

Trend Study 14-30-04

Study site name: Milk Ranch Point .

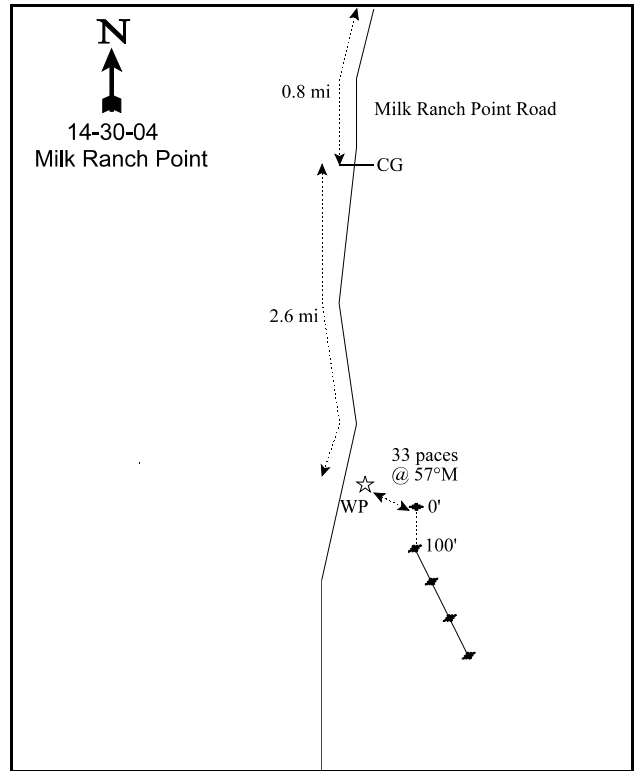
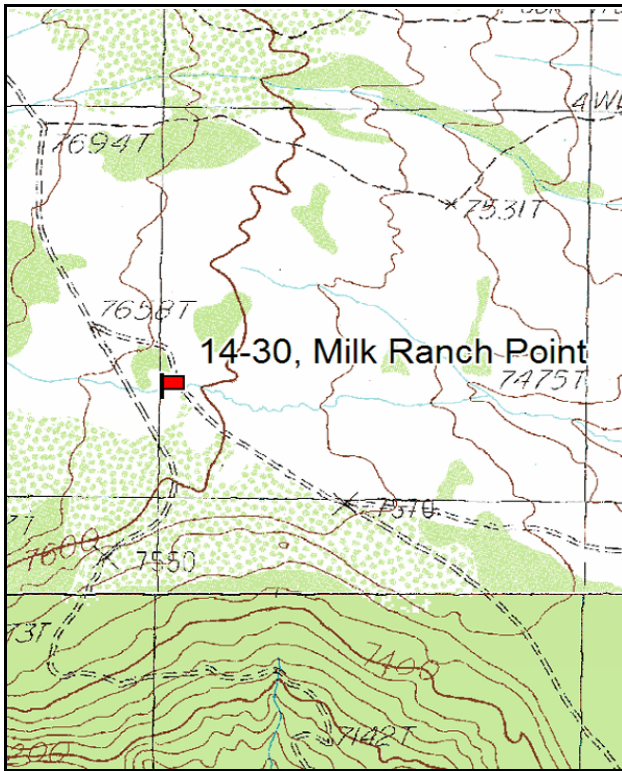
Vegetation type: Mixed Mountain Brush .

Compass bearing: frequency baseline 165 degrees magnetic.

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

LOCATION DESCRIPTION

From Forest Service Road # 92, turn south onto Milk Ranch Point road. Drive 0.8 miles to a cattleguard. Continue 2.6 miles to a witness post. From the witness post, walk 33 paces at 57°M to the 0-foot stake. The 200'-400' stakes are at a bearing of 145°M.



Map Name: Cream Pots

Diagrammatic Sketch

Township 36S , Range 20E , Section 29

GPS: NAD 27, UTM 12S 4165241 N, 611012 E

DISCUSSION

Milk Ranch Point - Trend Study No. 14-30

The Milk Ranch Point study was established in 1992. This study is located at an elevation of 7,600 feet with an eastern aspect near the edge of a bench as it drops off to the south to lower pinyon-juniper and sagebrush covered mesas above Arch Canyon. The site was originally plowed and seeded in 1953. Part of the bench burned sometime prior to 2004 in a prescribed burn, but the sampling area was not effected. There are many stock ponds along the bench which contained water in 1992 due to an exceptionally wet August. This area is used for cattle grazing and elk winter and/or transition range. Cattle use the area as part of the Babylon allotment which is grazed from June 1 to Oct 15 by 205 head. Pellet group data from 1999 estimated 11 deer days use/acre (27 ddu/ha), 1 elk days use/acre (2 edu/ha), and 6 cow days use/acre (15 cdu/ha). In 2004, pellet group data estimated 4 deer and 3 elk days use/acre (8 ddu/ha and 7 edu/ha).

Soil is very sandy, fairly shallow, and compact. Effective rooting depth is variable, but averages just over 14 inches through the site. Soil texture is a sandy loam with a neutral pH (6.7). Parent material is sandstone. There are a few rocks strewn over the surface with very little pavement present. Soil erosion has taken place in the past, as evidenced by plant pedestaling, especially for the shrubs. There is also an active gully near the site.

This mountain brush community is dominated by serviceberry, mountain big sagebrush, and Gambel oak. The serviceberry is large and some are tall enough to be partly unavailable. It provided 50% of the browse cover in 1992 with an estimated population of 3,800 plants/acre and seedlings and young plants were numerous. Density declined to 980 plants/acre in 1999, primarily due to a dramatic reduction in young plants. It still provided 45% of the browse cover. In 2004, density was 13% higher with an increase in young plants. Mature plant density and cover remained stable between 1999 and 2004. Utilization was light to moderate in 1992, moderate to heavy in 1999, then categorized as moderate in 2004. Mountain big sagebrush has a stable population of about 1,500 plants/acre. Gambel oak provided 20% of the browse cover in 1992 with a population of 1,620 stems/acre. Utilization was light to moderate with good vigor. Density has remained relatively stable in 1999 and 2004 with only light use. Pinyon and juniper trees are found throughout the site. Most of the mature trees are about 15 to 20 feet in height. Point quarter data from 1999 estimated 84 pinyon and 20 juniper trees/acre. Average diameter of pinyon was 3.5 inches, while juniper was 4.5 inches. Pinyon density increased to 95 trees/acre in 2004, with an average diameter of 4.5 inches.

The herbaceous understory is diverse. Crested wheatgrass, intermediate wheatgrass, and mutton bluegrass are the most dominate grass species. Intermediate wheatgrass was most abundant in 1992, but has declined since. Nested frequency for perennial grasses was stable between 1992 and 1999, but declined 25% in 2004. Cover remained stable. Forbs are more abundant than grasses and provide more cover. There are many useful and preferred species present including arrowleaf balsamroot, Indian paintbrush, winged eriogonum, redroot eriogonum, thicketleaf peavine, silvery lupine, and several species of penstemon. The most dominant species are arrowleaf balsamroot, silvery lupine, Washington lupine, and rock goldenrod. Nested frequency and cover of perennial forbs has declined since 1992. Nested frequency in 2004 was just over half of what it was in 1992 and down one-third since 1999.

1992 APPARENT TREND ASSESSMENT

With high species diversity and good vegetative cover, the trend for this site at this time would be considered stable. All the key browse species for the site have excellent vigor with very good biotic potentials and age class structures. Trend for browse appears stable and in excellent condition. The herbaceous understory is also in very good condition with 10 species of grasses and 22 species of forbs on the site. The Desirable Components Index (see methods) rating is good at 88. The preferred browse species are abundant and healthy,

while the herbaceous understory is also abundant.

winter range condition (DC Index) - 88 (good) Mountain brush type

1999 TREND ASSESSMENT

Trend for soil is down slightly. Percent cover of vegetation and litter have declined slightly while percent cover for bare ground has increased from 19% to 26%. Cryptogamic cover has also decreased from 7% to 3%. There is some erosion occurring on the site, but it is slight due to the gentle terrain. Density of serviceberry has declined from 3,800 to 980 plants/acre. Most of the change is due to a reduction in the number of young sampled. Cover also declined from 16% to 11% and use was heavier with 35% of the plants sampled displaying heavy browsing. Mountain big sagebrush and Gambel oak appear to have stable populations. Since serviceberry provides nearly half of the shrub cover, the browse trend is considered down slightly. Trend for the herbaceous understory is mixed. Sum of nested frequency for grasses has remained stable. Nested frequency of crested wheatgrass increased since 1992, while frequency of intermediate wheatgrass declined significantly. This appears to be a response to drought conditions which occurred in this area during the late 1990's, since crested wheatgrass is more drought tolerant than intermediate wheatgrass, its nested frequency value increased. Sum of nested frequency of forbs declined. Since forbs are more abundant and produce more cover than grasses, overall trend for the herbaceous understory is considered down slightly but still in good condition. The DCI score has dropped to fair to good due to lower preferred browse cover and decreased perennial grass cover.

TREND ASSESSMENT

soil - down slightly (2)

browse - down slightly, especially for serviceberry (2)

herbaceous understory - down slightly (2)

winter range condition (DC Index) - 68 (fair to good) Mountain brush type

2004 TREND ASSESSMENT

The soil trend is slightly down once again. Bare ground increased from 26 to 35%, while vegetation, litter, and cryptogam cover all declined. The browse trend is stable. Density and cover has remained stable for all of the important browse species. Utah serviceberry, mountain big sagebrush, and gambel oak all have stable populations. Many seedlings of mountain big sagebrush were sampled. One negative is the increased density of broom snakeweed which increased 68%, but cover is still less than 1%. The herbaceous understory trend is down. Nested frequency of perennial grasses decreased by about one-fourth since 1999, but cover has remained stable. Nested frequency of perennial forbs decreased by one-third, while cover declined from about 15% to 11%. The DCI score is stable at fair to good (71).

TREND ASSESSMENT

soil - down slightly (2)

browse - stable (3)

herbaceous understory - down (1)

winter range condition (DC Index) - 71 (fair to good) Mountain brush type

HERBACEOUS TRENDS --
Management unit 14 , Study no: 30

T y p e	Species	Nested Frequency			Average Cover %		
		'92	'99	'04	'92	'99	'04
G	<i>Agropyron cristatum</i>	59	95	83	.43	1.48	1.60
G	<i>Agropyron intermedium</i>	_b 173	_a 127	_a 96	5.66	2.98	3.07
G	<i>Bouteloua gracilis</i>	4	4	4	.15	.03	.15
G	<i>Carex</i> spp.	_b 17	_{ab} 10	_a 1	.39	.24	.18
G	<i>Koeleria cristata</i>	7	5	-	.30	.03	-
G	<i>Oryzopsis hymenoides</i>	_a 4	_b 19	_a 4	.04	.29	.02
G	<i>Poa bulbosa</i>	-	6	-	-	.01	-
G	<i>Poa fendleriana</i>	71	99	86	2.89	2.20	2.78
G	<i>Poa pratensis</i>	2	-	-	.03	-	-
G	<i>Sitanion hystrix</i>	9	-	3	.03	-	.00
G	<i>Stipa columbiana</i>	3	4	-	.03	.15	-
Total for Annual Grasses		0	0	0	0	0	0
Total for Perennial Grasses		349	369	277	9.97	7.43	7.82
Total for Grasses		349	369	277	9.97	7.43	7.82
F	<i>Agoseris glauca</i>	_a -	_b 7	_a -	-	.12	-
F	<i>Androsace septentrionalis</i> (a)	-	3	-	-	.00	-
F	<i>Arabis</i> spp.	-	2	2	-	.00	.00
F	<i>Balsamorhiza sagittata</i>	_a 46	_b 89	_a 57	2.50	4.48	3.39
F	<i>Castilleja linariaefolia</i>	_c 59	_b 38	_a -	.87	.46	-
F	<i>Comandra pallida</i>	-	-	5	-	-	.03
F	<i>Collinsia parviflora</i> (a)	-	2	10	-	.00	.02
F	<i>Crepis acuminata</i>	10	22	6	.12	.30	.05
F	<i>Cryptantha</i> spp.	_b 44	_a -	_a 2	1.86	-	.03
F	<i>Cymopterus</i> spp.	-	6	4	-	.05	.04
F	<i>Eriogonum alatum</i>	_b 102	_a 51	_a 43	2.23	.48	.28
F	<i>Erigeron eatonii</i>	18	9	13	.39	.07	.02
F	<i>Erigeron pumilus</i>	16	14	10	.14	.05	.07
F	<i>Eriogonum racemosum</i>	43	30	23	.56	.19	.21
F	<i>Eriogonum umbellatum</i>	-	-	3	-	-	.03
F	<i>Euphorbia</i> spp.	-	2	-	-	.00	-
F	<i>Haplopappus acaulis</i>	-	1	-	-	.00	-
F	<i>Hymenoxys acaulis</i>	_b 95	_a 37	_{ab} 68	.90	.45	.46
F	<i>Ipomopsis aggregata</i>	5	6	1	.01	.18	.00
F	<i>Lathyrus lanszwertii</i>	7	1	8	1.00	.03	.04
F	<i>Lesquerella</i> spp.	_b 98	_{ab} 63	_a 58	.54	.30	.37

T y p e	Species	Nested Frequency			Average Cover %		
		'92	'99	'04	'92	'99	'04
		F	Lupinus argenteus	_b 79	_b 96	_a 2	2.85
F	Lupinus polyphyllus	_a 6	_b 41	_b 41	.03	1.72	1.82
F	Microsteris gracilis (a)	_a -	_b 1	_b 25	-	.00	.04
F	Penstemon lentus	_b 68	_a 57	_a 37	.37	1.39	.24
F	Petradoria pumila	_b 58	_a 35	_b 54	2.45	1.73	3.30
F	Penstemon strictus	6	14	1	.04	.05	.00
F	Phlox longifolia	_b 77	_b 72	_a 30	.43	.23	.13
F	Polygonum douglasii (a)	_b 60	_a 1	_a -	.22	.00	-
F	Senecio multilobatus	-	3	-	-	.03	-
F	Senecio neomexicanus	25	16	10	.10	.07	.05
F	Taraxacum officinale	-	4	1	-	.03	.00
F	Unknown forb-perennial	3	-	-	.01	-	-
F	Vicia americana	-	2	-	-	.00	-
F	Zigadenus paniculatus	-	2	-	-	.00	-
Total for Annual Forbs		60	7	35	0.22	0.01	0.05
Total for Perennial Forbs		865	720	479	17.46	14.89	10.72
Total for Forbs		925	727	514	17.69	14.92	10.78

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

BROWSE TRENDS --

Management unit 14 , Study no: 30

T y p e	Species	Strip Frequency			Average Cover %		
		'92	'99	'04	'92	'99	'04
		B	Amelanchier utahensis	41	36	34	16.15
B	Artemisia tridentata vaseyana	48	47	42	4.74	4.58	5.17
B	Chrysothamnus depressus	40	28	30	.28	.28	.25
B	Gutierrezia sarothrae	44	20	39	1.19	.10	.72
B	Juniperus osteosperma	1	0	0	.63	.15	.15
B	Pinus edulis	6	5	4	2.55	2.09	2.39
B	Purshia tridentata	5	4	3	.41	.03	-
B	Quercus gambelii	19	16	16	6.48	6.48	4.71
B	Symphoricarpos oreophilus	2	0	0	-	-	-
Total for Browse		206	156	168	32.46	24.80	25.16

CANOPY COVER, LINE INTERCEPT --
 Management unit 14 , Study no: 30

Species	Percent Cover	
	'99	'04
Amelanchier utahensis	1.39	15.39
Artemisia tridentata vaseyana	-	5.09
Chrysothamnus depressus	-	.65
Gutierrezia sarothrae	-	.60
Juniperus osteosperma	-	.50
Pinus edulis	3.79	4.53
Quercus gambelii	6.40	7.08

KEY BROWSE ANNUAL LEADER GROWTH --
 Management unit 14 , Study no: 30

Species	Average leader growth (in)
	'04
Amelanchier utahensis	3.4
Artemisia tridentata vaseyana	1.9

POINT-QUARTER TREE DATA --
 Management unit 14 , Study no: 30

Species	Trees per Acre	
	'99	'04
Juniperus osteosperma	20	-
Pinus edulis	84	95
Quercus gambelii	49	-

Average diameter (in)	
'99	'04
4.5	-
3.5	4.5
1.3	-

BASIC COVER --
 Management unit 14 , Study no: 30

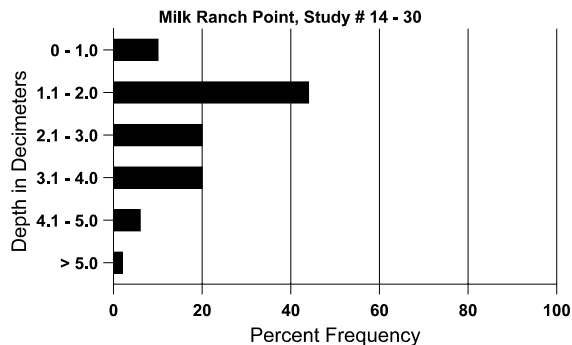
Cover Type	Average Cover %		
	'92	'99	'04
Vegetation	47.50	44.46	41.76
Rock	2.67	.96	1.24
Pavement	0	1.31	.85
Litter	52.97	50.88	42.66
Cryptogams	6.70	3.27	1.95
Bare Ground	18.52	26.10	35.11

SOIL ANALYSIS DATA --

Management unit 14, Study no: 30, Study Name: Milk Ranch Point

Effective rooting depth (in)	Temp °F (depth)	pH	%sand	%silt	%clay	%OM	PPM P	PPM K	ds/m
14.3	50.7 (11.3)	6.7	58.0	23.4	18.6	1.5	3.4	108.8	0.6

Stoniness Index



PELLET GROUP DATA --

Management unit 14, Study no: 30

Type	Quadrat Frequency		
	'92	'99	'04
Rabbit	29	44	21
Elk	2	-	3
Deer	5	12	1
Cattle	-	1	1

Days use per acre (ha)	
'99	'04
-	-
1 (2)	3 (7)
11 (27)	4 (8)
6 (15)	-

BROWSE CHARACTERISTICS --

Management unit 14, Study no: 30

		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												
92	3800	3220	2600	1160	40	-	28	5	1	-	4	-/-
99	980	20	160	800	20	-	31	35	2	2	2	53/67
04	1120	-	260	820	40	20	39	4	4	-	0	47/58
Artemisia tridentata vaseyana												
92	1520	100	580	640	300	-	32	5	20	5	7	-/-
99	1500	20	160	1040	300	180	21	4	20	13	13	18/30
04	1580	1540	40	1140	400	360	6	0	25	9	9	20/29

		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)
Chrysothamnus depressus												
92	1600	60	840	700	60	-	21	4	4	1	4	-/-
99	920	-	-	880	40	40	7	9	4	4	4	3/7
04	1020	-	20	940	60	-	20	12	6	2	2	5/10
Gutierrezia sarothrae												
92	2160	20	40	2120	-	-	0	0	-	-	.92	-/-
99	740	60	60	680	-	-	0	0	-	-	0	6/7
04	2300	240	1060	1240	-	-	0	0	-	-	0	8/9
Juniperus osteosperma												
92	20	-	20	-	-	-	0	0	-	-	0	-/-
99	0	-	-	-	-	-	0	0	-	-	0	-/-
04	0	-	-	-	-	-	0	0	-	-	0	-/-
Pinus edulis												
92	120	140	80	40	-	-	0	0	-	-	0	-/-
99	100	20	60	40	-	-	0	20	-	-	0	-/-
04	80	60	40	40	-	20	0	0	-	-	0	-/-
Purshia tridentata												
92	100	-	20	60	20	-	40	60	20	-	0	-/-
99	80	-	20	60	-	-	25	25	0	-	0	13/33
04	60	-	-	60	-	-	33	33	0	-	0	12/25
Quercus gambelii												
92	1620	380	680	940	-	-	26	0	0	-	0	-/-
99	1280	80	600	680	-	100	0	0	0	-	0	47/39
04	1240	-	780	400	60	240	0	0	5	-	0	47/44
Symphoricarpos oreophilus												
92	160	-	140	-	20	-	0	0	13	13	13	-/-
99	0	-	-	-	-	-	0	0	0	-	0	-/-
04	0	-	-	-	-	-	0	0	0	-	0	20/17