

Trend Study 14-3-04

Study site name: Gold Queen Basin.

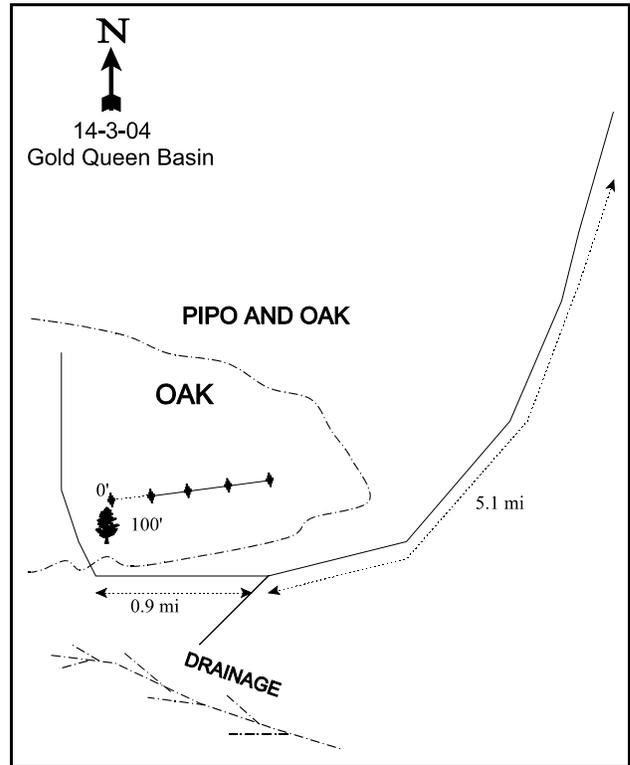
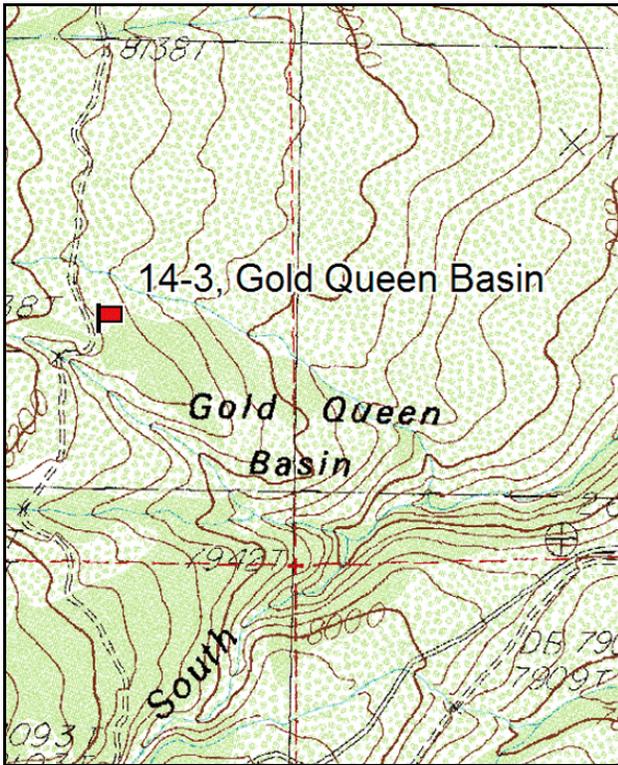
Vegetation type: Gambel Oakbrush.

Compass bearing: frequency baseline 69 degrees magnetic.

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

LOCATION DESCRIPTION

From the Forest Service yard on the west side of Monticello, travel southwest on the South Creek Road (Lloyds Lake Road) for 5.1 miles to a fork. Take the right hand fork for 0.9 miles to where the road makes a sharp turn to the north at the top of a steep dugway. Stop here, then walk to the largest ponderosa pine on the east side of the road. The 0 foot stake, a short red fencepost marked with browse tag #7875, is 5 paces north of this tree.



Map Name: Abajo Peak

Diagrammatic Sketch

Township 34S, Range 23E, Section 8

GPS: NAD 27, UTM 12S 4188335 N, 639567 E

DISCUSSION

Gold Queen Basin - Trend Study No. 14-3

The Gold Queen Basin study is located on the east slope of the Abajo Mountains at an elevation of 8,200 feet. Aspect is generally to the northeast on a 10% to 15% slope. The site is an oakbrush-dominated opening surrounded by large ponderosa pines. Point quarter data from 1999 estimated 43 ponderosa pine, 19 pinyon, and 40 maple trees/acre. Average diameter was estimated at 14 inches for ponderosa pine, 2.4 inches for pinyon and only half an inch for maple. Shrub density strip data from 1999 and 2004 estimated 80 to 100 ponderosa pine trees/acre, the majority (75% to 80%) consisting of young trees. Roads in the area are mainly a result of oil and gas leasing and mineral exploration. Now these roads are used for recreational activities.

Deer and elk use this area primarily during the summer. Pellet group transect data from 1999 estimated 19 deer days use/acre (47 deer days use/ha), 10 elk days use/acre (25 elk days use/ha), and 5 cow use days/acre (12 cow days use/ha). Cow pats appeared to be from the previous fall, while the deer pellet groups were from spring use. Turkey scat was also observed on the site. Deer use was much higher in 2004, with use estimated at 42 days use/acre (103 ddu/ha). The site provides excellent escape cover and fawning habitat. A newborn fawn was seen near the site in mid June of 2004. Elk use was similar to 1999, estimated at 7 days use/acre (18 edu/ha). Cattle use was also low at 8 days use/acre (20 cdu/ha).

Soil throughout the site appears to be moderately deep and rocky, especially at the beginning of the baseline. Estimated effective rooting depth is nearly 20 inches. Soil texture is a sandy clay loam with a slightly acid pH of 6.2. Parent material appears to be granite with large rocks present through the profile. Protective ground cover is abundant with high amounts of litter and herbaceous cover which provides excellent soil protection. Even with the moderate slope, there is little evidence of erosion.

There are several shrub species on the site, including large numbers of Oregon grape, Gambel oak and snowberry. Snowberry is the most abundant understory browse species on this site, providing 36% of the total browse cover in 1999 with a cover value of 7.5%. Average cover increased to 10% in 2004 which accounted for 45% of the total browse cover. Gambel oak is also abundant. Plants vary in size from shorter growth forms near the beginning of the baseline to tall individuals further down the line. Line intercept cover data from 2004 estimated total canopy cover of oak at 29% which accounted for 45% of the total browse cover. Most of the oak is unutilized and in good vigor. Mature plants average height has increased since 1999, from just over 2 to 4.5 feet in height. Other browse species, Utah serviceberry, mountain big sagebrush, antelope bitterbrush, and Wood's rose are present but not common.

A variety of grasses occur in the area. Kentucky bluegrass, an increaser, is the most prevalent. It provided 80% of the total grass cover in 1994, 74% in 1999, and 45% in 2004 with cover values of 6%. Western wheatgrass, intermediate wheatgrass, smooth brome, Carex spp., bulbous bluegrass, subalpine needlegrass, and needle-and-thread are also present in low numbers. Forbs are diverse and produced 62% of the herbaceous cover in 1999, down to 45% in 2004. Common species include, Western yarrow, pussytoes, spreading fleabane, littleflower collinsia, silky Lupine, thicketleaf peavine, dandelion, and clover. This variety can provide an important component of a deer's summer diet.

1986 APPARENT TREND ASSESSMENT

Data indicates good soil protection with a high percentage of protective litter and vegetative cover. Aerial vegetative cover, in the form of oakbrush appears to be on the increase. The range is currently in good condition and provides a good variety of browse and herbaceous forage for big game and livestock.

1994 TREND ASSESSMENT

Soil trend on this site has improved with percent bare ground down to only 6% at this time. The herbaceous cover is almost equal to the browse cover which is unusual for sites in the mountain brush type. The herbaceous cover protects the soils much better than aerial cover provided by browse species. The trend for browse is stable. The two key browse species are Gambel oak and snowberry. The oak and snowberry make up 91% of the browse cover or 51% of the total vegetative cover. The density estimate for snowberry is down slightly from the last reading, but some of the change could be due to the rhizomatous nature of this species which make it difficult to get consistent counts from year to year. The important point is that none of the plants are classified as decadent and use is only classified as light. The Gambel oak was mistakenly not inventoried in the shrub strip counts during the 1994 reading. Data from point quarter, estimates oak density at approximately 4,732 stems/acre with an average diameter of 0.6 inches. Shrub trend for the site is stable to improving. The trend for the herbaceous understory is up. Both sum of nested frequency values for grasses and forbs have increased, especially for the forbs.

TREND ASSESSMENT

soil - up slightly and in very good condition (4)

browse - stable (3)

herbaceous understory - up (5)

1999 TREND ASSESSMENT

Trend for soil is stable. There is excellent protective ground cover which keeps erosion to a minimum. Trend for browse is stable but most are unutilized. The common shrubs include Oregon grape, Gambel oak, and snowberry. All have increased in density, exhibit good vigor, and have low percent decadence. Grasses and forbs are more important in this area because they are used more on spring and summer range. Trend for the herbaceous understory is stable. The composition of grasses and forbs is very diverse but dominated by increasers which include Kentucky bluegrass, western yarrow, pussy toes, littleflower collinsia, trailing fleabane, and dandelion.

TREND ASSESSMENT

soil - stable (3)

browse - stable (3)

herbaceous understory - stable (3)

2004 TREND ASSESSMENT

Trend for soil is stable because percent bare soil protective cover has remained nearly the same through all sampling dates. Trend for browse is stable but canopy cover of Gambel oak is increasing. The most common shrubs, Oregon grape, Gambel oak, and snowberry, are mostly unutilized. This area is a summer range and the most important vegetational aspect is grasses and forbs. Trend for the herbaceous understory is down slightly due to a decline in the sum of nested frequency and cover of perennial forbs. Average cover of perennial forbs has declined 36% since 1999. Sum of nested frequency of perennial forbs also declined slightly. Sum of nested frequency of perennial grasses remained stable but composition has changed slightly. Kentucky bluegrass declined significantly (less drought tolerant), while western wheatgrass and needle-and-thread increased significantly. Kentucky bluegrass currently provides 45% of the total grass cover, down from 74% in 1999.

TREND ASSESSMENT

soil - slightly down (2)

browse - stable (3)

herbaceous understory - slightly down (2)

HERBACEOUS TRENDS --

Management unit 14 , Study no: 3

T y p e	Species	Nested Frequency				Average Cover %		
		'86	'94	'99	'04	'94	'99	'04
G	Agropyron intermedium	5	19	9	15	.13	.07	.07
G	Agropyron smithii	32	90	67	58	.56	.91	1.03
G	Bromus anomalus	-	-	-	5	-	-	.01
G	Bromus inermis	-	8	20	11	.16	.11	.08
G	Carex spp.	3	6	1	16	.03	.00	.11
G	Koeleria cristata	4	-	-	8	-	-	.09
G	Poa bulbosa	-	2	7	14	.00	.18	.12
G	Poa fendleriana	50	19	39	65	.17	.45	1.79
G	Poa pratensis	284	267	263	171	6.32	6.22	4.71
G	Sitanion hystrix	29	12	-	-	.10	-	-
G	Stipa columbiana	20	32	19	26	.38	.13	.48
G	Stipa comata	-	-	11	33	-	.25	1.86
G	Stipa lettermani	-	3	-	-	.03	-	-
G	Unknown grass - perennial	2	-	-	-	-	-	-
Total for Annual Grasses		0	0	0	0	0	0	0
Total for Perennial Grasses		429	458	436	422	7.90	8.35	10.37
Total for Grasses		429	458	436	422	7.90	8.35	10.37
F	Achillea millefolium	97	171	153	101	2.74	4.18	1.44
F	Agoseris glauca	-	8	6	3	.04	.18	.00
F	Antennaria neglecta	62	39	38	35	1.40	1.14	1.38
F	Androsace septentrionalis (a)	-	-	2	-	-	.00	-
F	Arabis spp.	-	-	1	1	-	.00	.03
F	Arenaria congesta	6	33	18	32	.60	.58	.61
F	Artemisia michauxiana	16	11	14	15	.07	.47	.46
F	Aster spp.	-	-	3	3	-	.03	.15
F	Calochortus nuttallii	-	4	-	-	.01	-	-
F	Chenopodium spp. (a)	-	-	5	-	-	.01	-
F	Cirsium spp.	2	5	-	3	.03	-	.00
F	Collomia linearis (a)	-	4	20	6	.00	.11	.01
F	Collinsia parviflora (a)	-	78	73	31	.19	.63	.08
F	Conioselinum scopulorum	-	3	14	-	.00	.10	-

Type	Species	Nested Frequency				Average Cover %		
		'86	'94	'99	'04	'94	'99	'04
F	Cymopterus spp.	-	6	-	-	.04	-	-
F	Delphinium nuttallianum	-	20	19	-	.03	.04	-
F	Descurainia pinnata (a)	-	3	-	-	.01	-	-
F	Erigeron flagellaris	122	83	75	93	.80	1.78	2.26
F	Eriogonum racemosum	16	2	14	-	.01	.07	.03
F	Erigeron speciosus	9	-	-	-	-	-	-
F	Erigeron speciosus	-	15	-	-	.08	-	-
F	Galium spp.	-	-	-	4	-	-	.00
F	Gayophytum ramosissimum(a)	-	23	17	1	.04	.03	.00
F	Lathyrus lanszwertii	27	31	49	25	.18	.69	.36
F	Lappula occidentalis (a)	-	1	-	-	.00	-	-
F	Ligusticum porteri	3	-	-	-	-	-	-
F	Lomatium spp.	3	31	10	17	2.10	.11	.22
F	Lupinus sericeus	3	34	17	7	1.08	.43	.13
F	Lychnis drummondii	7	-	-	-	-	-	-
F	Microsteris gracilis (a)	-	57	7	21	.12	.01	.07
F	Orobanche fasciculata	-	-	6	1	-	.03	.00
F	Osmorhiza occidentalis	-	-	2	8	-	.03	.05
F	Penstemon crandallii	28	19	17	17	.16	.30	.30
F	Pedicularis spp.	-	3	-	-	.00	-	-
F	Penstemon humilis	-	-	-	2	-	-	.00
F	Phlox longifolia	6	16	10	19	.10	.07	.06
F	Phlox spp.	-	22	29	-	.06	.17	-
F	Polygonum douglasii (a)	-	45	21	20	.07	.09	.04
F	Potentilla fruticosa	-	29	-	-	.27	-	-
F	Ranunculus spp.	-	-	11	-	-	.02	-
F	Senecio integerrimus	19	10	19	-	.33	.09	-
F	Sedum lanceolatum	-	3	9	-	.00	.01	-
F	Senecio multilobatus	-	-	-	7	-	-	.01
F	Taraxacum officinale	-	28	34	29	.32	.98	.35
F	Tragopogon dubius	-	1	-	-	.00	-	-
F	Trifolium gymnocarpon	3	30	32	32	.59	.71	.44
F	Unknown forb-perennial	-	14	6	-	.03	.15	-
F	Verbascum thapsus	-	-	2	2	-	.00	.00
F	Vicia americana	-	-	-	3	-	-	.00
F	Wyethia amplexicaulis	-	-	2	-	-	.03	-

Type	Species	Nested Frequency				Average Cover %		
		'86	'94	'99	'04	'94	'99	'04
	Total for Annual Forbs	0	211	145	79	0.45	0.89	0.21
	Total for Perennial Forbs	429	671	610	459	11.17	12.47	8.37
	Total for Forbs	429	882	755	538	11.62	13.36	8.59

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

BROWSE TRENDS --

Management unit 14 , Study no: 3

Type	Species	Strip Frequency			Average Cover %		
		'94	'99	'04	'94	'99	'04
B	<i>Acer grandidentatum</i>	0	0	0	-	-	.01
B	<i>Amelanchier utahensis</i>	2	2	4	-	-	.00
B	<i>Artemisia tridentata vaseyana</i>	0	0	0	.00	-	-
B	<i>Chrysothamnus depressus</i>	1	4	1	.15	.06	.03
B	<i>Mahonia repens</i>	26	23	30	1.37	1.66	2.85
B	<i>Pinus ponderosa</i>	0	5	4	.63	.56	.18
B	<i>Purshia tridentata</i>	0	0	0	-	-	-
B	<i>Quercus gambelii</i>	0	67	66	14.72	10.97	8.97
B	<i>Rosa woodsii</i>	4	1	1	.06	-	.00
B	<i>Symphoricarpos oreophilus</i>	78	85	76	8.14	7.54	10.02
	Total for Browse	111	187	182	25.09	20.80	22.08

CANOPY COVER, LINE INTERCEPT --

Management unit 14 , Study no: 3

Species	Percent Cover	
	'99	'04
<i>Amelanchier utahensis</i>	-	.08
<i>Chrysothamnus depressus</i>	-	.13
<i>Mahonia repens</i>	-	2.13
<i>Pinus ponderosa</i>	21.20	19.96
<i>Quercus gambelii</i>	22.60	29.36
<i>Rosa woodsii</i>	-	.06
<i>Symphoricarpos oreophilus</i>	-	13.88

BASIC COVER --

Management unit 14 , Study no: 3

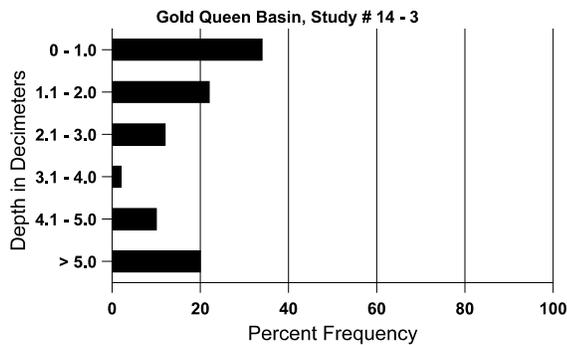
Cover Type	Average Cover %			
	'86	'94	'99	'04
Vegetation	9.25	40.06	40.70	39.34
Rock	3.00	2.28	3.86	3.64
Pavement	0	.01	.09	.15
Litter	79.00	62.72	66.68	67.46
Cryptogams	.25	.93	.89	.22
Bare Ground	8.50	5.73	9.93	6.15

SOIL ANALYSIS DATA --

Management unit 14, Study no: 3, Study Name: Gold Queen Basin

Effective rooting depth (in)	Temp °F (depth)	pH	%sand	%silt	%clay	%OM	PPM P	PPM K	ds/m
20.8	59.0 (15.1)	6.2	46.9	30.6	22.6	3.4	19.1	134.4	0.5

Stoniness Index



PELLET GROUP DATA --

Management unit 14 , Study no: 3

Type	Quadrat Frequency		
	'94	'99	'04
Rabbit	1	8	2
Grouse	-	-	1
Elk	-	-	2
Deer	3	7	7
Cattle	1	4	2

Days use per acre (ha)	
'99	'04
-	-
35 (86)	-
10 (25)	7 (18)
19 (47)	42 (103)
5 (12)	8 (20)

BROWSE CHARACTERISTICS --
Management unit 14 , Study no: 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)
Acer grandidentatum												
86	0	-	-	-	-	-	0	0	-	-	0	-/-
94	0	-	-	-	-	-	0	0	-	-	0	-/-
99	0	20	-	-	-	-	0	0	-	-	0	-/-
04	0	80	-	-	-	-	0	0	-	-	0	-/-
Amelanchier utahensis												
86	0	66	-	-	-	-	0	0	-	-	0	-/-
94	60	-	-	60	-	-	0	0	-	-	0	8/9
99	40	-	20	20	-	-	0	0	-	-	0	-/-
04	240	20	220	20	-	-	8	33	-	-	0	-/-
Artemisia tridentata vaseyana												
86	0	-	-	-	-	-	0	0	-	-	0	-/-
94	0	20	-	-	-	-	0	0	-	-	0	-/-
99	0	-	-	-	-	-	0	0	-	-	0	-/-
04	0	-	-	-	-	-	0	0	-	-	0	-/-
Chrysothamnus depressus												
86	0	-	-	-	-	-	0	0	0	-	0	-/-
94	40	-	-	20	20	-	0	0	50	-	0	5/16
99	160	40	60	60	40	-	38	38	25	-	0	6/9
04	100	-	-	100	-	-	0	0	0	-	0	2/6
Mahonia repens												
86	0	-	-	-	-	-	0	0	0	-	0	-/-
94	3480	20	1100	2360	20	-	0	0	1	.57	2	5/7
99	4300	40	620	3680	-	-	0	0	0	-	0	4/7
04	7700	-	240	7440	20	40	0	0	0	-	.25	5/7
Pinus ponderosa												
86	66	-	66	-	-	-	0	0	-	-	0	-/-
94	0	-	-	-	-	-	0	0	-	-	0	-/-
99	100	-	80	20	-	-	0	0	-	-	0	-/-
04	80	-	60	20	-	-	0	0	-	-	0	-/-
Purshia tridentata												
86	0	-	-	-	-	-	0	0	-	-	0	-/-
94	0	-	-	-	-	-	0	0	-	-	0	22/20
99	0	-	-	-	-	-	0	0	-	-	0	-/-
04	0	-	-	-	-	-	0	0	-	-	0	5/22

		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>Quercus gambelii</i>												
86	9865	7733	9133	466	266	-	17	26	3	-	31	127/49
94	0	-	-	-	-	-	0	0	0	-	0	-/-
99	11360	1480	5960	5140	260	820	0	0	2	.52	.52	28/26
04	9660	120	5060	4260	340	460	4	0	4	.62	.62	55/38
<i>Rosa woodsii</i>												
86	0	-	-	-	-	-	0	0	-	-	0	-/-
94	100	-	40	60	-	-	0	0	-	-	20	6/4
99	60	-	-	60	-	-	0	0	-	-	0	4/4
04	60	-	60	-	-	-	0	0	-	-	0	-/-
<i>Symphoricarpos oreophilus</i>												
86	5398	333	1666	3466	266	-	33	0	5	-	0	19/14
94	4300	220	780	3480	40	-	2	0	1	-	.46	16/29
99	8260	20	3060	5180	20	100	.96	0	0	-	0	16/23
04	5760	-	380	5220	160	20	6	5	3	3	3	15/21