

Trend Study 9-13-05

Study site name: John Starr Flat .

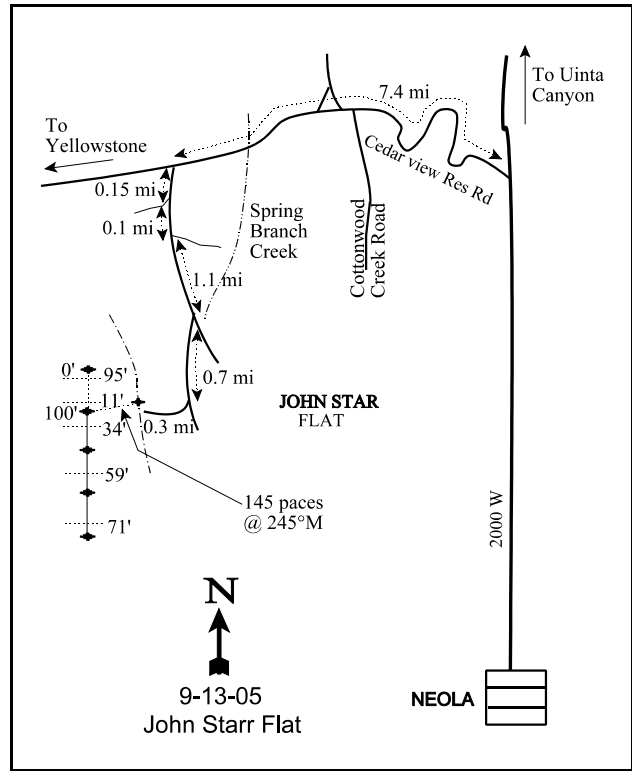
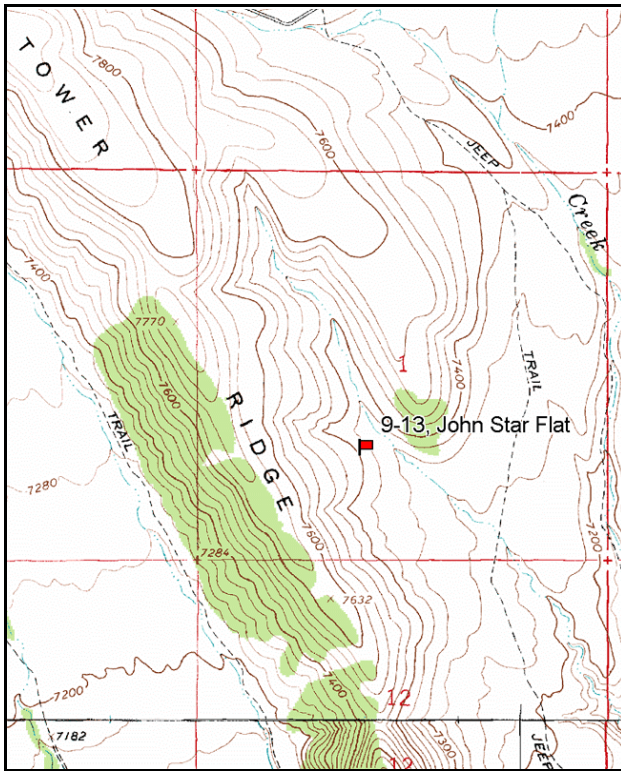
Vegetation type: Mountain Brush .

Compass bearing: frequency baseline 355 degrees magnetic.

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

LOCATION DESCRIPTION

From Neola, drive north to a major fork. Turn left, west, (right fork goes to Uinta Canyon) and travel towards Yellowstone for 7.4 miles on the main road. At this point, turn left (south). Go 0.15 miles to a small fork and stay left. Continue 0.1 miles to another fork and bear right. Proceed 1.1 miles to a major fork and continue on the right fork for 0.7 miles. At the next fork turn right towards the hills to the west. Proceed 0.3 miles to the end of the road near a gully. From the end of the road, the 0-foot baseline stake is located 145 paces away at an azimuth of 245°M. The frequency baseline stakes are marked by green steel fenceposts approximately 18" in height. Browse tag #7020 is on the first baseline stake.



Map Name: Heller Lake

Diagrammatic Sketch

Township 1N, Range 3W, Section 1

GPS: NAD 27, UTM 12T 4484405 N, 569975 E

## DISCUSSION

### John Starr Flat - Trend Study No. 9-13

This trend study is located at the northwest edge of John Starr Flat near the base of Tower Ridge. The area is within the Ute Indian Reservation and the study was established with assistance of a tribal biologist. The study is on critical winter range for both deer and elk. Domestic livestock graze during the remainder of the year. The range type is mixed mountain brush on a northeasterly aspect with a 10-15% slope. Elevation is 7,400 feet. Pellet group data from 2000 estimated 46 deer and 20 elk days use/acre (114 ddu/ha and 50 edu/ha). Pellet group data from 2005 estimated 17 deer, 47 elk, and 2 cow days/acre (43 ddu/ha, 116 edu/ha, and 4 cdu/ha). A group of elk were observed near the site in 2005.

The sandy loam soils are very rocky, but deep enough to support a dense mountain brush type. Effective rooting depth is estimated at a moderately shallow 7 inches, but with deep rooted shrub species, the roots are obviously able to penetrate through the rocky profile. The soil reaction is neutral with a pH of 6.7. Phosphorus is low at 4.1 ppm, values less than 6 ppm may limit normal plant growth and development (Tiedemann and Lopez 2004). Vegetation and litter cover are abundant enough to prevent severe erosion. Bare ground is moderate at an estimated 13% relative cover since 1995. The erosion condition class determined soil movement as slight in 2005.

The key browse species is true mountain mahogany, which has provided around 10% average cover since 1995. In 1982, the population was estimated at 2,866 plants/acre. This increased to 5,000 plants/acre in 1988, mostly due to young plants. Large fluctuations in mahogany density are due to the change into a much larger sample size used after the 1988 reading which gives better estimates of shrub populations. Its density has declined every year since 1995. The population was estimated to be 3,580 plants/acre in 1995, 3,260 in 2000, and 2,420 in 2005. Utilization has been moderate to heavy from 1995 to 2005. Percent decadency has typically been below 8%, but in 2005 increased to 16%. Mahogany vigor has been normal all years except in 2000 when drought created a chlorotic appearance and some plants began to drop leaves. Young recruitment has remained good at around 20% since 1995. Leader growth was low in 2000 which was a very dry year averaging only 2 inches, but increased to 4.5 inches in 2005.

Other key browse include: serviceberry, black sagebrush, mountain big sagebrush, bitterbrush and snowberry. The serviceberry population is small, but dropped from 1,060 plants/acre in 2000 to 660 in 2005. Decadence increased from 0% in 1995 to 11% in 2000, and finally to 48% in 2005. Heavy use increased in 2000 and has remained heavy in 2005. As with mahogany, use was difficult to determine due to minimal annual growth in 2000, because of drought conditions. This can result in plants taking on a hedged appearance without necessarily experiencing very much use. Recruitment was low in 2005 with only 6% of the serviceberry population classified as young. This had decreased from 28% in 1995 to 15% in 2000. Serviceberry appear to be growing in close proximity to mahogany plants, which may provide some protection from browsing. Increases in decadency and poor vigor are likely drought related, and as with mahogany, some plants displayed a chlorotic appearance and were dropping leaves when the site was read in June of 2000.

Mountain big sagebrush density has fluctuated slightly between 1,400 and 1,500 plants/acre since 1995. Decadence has been moderately high at 30% since 2000. Use is light to moderate on sagebrush and 18% of the population was classified as young in 2000 and 12% in 2005. Good young recruitment will help replace the old dying plants. Black sagebrush was estimated at 1,560 plants/acre in 1995, 2,260 in 2000, and 1,640 in 2005. Use is light and percent decadency fluctuated from 4% in 1995, to 16% in 2000, back to 4% in 2005. Brittle pricklypear cactus is abundant and has fluctuated between 5,500 to 6,600 plants/acre since 1995.

The herbaceous understory is abundant and accounted for 40% of the total vegetative cover in 1995, 46% in 2000, and 50% by 2005. Grasses are dominated by the following perennials: needle-and-thread, bluebunch

wheatgrass, sedge, and Indian ricegrass. Cheatgrass decreased significantly from 1995 to 2000 with drought conditions, but increased significantly in nested frequency in 2005, with the return to normal precipitation. Forbs are especially diverse and averaged 27 species in 1988 and 2000, but had increased to 37 species in 1995 and 2005. The sum of nested frequency of perennial forbs decreased by 33% in 2000 due to drought and had not changed in 2005, even with the return to normal precipitation levels. Annual forbs were very abundant in 1995 and 2005 with above normal precipitation, but they were almost non-existent in 2000 with drought.

#### 1982 APPARENT TREND ASSESSMENT

Range trend, both for soil and vegetation, appears stable to improving. Soil movement and loss are negligible. Vegetative and litter cover provide adequate soil protection. The browse component appears healthy, although rather heavily utilized. However, stand maintenance and productivity seem assured under current levels of animal use. Grasses are vigorous, diverse and productive. No apparent problems are evident. Forb composition and productivity is somewhat deficient, but not seriously so.

#### 1988 TREND ASSESSMENT

Soil trend appears stable with continued adequate protective ground cover. The browse trend is slightly up for the key preferred species true mountain mahogany. The number of mature plants declined slightly, but the number of seedlings and young increased dramatically. Percent decadence is still low at 8%, yet more shrubs display heavy use and poor vigor. Trend for the herbaceous understory is stable to slightly improving. Quadrat frequency of bluebunch wheatgrass, Sandberg bluegrass, and needle-and-thread increased while frequency of squirreltail, Indian ricegrass, and prairie Junegrass declined.

##### TREND ASSESSMENT

soil - stable (0)

browse - slightly up (+1)

herbaceous understory - stable (0)

#### 1995 TREND ASSESSMENT

Soil conditions are still stable with adequate protective ground cover. Trend for browse is slightly up for mahogany. Although total density declined from 5,000 plants/acre to 3,580, the number of mature plants increased. It should also be noted that 60% of the population in 1988 was classified as young plants and with the accompanying drought, many would have been lost. The much increased sample size would also account for some of the change in density. Decadency declined from 8% to 1% and vigor has improved. The only negative aspect is the increased heavy use (23% to 30%). A few bitterbrush were picked up in the larger sample used in 1995. Fifty percent of the mature plants were heavily hedged. Snowberry also showed more moderate to heavy use in 1995. Overall, the combined trend for the herbaceous understory is down. There was a very large decrease for perennial grasses and a slight increase for perennial forbs. However, the slight increase in perennial forbs cannot compensate for the large losses to the perennial grasses. The Desirable Components Index rated this site as fair with a score of 66 due to good browse cover, low decadence, good forb cover, moderate perennial grass cover, and low annual grass cover.

##### TREND ASSESSMENT

soil - stable (0)

browse - slightly up (+1)

herbaceous understory - down (-2)

winter range condition (DC Index) - Fair (66) High Potential scale

## 2000 TREND ASSESSMENT

Trend for soil is considered stable. Bare ground slightly increased and the ratio of protective ground cover (vegetation, litter, and cryptogams) to bare soil decreased slightly, but not enough to warrant a change in trend. Erosion is slight based on the erosion condition class. Trend for browse is stable. Poor vigor increased in the mahogany population, but this is due to drought and should improve with better precipitation in the future. Percent decadence is low (6%) and recruitment is fairly high at 21%. The increase in heavy use may be overestimated due to depressed annual leader growth caused by drought in 2000. Serviceberry and mountain big sagebrush both show increased decadency and poor vigor. As with mahogany, these increases are most likely drought related and should improve with normal precipitation. Recruitment is high for both of these species as well. Trend for the herbaceous understory is slightly down overall. Sum of nested frequency increased for perennial grasses, but decreased substantially for perennial forbs. Overall, forbs contribute to about 50% of the herbaceous cover. The loss of forb frequency is due to drought and may improve with a return to normal precipitation patterns. The Desirable Components Index rated this site as good to excellent with a score of 89 due to good browse, forb, and grass cover, as well as decreased annual grass cover.

### TREND ASSESSMENT

soil - slightly down (-1)

browse - stable (0)

herbaceous understory - slightly down (-1)

winter range condition (DC Index) - Good to Excellent (89) High Potential scale

## 2005 TREND ASSESSMENT

Trend for soil is considered stable. Bare ground slightly decreased and the ratio of protective ground cover (vegetation, litter, and cryptogams) to bare ground increased back to the 1995 level of 3.2:1. However, these slight changes do not warrant a change in trend. Trend for key browse true mountain mahogany is down. Population density decreased from 3,260 plants/acre in 2000 to 2,420 in 2005. Young recruitment is good at 20%, but percent decadency increased slightly from 6% in 2000 to 16% in 2005. Use has remained heavy on mahogany and serviceberry. Serviceberry and black sagebrush both decreased in density in 2005, while mountain big sagebrush remained fairly constant. Percent decadency on mountain big sagebrush remained high at 30%, but young recruitment was fairly good at 12%. Trend for the herbaceous understory is considered stable. Overall, perennial forbs and grasses sum of nested frequency improved slightly. Cheatgrass increased significantly and appears to be increasing, however it still is below 5% cover and a quadrat frequency of about 50%. Annual forbs were also abundant with above average precipitation. The Desirable Components Index rated this site as good with a score of 75 due to good browse, forb, and grass cover, but annual grass cover increased.

### TREND ASSESSMENT

soil - stable (0)

browse - down (-2)

herbaceous understory - stable (0)

winter range condition (DC Index) - Good (75) High Potential scale

HERBACEOUS TRENDS --  
Management unit 09 , Study no: 13

T y p e	Species	Nested Frequency				Average Cover %		
		'88	'95	'00	'05	'95	'00	'05
G	<i>Agropyron dasystachyum</i>	-	-	-	6	-	-	.03
G	<i>Agropyron spicatum</i>	<sub>b</sub> 125	<sub>a</sub> 67	<sub>a</sub> 73	<sub>a</sub> 50	.66	2.08	1.52
G	<i>Bouteloua gracilis</i>	12	4	9	11	.03	.33	.22
G	<i>Bromus tectorum</i> (a)	-	<sub>b</sub> 61	<sub>a</sub> 14	<sub>c</sub> 145	1.28	.06	3.60
G	<i>Carex</i> sp.	93	110	94	98	1.67	3.58	2.66
G	<i>Koeleria cristata</i>	5	-	5	4	-	.30	.20
G	<i>Oryzopsis hymenoides</i>	<sub>a</sub> 7	<sub>a</sub> 21	<sub>a</sub> 24	<sub>b</sub> 62	.36	.78	2.17
G	<i>Poa fendleriana</i>	-	-	2	5	-	.00	.09
G	<i>Poa secunda</i>	<sub>c</sub> 171	<sub>a</sub> 3	<sub>b</sub> 29	<sub>ab</sub> 9	.00	.51	.04
G	<i>Sitanion hystrix</i>	<sub>b</sub> 59	<sub>a</sub> 22	<sub>a</sub> 17	<sub>ab</sub> 41	.18	.31	.44
G	<i>Stipa comata</i>	<sub>c</sub> 175	<sub>a</sub> 76	<sub>bc</sub> 132	<sub>ab</sub> 116	.85	6.64	3.95
Total for Annual Grasses		0	61	14	145	1.28	0.06	3.60
Total for Perennial Grasses		647	303	385	402	3.77	14.57	11.34
Total for Grasses		647	364	399	547	5.05	14.64	14.94
F	<i>Agoseris glauca</i>	-	-	-	3	-	-	.15
F	<i>Allium</i> sp.	-	-	-	2	-	-	.02
F	<i>Antennaria rosea</i>	<sub>b</sub> 8	<sub>a</sub> -	<sub>a</sub> -	<sub>a</sub> -	-	-	-
F	<i>Arabis</i> sp.	<sub>a</sub> 3	<sub>b</sub> 45	<sub>a</sub> 1	<sub>a</sub> 6	.16	.00	.04
F	<i>Arenaria congesta</i>	-	-	1	-	-	.00	-
F	<i>Artemisia ludoviciana</i>	<sub>ab</sub> 6	<sub>b</sub> 21	<sub>ab</sub> 17	<sub>a</sub> 2	.15	.28	.01
F	<i>Astragalus convallarius</i>	7	6	1	-	.04	.01	-
F	<i>Astragalus spatulatus</i>	2	1	-	1	.03	-	.03
F	<i>Balsamorhiza hookeri</i>	<sub>b</sub> 155	<sub>b</sub> 123	<sub>b</sub> 117	<sub>a</sub> 68	1.11	2.79	2.30
F	<i>Balsamorhiza sagittata</i>	-	-	-	1	-	-	.03
F	<i>Castilleja linariaefolia</i>	<sub>a</sub> -	<sub>b</sub> 26	<sub>a</sub> 2	<sub>a</sub> -	.13	.03	-
F	<i>Calochortus nuttallii</i>	<sub>a</sub> 6	<sub>a</sub> 3	<sub>a</sub> 3	<sub>b</sub> 31	.00	.00	.10
F	<i>Chenopodium leptophyllum</i> (a)	-	<sub>b</sub> 22	<sub>a</sub> 7	<sub>a</sub> 4	.05	.02	.01
F	<i>Collomia linearis</i> (a)	-	<sub>c</sub> 133	<sub>a</sub> 1	<sub>b</sub> 99	.80	.00	.66
F	<i>Comandra pallida</i>	<sub>b</sub> 43	<sub>a</sub> 13	<sub>ab</sub> 34	<sub>a</sub> 15	.14	.32	.15
F	<i>Collinsia parviflora</i> (a)	-	-	-	8	-	-	.04
F	<i>Crepis acuminata</i>	<sub>a</sub> -	<sub>ab</sub> 4	<sub>a</sub> 1	<sub>b</sub> 11	.03	.00	.27
F	<i>Cryptantha</i> sp.	<sub>ab</sub> 15	<sub>c</sub> 37	<sub>a</sub> 3	<sub>bc</sub> 40	.27	.03	.29
F	<i>Cymopterus longipes</i>	7	6	9	21	.02	.09	.22
F	<i>Delphinium nuttallianum</i>	-	-	-	6	-	-	.02

Type	Species	Nested Frequency				Average Cover %		
		'88	'95	'00	'05	'95	'00	'05
F	<i>Descurainia pinnata</i> (a)	-	b19	a-	b16	.04	-	.07
F	<i>Draba</i> sp. (a)	-	b58	a-	b31	.11	-	.07
F	<i>Erigeron flagellaris</i>	c21	bc14	ab4	a-	.02	.03	-
F	<i>Erigeron pumilus</i>	ab2	ab12	b17	a1	.03	.19	.00
F	<i>Eriogonum umbellatum</i>	ab5	b13	b9	a-	.08	.10	-
F	<i>Gilia</i> sp. (a)	-	-	-	4	-	-	.00
F	<i>Helianthella microcephala</i>	58	76	76	52	1.40	1.12	1.75
F	<i>Heuchera parvifolia</i>	4	5	-	-	.01	-	-
F	<i>Hymenoxys acaulis</i>	-	1	-	2	.00	-	.03
F	<i>Lappula occidentalis</i> (a)	-	b104	a2	b137	.51	.00	.54
F	<i>Lepidium densiflorum</i> (a)	-	c174	a-	b143	1.28	-	.45
F	<i>Linum lewisii</i>	-	5	-	5	.01	-	.03
F	<i>Lithospermum ruderales</i>	b15	a3	a1	a3	.04	.03	.15
F	<i>Lychnis drummondii</i>	3	3	-	-	.03	-	-
F	<i>Machaeranthera grindelioides</i>	14	18	24	24	.39	.73	.77
F	<i>Orobanch</i> sp.	-	3	-	-	.00	-	-
F	<i>Penstemon caespitosus</i>	b12	a-	ab1	a-	-	.00	-
F	<i>Penstemon humilis</i>	c35	bc14	a-	b13	.09	-	.13
F	<i>Petrorhiza pumila</i>	46	60	57	47	1.45	3.11	3.10
F	<i>Phlox longifolia</i>	b72	ab51	a30	a36	.19	.18	.17
F	<i>Polygonum douglasii</i> (a)	-	c79	a1	b46	.35	.00	.10
F	<i>Schoenocrambe linifolia</i>	a-	b57	a7	b54	.43	.01	.36
F	<i>Sedum lanceolatum</i>	b55	a22	a14	a9	.16	.05	.05
F	<i>Senecio multilobatus</i>	8	3	2	3	.63	.00	.03
F	<i>Sphaeralcea coccinea</i>	12	21	10	16	.19	.39	.26
F	<i>Tragopogon dubius</i>	4	-	3	-	-	.00	-
F	<i>Zigadenus elegans</i>	a-	b12	b10	c23	.02	.05	.22
Total for Annual Forbs		0	589	11	488	3.15	0.03	1.96
Total for Perennial Forbs		618	678	454	495	7.33	9.62	10.74
Total for Forbs		618	1267	465	983	10.48	9.66	12.70

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

BROWSE TRENDS --  
Management unit 09 , Study no: 13

T y p e	Species	Strip Frequency			Average Cover %		
		'95	'00	'05	'95	'00	'05
B	<i>Amelanchier utahensis</i>	20	35	25	1.33	5.81	2.82
B	<i>Artemisia frigida</i>	0	8	8	-	.06	.18
B	<i>Artemisia nova</i>	38	40	35	1.24	2.92	2.15
B	<i>Artemisia tridentata vaseyana</i>	38	41	49	5.35	3.95	5.09
B	<i>Cercocarpus montanus</i>	85	80	77	10.75	10.21	9.60
B	<i>Chrysothamnus depressus</i>	3	2	1	.06	.03	.00
B	<i>Chrysothamnus nauseosus graveolens</i>	0	1	0	-	-	-
B	<i>Chrysothamnus viscidiflorus lanceolatus</i>	12	12	13	.68	.39	.36
B	<i>Eriogonum corymbosum</i>	1	0	2	-	.00	.00
B	<i>Gutierrezia sarothrae</i>	12	8	26	.56	.40	.55
B	<i>Juniperus osteosperma</i>	0	2	2	.85	1.00	1.68
B	<i>Opuntia fragilis</i>	72	68	75	1.28	1.51	1.68
B	<i>Pediocactus simpsonii</i>	2	9	3	-	.00	.00
B	<i>Pinus edulis</i>	0	1	1	.00	-	.30
B	<i>Purshia tridentata</i>	9	5	4	.49	.36	.21
B	<i>Symphoricarpos oreophilus</i>	9	15	16	.45	1.88	2.05
B	<i>Tetradymia canescens</i>	5	2	2	-	.03	-
Total for Browse		306	329	339	23.08	28.61	26.75

CANOPY COVER, LINE INTERCEPT --  
 Management unit 09 , Study no: 13

Species	Percent Cover	
	'00	'05
Amelanchier utahensis	-	3.68
Artemisia frigida	-	.05
Artemisia nova	-	3.38
Artemisia tridentata vaseyana	-	5.73
Cercocarpus montanus	-	14.31
Chrysothamnus viscidiflorus lanceolatus	-	.55
Eriogonum corymbosum	-	.06
Gutierrezia sarothrae	-	1.66
Juniperus osteosperma	2.00	2.83
Opuntia fragilis	-	.88
Pinus edulis	-	.70
Purshia tridentata	-	1.01
Symphoricarpos oreophilus	-	1.96
Tetradymia canescens	-	.20

KEY BROWSE ANNUAL LEADER GROWTH --  
 Management unit 09 , Study no: 13

Species	Average leader growth (in)
	'05
Artemisia tridentata vaseyana	2.4
Cercocarpus montanus	4.5

BASIC COVER --  
 Management unit 09 , Study no: 13

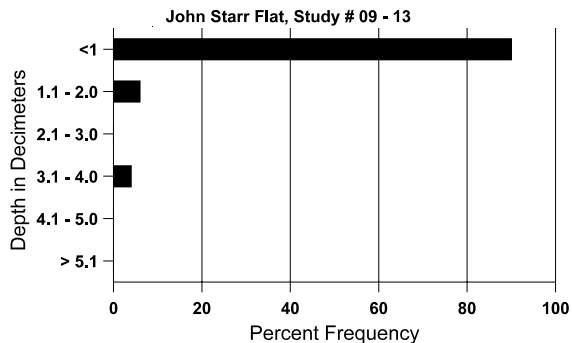
Cover Type	Average Cover %				
	'82	'88	'95	'00	'05
Vegetation	0	7.50	41.08	48.65	50.09
Rock	0	4.75	9.96	12.08	12.89
Pavement	0	2.50	1.25	4.17	2.76
Litter	0	68.75	46.87	46.81	37.80
Cryptogams	0	.75	.23	.21	.50
Bare Ground	12.75	15.75	13.88	17.58	13.75

SOIL ANALYSIS DATA --

Herd Unit 09, Study # 13, Study Name: John Starr Flat

Effective rooting depth (in)	Temp °F (depth)	pH	%sand	%silt	%clay	%OM	ppm P	ppm K	dS/m
7.6	60.4 (9.1)	6.7	67.4	16.0	16.6	3.8	4.1	134.4	0.8

Stoniness Index



PELLET GROUP DATA --

Management unit 09 , Study no: 13

Type	Quadrat Frequency			Days use per acre (ha)	
	'95	'00	'05	'00	'05
Rabbit	8	21	23	-	-
Elk	10	15	21	20 (50)	47 (116)
Cattle	-	-	-	-	2 (4)
Deer	23	19	18	46 (114)	17 (43)

BROWSE CHARACTERISTICS --

Management unit 09 , Study no: 13

		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)
Amelanchier utahensis												
82	<b>333</b>	-	-	333	-	-	100	0	0	-	0	24/24
88	<b>533</b>	-	333	200	-	-	50	13	0	-	0	26/25
95	<b>640</b>	-	180	460	-	-	41	13	0	-	0	24/32
00	<b>1060</b>	60	160	780	120	40	28	45	11	4	17	32/37
05	<b>660</b>	-	40	300	320	-	33	58	48	12	12	28/37

		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)
<b>Artemisia frigida</b>												
82	0	-	-	-	-	-	0	0	-	-	0	-/-
88	0	-	-	-	-	-	0	0	-	-	0	-/-
95	0	-	-	-	-	-	0	0	-	-	0	-/-
00	220	-	-	220	-	-	0	0	-	-	0	9/11
05	380	20	-	380	-	-	0	0	-	-	0	9/8
<b>Artemisia nova</b>												
82	2066	66	333	1733	-	-	52	0	0	-	0	12/17
88	4132	266	1200	1666	1266	-	18	2	31	.48	8	14/15
95	1560	40	260	1240	60	20	51	15	4	1	1	9/15
00	2260	260	100	1800	360	40	5	4	16	8	8	9/15
05	1640	20	20	1560	60	80	39	13	4	1	1	9/15
<b>Artemisia tridentata vaseyana</b>												
82	0	-	-	-	-	-	0	0	0	-	0	-/-
88	266	133	200	-	66	-	0	0	25	-	0	-/-
95	1380	300	300	800	280	180	49	17	20	12	13	21/33
00	1520	-	280	780	460	60	26	5	30	9	13	26/29
05	1460	-	180	840	440	180	14	11	30	11	11	17/26
<b>Cercocarpus montanus</b>												
82	2866	-	600	2133	133	-	65	7	5	-	0	21/27
88	5000	800	3000	1600	400	-	43	23	8	-	20	30/36
95	3580	180	780	2760	40	-	60	30	1	-	0	27/38
00	3260	-	700	2380	180	20	23	64	6	1	16	27/39
05	2420	-	480	1560	380	120	19	69	16	5	6	29/39
<b>Chrysothamnus depressus</b>												
82	0	-	-	-	-	-	0	0	0	-	0	-/-
88	332	-	-	266	66	-	0	0	20	-	0	4/6
95	60	-	-	60	-	-	0	0	0	-	0	7/13
00	60	20	-	60	-	-	0	67	0	-	0	7/13
05	20	-	-	20	-	-	0	0	0	-	0	3/8
<b>Chrysothamnus nauseosus graveolens</b>												
82	0	-	-	-	-	-	0	0	-	-	0	-/-
88	0	-	-	-	-	-	0	0	-	-	0	-/-
95	0	-	-	-	-	-	0	0	-	-	0	-/-
00	60	-	-	60	-	-	0	100	-	-	0	-/-
05	0	-	-	-	-	-	0	0	-	-	0	21/18

		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)
<b>Chrysothamnus viscidiflorus lanceolatus</b>												
82	0	-	-	-	-	-	0	0	0	-	0	-/-
88	0	-	-	-	-	-	0	0	0	-	0	-/-
95	400	-	20	380	-	-	0	5	0	-	0	14/17
00	320	-	-	320	-	20	6	0	0	-	0	14/21
05	400	-	40	340	20	-	0	0	5	-	0	14/20
<b>Eriogonum corymbosum</b>												
82	0	-	-	-	-	-	0	0	-	-	0	-/-
88	0	-	-	-	-	-	0	0	-	-	0	-/-
95	20	-	-	20	-	-	0	0	-	-	0	-/-
00	0	-	-	-	-	-	0	0	-	-	0	-/-
05	80	-	-	80	-	-	0	0	-	-	0	8/10
<b>Gutierrezia sarothrae</b>												
82	66	-	-	66	-	-	0	0	0	-	0	9/9
88	799	-	-	733	66	-	0	0	8	-	8	8/6
95	400	60	-	380	20	-	0	0	5	-	0	10/11
00	880	-	-	840	40	20	0	0	5	-	0	6/8
05	1180	-	40	1140	-	-	0	0	0	-	0	10/11
<b>Juniperus osteosperma</b>												
82	66	-	-	66	-	-	0	0	-	-	0	47/39
88	66	-	-	66	-	-	0	0	-	-	0	53/55
95	0	-	-	-	-	-	0	0	-	-	0	-/-
00	40	-	20	20	-	-	0	0	-	-	0	-/-
05	40	-	40	-	-	-	0	0	-	-	0	-/-
<b>Opuntia fragilis</b>												
82	2333	-	-	2333	-	-	0	0	0	-	0	2/7
88	12133	1533	4200	6000	1933	-	0	0	16	.98	10	2/6
95	5440	60	580	4860	-	-	0	0	0	-	0	3/8
00	6620	200	280	6180	160	100	.30	0	2	.60	.60	2/6
05	5760	-	160	5560	40	-	0	0	1	.69	1	2/7
<b>Pediocactus simpsonii</b>												
82	0	-	-	-	-	-	0	0	-	-	0	-/-
88	0	-	-	-	-	-	0	0	-	-	0	-/-
95	40	-	-	40	-	-	0	0	-	-	0	2/3
00	300	-	-	300	-	-	0	0	-	-	0	2/3
05	120	-	60	60	-	-	0	0	-	-	0	2/3

		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)
<b>Pinus edulis</b>												
82	<b>0</b>	-	-	-	-	-	0	0	-	-	0	-/-
88	<b>66</b>	-	66	-	-	-	0	0	-	-	0	-/-
95	<b>0</b>	-	-	-	-	-	0	0	-	-	0	-/-
00	<b>20</b>	-	20	-	-	-	0	0	-	-	0	-/-
05	<b>20</b>	-	-	20	-	-	0	0	-	-	0	-/-
<b>Purshia tridentata</b>												
82	<b>0</b>	-	-	-	-	-	0	0	0	-	0	-/-
88	<b>0</b>	-	-	-	-	-	0	0	0	-	0	-/-
95	<b>280</b>	-	40	240	-	-	36	43	0	-	0	17/31
00	<b>180</b>	-	-	180	-	-	22	67	0	-	0	17/40
05	<b>80</b>	-	-	60	20	20	0	100	25	25	25	17/39
<b>Symphoricarpos oreophilus</b>												
82	<b>1400</b>	-	1000	400	-	-	0	0	0	-	0	7/4
88	<b>1132</b>	-	866	266	-	-	0	0	0	-	29	9/14
95	<b>320</b>	40	60	260	-	-	19	13	0	-	0	13/26
00	<b>860</b>	-	120	740	-	-	2	0	0	-	0	8/16
05	<b>860</b>	-	-	840	20	-	0	0	2	2	2	10/17
<b>Tetradymia canescens</b>												
82	<b>266</b>	-	-	266	-	-	75	25	0	-	25	13/14
88	<b>199</b>	-	133	66	-	-	33	0	0	-	0	7/10
95	<b>160</b>	-	20	120	20	-	63	25	13	-	0	9/13
00	<b>40</b>	-	-	-	40	-	50	50	100	-	0	16/17
05	<b>40</b>	-	-	40	-	-	50	0	0	-	0	6/15