-/-
91	0	-	-	-	-	-	0	0	0	-	0	-/-
98	500	20	180	320	-	40	0	0	0	-	0	10/13
03	620	-	-	500	120	320	29	16	19	16	16	12/15
08	320	-	-	320	-	-	6	0	0	-	0	6/10
Juniperus osteosperma												
85	0	-	-	-	-	-	0	0	0	-	0	-/-
91	0	-	-	-	-	-	0	0	0	-	0	-/-
98	0	-	-	-	-	60	0	0	0	-	0	-/-
03	40	-	-	-	40	60	0	0	100	-	0	-/-
08	0	-	-	-	-	20	0	0	0	-	0	-/-
Kochia prostrata												
85	0	-	-	-	-	-	0	0	-	-	0	-/-
91	0	-	-	-	-	-	0	0	-	-	0	-/-
98	0	-	-	-	-	-	0	0	-	-	0	-/-
03	40	-	-	40	-	-	50	0	-	-	0	18/29
08	1200	560	340	860	-	-	3	90	-	-	0	8/17
Opuntia sp.												
85	199	-	-	199	-	-	0	0	-	-	0	6/10
91	332	-	133	199	-	-	0	0	-	-	0	6/13
98	0	-	-	-	-	-	0	0	-	-	0	-/-
03	0	-	-	-	-	-	0	0	-	-	0	6/14
08	0	-	-	-	-	-	0	0	-	-	0	5/14
Sambucus cerulea												
85	0	-	-	-	-	-	0	0	-	-	0	-/-
91	0	-	-	-	-	-	0	0	-	-	0	-/-
98	0	-	-	-	-	-	0	0	-	-	0	-/-
03	20	-	-	20	-	-	0	0	-	-	0	48/43
08	20	-	-	20	-	-	0	0	-	-	0	69/72