

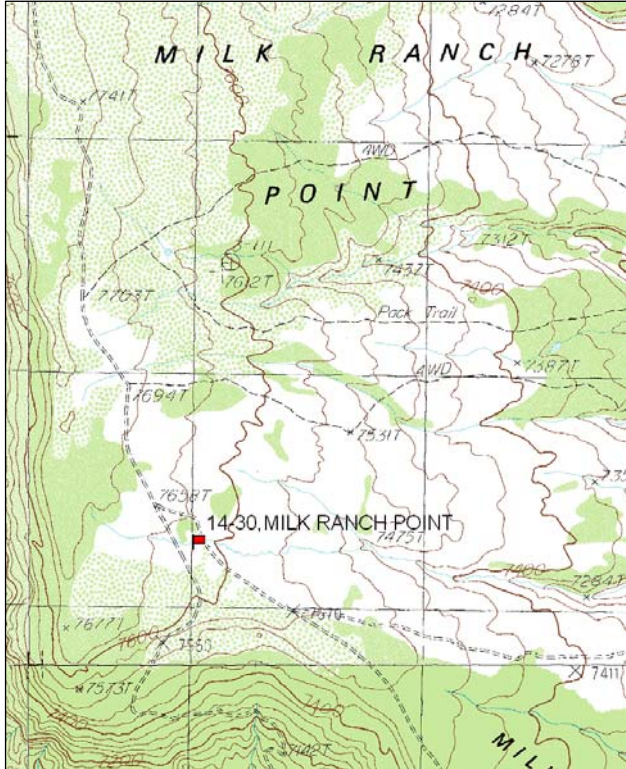
MILK RANCH POINT - TREND STUDY NO. 14-30-09

Vegetation Type: Mixed Mountain Brush
Range Type: Crucial Deer Spring/Fall, Crucial Elk Winter
NRCS Ecological Site Description: Not Available
Land Ownership: USFS
Elevation: 7,600 ft (2,316 m)
Aspect: East
Slope: 2%
Transect bearing: 165 degrees magnetic
Belt placement: line 1 (11 & 71ft), line 2 (34ft), line 3 (59ft), line 4 (95ft)

Directions:

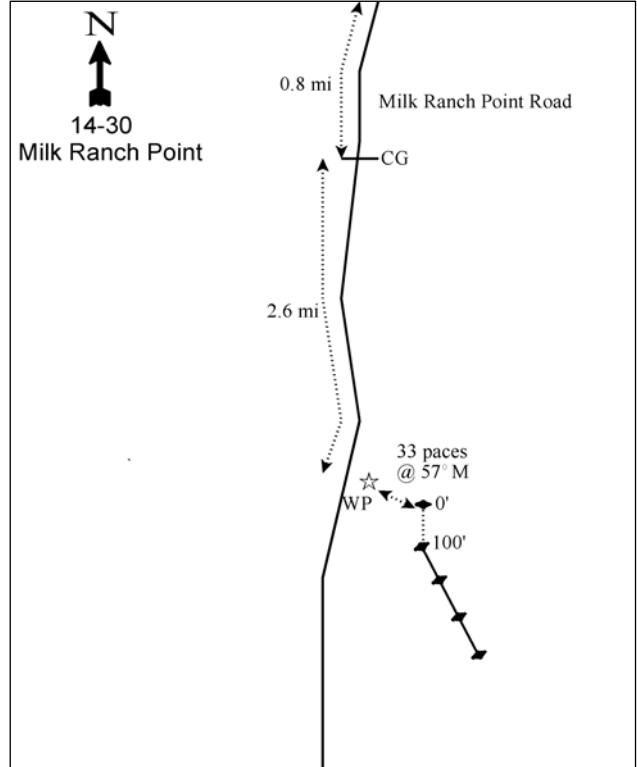
From Forest Service Road # 92, turn south onto Milk Ranch Point road. Drive 0.8 miles to a cattleguard. Continue 2.6 miles to a witness post. From the witness post, walk 33 paces at 57°M to the 0-foot stake. The 200'-400' stakes are at a bearing of 145°M.

Map Name: Cream Pots



Township: 36S, Range: 20E, Section: 29

Diagrammatic Sketch:



GPS: NAD 83, UTM 12S 610949 E 4165444 N

MILK RANCH POINT - TREND STUDY NO. 14-30

Site Information

Site Description: The study was established near the edge of a bench that drops off to the south to lower pinyon pine (*Pinus edulis*), Utah juniper (*Juniperus osteosperma*) and sagebrush (*Artemisia sp.*) 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 affected. There are many stock ponds along the bench and the area is managed as part of the Babylon allotment. Pellet group data has indicated light use from deer, elk and cattle since 1999 (Table - Pellet Group Data).

Browse: This mountain brush community is dominated by Utah serviceberry (*Amelanchier utahensis*), mountain big sagebrush (*Artemisia tridentata* ssp. *vaseyana*), and Gambel oak (*Quercus gambelii*). Serviceberry provides the majority of browse cover on the site (Table - Browse Trends). The serviceberry plants are large and some are tall enough to be partly unavailable. All three species have healthy populations with low decadence and poor vigor, and good recruitment of young plants. Utilization has been mostly light to moderate for all three species with some heavy use of serviceberry and sagebrush in some sample years. There is also a small population of antelope bitterbrush (*Purshia tridentata*) that has shown heavy use in the past (Table - Browse Characteristics). Mature pinyon and juniper trees are established at a fairly high density throughout the site. Point quarter data has estimated an increase in pinyon density since 1999 with very little change in the juniper density (Table - Point-Quarter Data). There has also been a steady increase in the overhead canopy cover of pinyon pine since 1999 (Table - Canopy Cover).

Herbaceous Understory: The herbaceous understory is diverse and fairly abundant. Crested wheatgrass (*Agropyron cristatum*), intermediate wheatgrass (*A. intermedium*), and mutton bluegrass (*Poa fendleriana*) are the dominant grass species. Intermediate wheatgrass and mutton bluegrass provide the majority of the grass cover. Other grass species are found only rarely on the site. Forbs are more diverse than grasses and provide more cover. The dominant species are arrowleaf balsamroot (*Balsamorhiza sagittata*), silvery lupine (*Lupinus argenteus*), Washington lupine (*Lupinus polyphyllus*), and rock goldenrod (*Petradoria pumilus*).

Soil: Soil is a sandy loam with a neutral pH and fairly shallow effective rooting depth (Table - Soil Analysis Data). There is good protective cover from vegetation and litter on the site and bare ground cover is low (Table - Basic Cover). The soil erosion condition was classified as slight in 2004 and moderate in 2009 due to the pedestaling of plants and soil movement.

Trend Assessments

Browse:

- **1992 to 1999 - down (-2):** The primary browse species, serviceberry, decreased in density by 74% from 3,800 plants/acre to 980 plants/acre and cover decreased from 16% to 11%. Most of the decrease in density was from a decrease in young serviceberry plants, though there was a decrease in mature plants as well. There was little change in the other preferred browse species.
- **1999 to 2004 - stable (0):** There was a slight increase in the density of serviceberry and mountain big sagebrush, but cover remained similar. Recruitment of young serviceberry increased slightly, but recruitment of young sagebrush plants decreased slightly.
- **2004 to 2009 - slightly up (+1):** There was a 24% increase in the density of mountain big sagebrush from 1,580 plants/acre to 1,960 plants/acre, though there was little change in cover. Recruitment of young sagebrush plants increased to 11% of the population. There was also a slight increase in the density of serviceberry.

Grass:

- **1992 to 1999 - stable (0):** There was little change in the sum of nested frequency of perennial grasses, though cover decreased from 10% to 7%.
- **1999 to 2004 - down (-2):** There was a 25% decrease in the sum of nested frequency of perennial grasses, though cover remained similar.
- **2004 to 2009 - stable (0):** There was little change in the sum of nested frequency or cover of perennial grasses.

Forb:

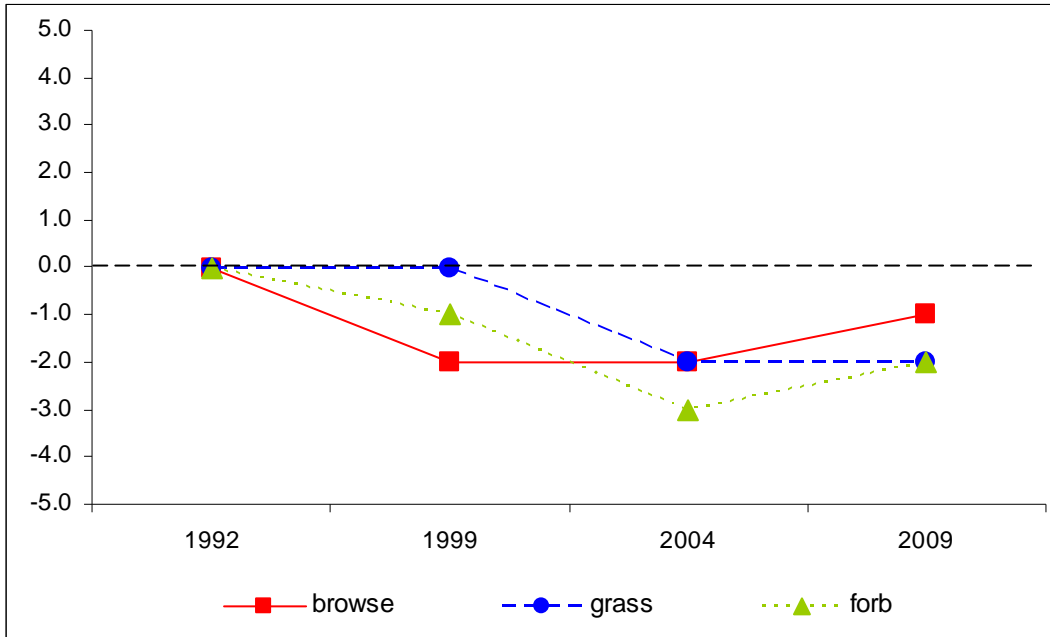
- **1992 to 1999 - slightly down (-1):** The sum of nested frequency of perennial forbs decreased by 17% and cover decreased from 17% to 15%. There was a significant decrease in the nested frequency of Wyoming painted-cup (*Castilleja linariaefolia*), wing eriogonum (*Eriogonum alatum*), and stemless hymenoxys (*Hymenoxys acaulis*).
- **1999 to 2004 - down (-2):** The sum of nested frequency of perennial forbs decreased by 34% and cover decreased to 11%. There was a significant decrease in the nested frequency of silvery lupine.
- **2004 to 2009 - slightly up (+1):** There was a 12% increase in the sum of nested frequency of perennial forbs and cover increased to 12%. There was a significant increase in nested frequency of arrowleaf balsamroot and rock goldenrod.

DEER DESIRABLE COMPONENTS INDEX - HIGH POTENTIAL SCALE --
Management unit 14, study no: 30

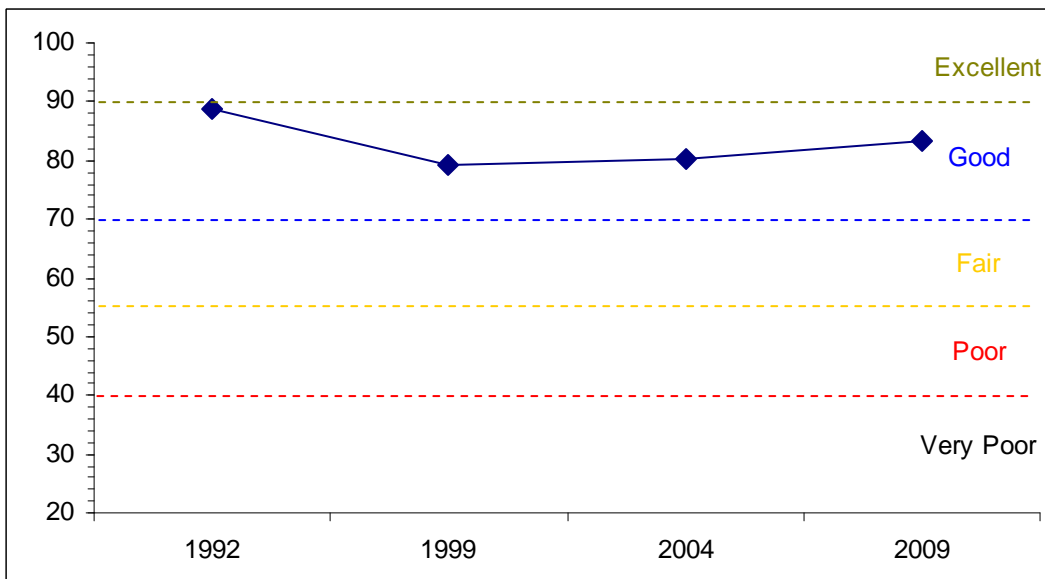
Year	Preferred Browse Cover	Preferred Browse Decadence	Preferred Browse Young	Perennial Grass Cover	Annual Grass Cover	Perennial Forb Cover	Noxious Weeds	Total Score	Ranking
92	30.0	13.7	15.0	19.9	0.0	10.0	0.0	88.7	Good-Excellent
99	29.2	13.5	11.9	14.9	0.0	10.0	0.0	79.4	Good
04	29.1	12.2	13.3	15.6	0.0	10.0	0.0	80.3	Good
09	29.3	13.5	15.0	15.7	0.0	10.0	0.0	83.5	Good

Trend Summary

CUMULATIVE RANGE TREND ASSESSMENT--
Management unit 14, Study no: 30



DEER DESIRABLE COMPONENTS INDEX TREND, HIGH POTENTIAL
Management unit 14, Study no: 30



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

T y p e	Species	Nested Frequency				Average Cover %			
		'92	'99	'04	'09	'92	'99	'04	'09
G	Agropyron cristatum	ab59	b95	b83	a21	.43	1.48	1.60	.32
G	Agropyron intermedium	b173	ab127	a96	a115	5.66	2.98	3.07	3.17
G	Bouteloua gracilis	4	4	4	1	.15	.03	.15	.00
G	Bromus inermis	-	-	-	2	-	-	-	.00
G	Carex sp.	b17	ab10	a1	a2	.39	.24	.18	.04
G	Koeleria cristata	7	5	-	-	.30	.03	-	-
G	Oryzopsis hymenoides	a4	b19	a4	a-	.04	.29	.02	-
G	Poa bulbosa	-	6	-	6	-	.01	-	.04
G	Poa fendleriana	a71	a99	a86	b145	2.89	2.20	2.78	4.07
G	Poa pratensis	2	-	-	-	.03	-	-	-
G	Sitanion hystrix	9	-	3	3	.03	-	.00	.18
G	Stipa columbiana	3	4	-	1	.03	.15	-	.00
Total for Annual Grasses		0	0	0	0	0	0	0	0
Total for Perennial Grasses		349	369	277	296	9.97	7.43	7.82	7.84
Total for Grasses		349	369	277	296	9.97	7.43	7.82	7.84
F	Agoseris glauca	a-	b7	a-	a-	-	.12	-	-
F	Androsace septentrionalis (a)	-	3	-	-	-	.00	-	-
F	Arabis sp.	-	2	2	-	-	.00	.00	-
F	Balsamorhiza sagittata	a46	bc89	ab57	c99	2.50	4.48	3.39	3.58
F	Castilleja linariaefolia	c59	b38	a-	a3	.87	.46	-	.01
F	Collinsia parviflora (a)	-	2	10	7	-	.00	.02	.01
F	Comandra pallida	-	-	5	2	-	-	.03	.03
F	Crepis acuminata	10	22	6	29	.12	.30	.05	.46
F	Cryptantha sp.	b44	a-	a2	ab11	1.86	-	.03	.08
F	Cymopterus sp.	a-	a6	a4	b27	-	.05	.04	.14
F	Erigeron eatonii	18	9	13	7	.39	.07	.02	.05
F	Erigeron pumilus	16	14	10	20	.14	.05	.07	.11
F	Eriogonum alatum	b102	a51	a43	a24	2.23	.48	.28	.23
F	Eriogonum racemosum	b43	ab30	ab23	a13	.56	.19	.21	.06
F	Eriogonum umbellatum	-	-	3	1	-	-	.03	.00
F	Euphorbia sp.	-	2	-	-	-	.00	-	-
F	Haplopappus acaulis	-	1	-	-	-	.00	-	-
F	Hymenoxys acaulis	b95	a37	ab68	a51	.90	.45	.46	.49
F	Ipomopsis aggregata	5	6	1	-	.01	.18	.00	-
F	Lathyrus lanszwertii	7	1	8	-	1.00	.03	.04	-
F	Lesquerella sp.	b98	ab63	ab58	a49	.54	.30	.37	.30
F	Lupinus argenteus	b79	b96	a2	a-	2.85	2.36	.09	-
F	Lupinus polyphyllus	a6	b41	b41	b30	.03	1.72	1.82	1.52
F	Microsteris gracilis (a)	-	a1	b25	b24	-	.00	.04	.04
F	Penstemon lentus	b68	ab57	a37	a31	.37	1.39	.24	.45
F	Penstemon strictus	6	14	1	7	.04	.05	.00	.04
F	Petradoria pumila	ab58	a35	a54	b85	2.45	1.73	3.30	4.33
F	Phlox longifolia	b77	b72	a30	a31	.43	.23	.13	.08

Type	Species	Nested Frequency				Average Cover %			
		'92	'99	'04	'09	'92	'99	'04	'09
F	<i>Polygonum douglasii</i> (a)	_b 60	_a 1	_a -	_a 1	.22	.00	-	.00
F	<i>Senecio multilobatus</i>	_a -	_a 3	_a -	_b 14	-	.03	-	.20
F	<i>Senecio neomexicanus</i>	_b 25	_{ab} 16	_{ab} 10	_a 3	.10	.07	.05	.06
F	<i>Taraxacum officinale</i>	-	4	1	-	-	.03	.00	-
F	Unknown forb-perennial	3	-	-	-	.01	-	-	-
F	<i>Vicia americana</i>	-	2	-	-	-	.00	-	-
F	<i>Zigadenus paniculatus</i>	-	2	-	-	-	.00	-	-
Total for Annual Forbs		60	7	35	32	0.22	0.01	0.05	0.05
Total for Perennial Forbs		865	720	479	537	17.46	14.89	10.72	12.27
Total for Forbs		925	727	514	569	17.69	14.92	10.78	12.33

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

BROWSE TRENDS--

Management unit 14, Study no: 30

Type	Species	Strip Frequency				Average Cover %			
		'92	'99	'04	'09	'92	'99	'04	'09
B	<i>Amelanchier utahensis</i>	41	36	34	32	16.15	11.07	11.76	11.36
B	<i>Artemisia tridentata vaseyana</i>	48	47	42	56	4.75	4.58	5.17	4.49
B	<i>Chrysothamnus depressus</i>	40	28	30	30	.28	.28	.25	.37
B	<i>Gutierrezia sarothrae</i>	44	20	39	43	1.19	.10	.72	.93
B	<i>Juniperus osteosperma</i>	1	0	0	0	.63	.15	.15	.38
B	<i>Pinus edulis</i>	8	5	4	7	2.55	2.09	2.39	2.82
B	<i>Purshia tridentata</i>	5	4	3	3	.41	.03	.00	.00
B	<i>Quercus gambelii</i>	19	16	16	16	6.48	6.48	4.71	6.15
B	<i>Symphoricarpos oreophilus</i>	2	0	0	1	.00	-	-	.00
Total for Browse		208	156	168	188	32.47	24.80	25.16	26.51

CANOPY COVER, LINE INTERCEPT--

Management unit 14, Study no: 30

Species	Percent Cover		
	'99	'04	'09
<i>Amelanchier utahensis</i>	1.39	15.39	13.83
<i>Artemisia tridentata vaseyana</i>	-	5.09	8.10
<i>Chrysothamnus depressus</i>	-	.65	1.85
<i>Gutierrezia sarothrae</i>	-	.60	.88
<i>Juniperus osteosperma</i>	-	.50	1.00
<i>Pinus edulis</i>	3.79	4.53	7.78
<i>Quercus gambelii</i>	6.40	7.08	10.64

KEY BROWSE ANNUAL LEADER GROWTH--

Management unit 14, Study no: 30

Species	Average leader growth (in)	
	'04	'09
Amelanchier utahensis	3.4	2.2
Artemisia tridentata vaseyana	1.9	1.3

POINT-QUARTER TREE DATA--

Management unit 14, Study no: 30

Species	Trees per Acre			Average diameter (in)		
	'99	'04	'09	'99	'04	'09
Juniperus osteosperma	20	-	20	4.5	-	5.0
Pinus edulis	84	95	118	3.5	4.5	4.3
Quercus gambelii	49	-	53	1.3	-	1.4

BASIC COVER--

Management unit 14, Study no: 30

Cover Type	Average Cover %			
	'92	'99	'04	'09
Vegetation	47.50	44.46	41.76	42.13
Rock	2.67	.96	1.24	1.51
Pavement	0	1.31	.85	1.48
Litter	52.97	50.88	42.66	49.05
Cryptogams	6.70	3.27	1.95	2.78
Bare Ground	18.52	26.10	35.11	27.42

SOIL ANALYSIS DATA --

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

Effective rooting depth (in)	pH	sandy loam			%OM	PPM P	PPM K	ds/m
		%sand	%silt	%clay				
14.3	6.7	58	23.4	18.6	1.5	3.4	108.8	0.6

PELLET GROUP DATA--

Management unit 14, Study no: 30

Type	Quadrat Frequency				Days use per acre (ha)		
	'92	'99	'04	'09	'99	'04	'09
Rabbit	29	44	21	18	-	-	-
Elk	2	-	3	5	1 (2)	3 (7)	7 (18)
Deer	5	12	1	4	11 (27)	4 (8)	6 (15)
Cattle	-	1	1	-	6 (15)	-	-

BROWSE CHARACTERISTICS--

Management unit 14, Study no: 30

Year	Plants per Acre (excluding seedlings)	Age class distribution			Seedling (plants/acre)	Utilization		% poor vigor	Average Height Crown (in)
		% Young	% Mature	% Decadent		% moderate	% heavy		
<i>Amelanchier utahensis</i>									
92	3800	68	31	1	3220	28	5	4	-/-
99	980	16	82	2	20	31	35	2	53/67
04	1120	23	73	4	-	39	4	0	47/58
09	1280	50	48	2	240	8	16	0	52/62
<i>Artemisia tridentata vaseyana</i>									
92	1520	38	42	20	100	32	5	7	-/-
99	1500	11	69	20	20	21	4	13	18/30
04	1580	3	72	25	27460	6	0	9	20/29
09	1960	11	79	10	240	4	3	7	19/31
<i>Chrysothamnus depressus</i>									
92	1600	53	44	4	60	21	4	4	-/-
99	920	0	96	4	-	7	9	4	3/7
04	1020	2	92	6	-	20	12	2	5/10
09	1020	4	94	2	20	4	12	0	3/8
<i>Gutierrezia sarothrae</i>									
92	2160	2	98	0	20	0	0	.92	-/-
99	740	8	92	0	60	0	0	0	6/7
04	2300	46	54	0	240	0	0	0	8/9
09	3200	10	89	1	-	0	0	0	7/6
<i>Juniperus osteosperma</i>									
92	20	100	0	-	-	0	0	0	-/-
99	0	0	0	-	-	0	0	0	-/-
04	0	0	0	-	-	0	0	0	-/-
09	0	0	0	-	-	0	0	0	-/-
<i>Pinus edulis</i>									
92	280	57	43	-	220	0	0	0	-/-
99	100	60	40	-	20	0	20	0	-/-
04	80	50	50	-	60	0	0	0	-/-
09	140	57	43	-	20	0	0	0	-/-
<i>Purshia tridentata</i>									
92	100	20	60	20	-	40	60	0	-/-
99	80	25	75	0	-	25	25	0	13/33
04	60	0	100	0	-	33	33	0	12/25
09	60	0	100	0	-	67	0	0	14/25
<i>Quercus gambelii</i>									
92	1620	42	58	0	380	26	0	0	-/-
99	1280	47	53	0	80	0	0	0	47/39
04	1240	63	32	5	-	0	0	0	47/44
09	1220	39	54	7	100	0	0	0	29/48

		Age class distribution				Utilization			
Year	Plants per Acre (excluding seedlings)	% Young	% Mature	% Decadent	Seedling (plants/acre)	% moderate	% heavy	% poor vigor	Average Height Crown (in)
Symphoricarpos oreophilus									
92	160	88	0	13	-	0	0	13	-/-
99	0	0	0	0	-	0	0	0	-/-
04	0	0	0	0	-	0	0	0	20/17
09	20	0	0	100	-	0	0	0	-/-