

Trend Study 30-60-03

Study site name: Jones Hollow .

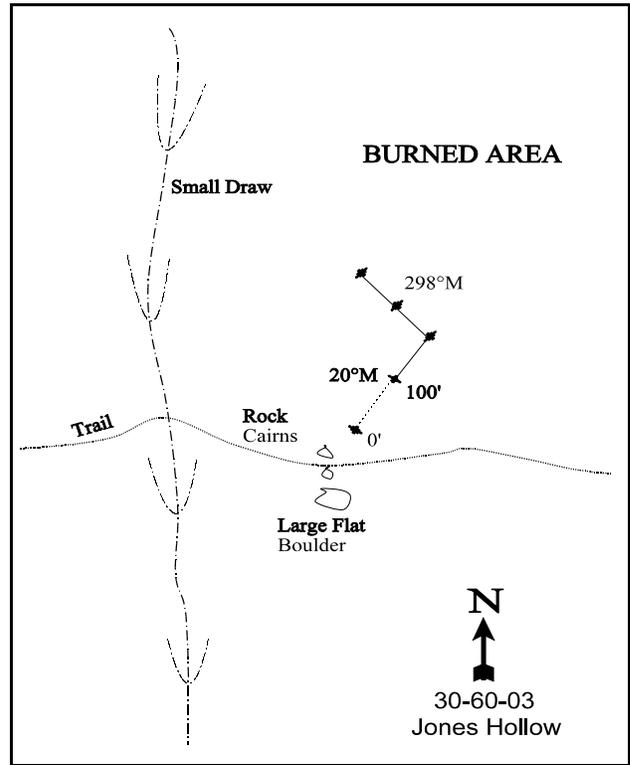
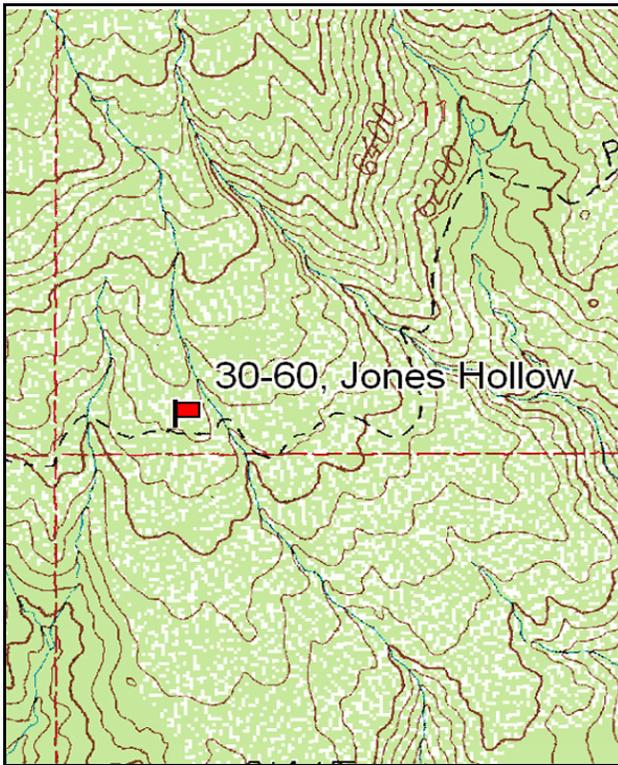
Vegetation type: Burn-Mtn. Brush .

Compass bearing: frequency baseline 20 degrees magnetic. (Lines 3 & 4, 298°M)

Frequency belt placement: line 1 (11 & 95ft), line 2 (34ft), line 3 (59ft), line 4 (71ft). No rebar.

LOCATION DESCRIPTION

From Oak Grove campground travel back down the road about 2.0 miles to the Jones hollow trail head on the northeast side of the road (it is blocked off by boulders). Park here and hike up the trail about 3/4 of a mile to Spirit Creek. Cross the creek and continue northeast for approximately 1/4 of a mile to horse creek. Continue to where the trail goes to the right and goes out of a small wash. From here follow the trail for 937 paces (close to 1.0 mile) over several hills and creek crossings until you get on top of a relatively flat, rocky table. Rock cairns mark the transect site along the trail. Also, right across the trail from where the transect starts is a seasonal pool. The frequency baseline begins on the north (left) side of the trail and is marked by a 1½ tall, green fence post with browse tag #7860 attached. All transect stakes are 1½ foot tall green fence posts.



Map Name: Signal Peak

Diagrammatic Sketch

Township 40S, Range 14W, Section 11

GPS: NAD 27, UTM 12S 4132578 N, 287381 E

DISCUSSION

Jones Hollow - Trend Study No. 30-60

The Jones Hollow trend study samples mixed mountain brush, on a nearly level southwest facing slope on the east side of the Pine Valley Mountains. Elevation is approximately 6,200 feet. The entire area was burned by a wildfire in early June of 1986. Unlike the Upper Horse Creek site, this area received very little seed after the fire. Deer utilize this area during the summers and year-round during mild winters, but at a lower intensity than Upper Horse Creek or Spirit Creek. Pellet group data estimated only 17 deer days use/acre (42 ddu/ha) in 1998 and only 1 deer day use/acre (3 ddu/ha) in 2003. Two antler sheds were found in 1998.

Soils are coarse, sandy, shallow, and loosely compacted with large amounts of granite rock boulders on the surface and in the profile. Effective rooting depth is estimated at almost 15 inches. Soil texture is a sandy loam which is slightly acidic in reactivity (pH 6.1). Even with the slight slope, erosion has been a problem due to the lack of protective herbaceous cover. Large bare areas occur between oak clones and the bases of grasses are pedestalled. However, conditions have improved steadily since the fire. Bare ground, which occupied 71% of the ground surface in 1986, and 63% in 1987, declined to 22% by 1998. Basal vegetative cover increased from 2% in 1986 to 5% by 1992. Litter cover has also steadily increased from 12% in 1986 to 56% by 1998. Rock and pavement cover combined have remained fairly constant.

Browse is diverse with 10 species occurring on the site. The key species consist of Utah serviceberry, Gambel oak, and shrub-live oak. Other species, which occur in small numbers, include greenleaf manzanita, mountain big sagebrush, desert ceanothus, narrowleaf yerba-santa, cactus, and yellowleaf silktassel. Serviceberry, resprouting after the fire, had an estimated density of 10,533 seedlings and young per acre in 1986. It's density declined, but appeared to stabilize in 1992. In 1998, there were an estimated 1,520 plants/acre. Reproductive potential and the proportion of young plants in the population have steadily declined since 1986, but recruitment has remained sufficient to maintain the population at current levels. Utilization has been mostly light since 1986.

Gambel and shrub-live oak, also resprouting after the fire, have declined steadily on the density plots between 1986 and 1992 as part of a natural thinning process. The much larger sample size used in 1998 picked up more Gambel and shrub-live oak with estimated densities of 3,920 and 1,480 stems/acre respectively. Mature oak now averages five feet in height, creating thick clones which are mostly unavailable to wildlife. Oak has been only lightly utilized in all years and is in generally good vigor. Preferred understory shrubs consisting of mountain big sagebrush and desert ceanothus, provide additional forage. These shrubs occur in low numbers, and have received moderate use.

The site was revisited in 2003 but only line-intercept cover was estimated for shrubs. The site has returned to a shrub dominated community with total shrub cover totaling nearly 55%. Gambel and live oakbrush dominate the shrub composition by providing 44% of the total shrub cover. Serviceberry provides 17% of the total shrub cover and is the only abundant preferred browse species on the site. Mountain big sagebrush can be found in the understory in low numbers. All shrubs sampled in 2003 appeared to be unused.

The herbaceous understory on this site is sparse when compared to the other burn sites. In 1998, all grasses combined produced less than 1% cover with cheatgrass providing 49% of that cover. Smooth brome, intermediate wheatgrass and bottlebrush squirreltail are the most abundant perennial grasses on the site yet they occur rarely. None have a quadrat frequency of more than 6%. Forbs are more diverse and abundant with American vetch being the most numerous as it provided 69% of the forb cover in 1998. Wild onion and blue dicks (*Dichelostemma pulchellum*) are also fairly common. Sum of nested frequency for grasses has remained relatively stable since 1987, while frequency of forbs has increased with each reading.

1992 TREND ASSESSMENT

Since the burn, soil conditions have improved. Basal vegetative cover has increased from 2% to 5% since 1987, while bare ground has steadily decreased. Litter cover is increasing. Some erosion is still occurring on the site, but it is not significant. It will likely continue until the herbaceous understory becomes more extensively established. Trend for soil is up. There is a good mix of browse on the site. The key species, Utah serviceberry and Gambel oak, increased dramatically right after the burn, then declined as natural thinning occurred. Currently, both appear to have healthy populations with adequate reproductive potentials. Trend for browse is stable. The herbaceous understory is deficient on this site. Sum of nested frequency for all grasses combined came to only 69 in 1992. Forbs are more common, but still deficient. Nested and quadrat frequencies for both forbs and grasses have increased steadily since 1986. Trend for herbaceous understory is up, but deficient.

TREND ASSESSMENT

soil - up (5)

browse - stable (3)

herbaceous understory - up, but deficient (5)

1998 TREND ASSESSMENT

Trend for soil is up slightly. Protective ground cover continues to increase and percent bare ground continues to decline. Unfortunately, the herbaceous understory is poor, with the bulk of the vegetative cover coming from shrubs. There is some localized erosion occurring but it is minimized by the level terrain. Trend for the key browse species, serviceberry and Gambel oak, is stable. Serviceberry appears to have a stable population with steadily declining seedling recruitment since the fire. The proportion of young plants has also decreased as the population becomes more mature. Utilization is light to moderate, vigor normal on most plants, and percent decadency low at only 7%. Gambel oak has increased in density from 1,000 to 3,920 stems/acre. This change is mostly due to the much larger sample size used in 1998. Biotic potential and the proportion of young plants in the population has remained stable. Oak appears unutilized, in good vigor, with low decadence. Important understory shrubs, mountain big sagebrush and desert ceanothus, occur in small numbers, although they appear to be increasing. Trend for the herbaceous understory is stable. Sum of nested frequency for perennial grasses has declined slightly, while frequency of perennial forbs has increased slightly. Composition and abundance of grasses is poor. All grasses produce less than 1% cover with annual cheatgrass providing 49% of that cover.

TREND ASSESSMENT

soil - up slightly (4)

browse - stable (3)

herbaceous understory - stable, but deficient (3)

2003 TREND ASSESSMENT

The site was revisited in 2003. Due to the thick nature of the shrubs on this site and the lack of significant wildlife use, only pellet group data and line-intercept data for shrubs were taken. The site has returned to a very thick mountain shrub community with total shrub cover totaling nearly 55%. Gambel and live oak dominate the shrub composition by providing 44% of the browse cover. The oak brush occurs in thick clones which average 4 to 5 feet in height. They are mostly unutilized. The only preferred shrubs found on the site are serviceberry and mountain big sagebrush. Serviceberry has a canopy cover value of 9.4% while sagebrush averages about 3% cover. The herbaceous understory is poor, leaving shrub interspaces mostly bare. Since no other data was taken no trends can be determined. This site will be suspended in the future.

TREND ASSESSMENT

soil - n/a

browse - n/a

herbaceous understory - n/a

HERBACEOUS TRENDS --

Management unit 30 , Study no: 60

T y p e	Species	Nested Frequency				Average Cover %
		'86	'87	'92	'98	'98
G	Agropyron cristatum	-	16	11	-	-
G	Agropyron intermedium	-	1	12	15	.07
G	Bromus inermis	-	11	31	19	.13
G	Bromus tectorum (a)	-	-	-	74	.35
G	Dactylis glomerata	-	6	5	3	.03
G	Festuca ovina	-	-	6	-	-
G	Poa fendleriana	-	-	4	2	.04
G	Poa secunda	-	9	-	-	-
G	Sitanion hystrix	-	-	-	11	.10
G	Unknown grass - perennial	7	-	-	-	-
Total for Annual Grasses		0	0	0	74	0.34
Total for Perennial Grasses		7	43	69	50	0.37
Total for Grasses		7	43	69	124	0.72
F	Agoseris glauca	-	-	8	4	.01
F	Allium spp.	-	-	-	68	.26
F	Arabis spp.	-	6	1	3	.00
F	Astragalus straturensis	-	2	-	3	.03
F	Calochortus nuttallii	-	-	4	3	.01
F	Chaenactis douglasii	-	-	-	1	.00
F	Chenopodium fremontii (a)	-	5	-	-	-
F	Collomia grandiflora (a)	-	1	-	-	-
F	Cymopterus spp.	-	-	-	2	.03
F	Dichelostemma pulchellum	-	2	24	40	.70
F	Epilobium brachycarpum (a)	-	-	-	1	.00
F	Eriogonum racemosum	-	-	-	1	.03
F	Gilia spp. (a)	-	-	-	2	.01
F	Lotus utahensis	-	-	2	-	-
F	Melilotus officinalis	-	1	-	-	-
F	Medicago sativa	-	12	-	-	-
F	Microsteris gracilis (a)	-	-	-	55	.13

Type	Species	Nested Frequency				Average Cover %
		'86	'87	'92	'98	'98
F	<i>Nicotiana attenuata</i> (a)	-	3	-	-	-
F	<i>Penstemon eatoni</i>	-	2	3	-	-
F	<i>Senecio multilobatus</i>	-	-	7	1	.00
F	<i>Sphaeralcea grossulariaefolia</i>	-	13	14	-	-
F	<i>Streptanthus cordatus</i>	-	3	1	4	.06
F	Unknown forb-perennial	3	-	-	4	.16
F	<i>Vicia americana</i>	37	54	106	92	3.34
F	<i>Zigadenus paniculatus</i>	-	-	-	5	.03
Total for Annual Forbs		0	9	0	58	0.15
Total for Perennial Forbs		40	95	170	231	4.69
Total for Forbs		40	104	170	289	4.84

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

BROWSE TRENDS --

Management unit 30 , Study no: 60

Type	Species	Strip Frequency	Average Cover %
		'98	'98
B	<i>Amelanchier utahensis</i>	31	9.75
B	<i>Arctostaphylos patula</i>	18	3.46
B	<i>Artemisia tridentata vaseyana</i>	12	.51
B	<i>Ceanothus greggii</i>	25	5.67
B	<i>Eriodictyon angustifolium</i>	18	.18
B	<i>Garrya flavescens</i>	13	2.80
B	<i>Gutierrezia sarothrae</i>	4	.21
B	<i>Opuntia</i> spp.	3	.00
B	<i>Quercus gambelii</i>	27	11.30
B	<i>Quercus turbinella</i>	11	7.74
Total for Browse		162	41.65

CANOPY COVER, LINE INTERCEPT --
 Management unit 30 , Study no: 60

Species	Percent Cover '03
Amelanchier utahensis	7.73
Arctostaphylos patula	8.25
Artemisia tridentata vaseyana	2.55
Ceanothus greggii	3.83
Eriodictyon angustifolium	0.02
Garrya flavescens	5.45
Opuntia spp.	0.32
Quercus gambelii	13.13
Quercus turbinella	11.10

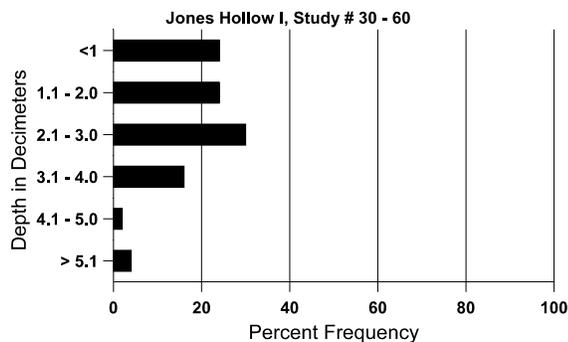
BASIC COVER --
 Management unit 30 , Study no: 60

Cover Type	Average Cover %			
	'86	'87	'92	'98
Vegetation	2.00	1.50	5.25	47.57
Rock	9.50	9.75	6.00	7.06
Pavement	5.25	9.50	15.50	8.32
Litter	12.25	16.00	50.25	55.54
Cryptogams	0	0	0	.03
Bare Ground	71.00	63.25	23.00	21.59

SOIL ANALYSIS DATA --
 Management unit 30, Study no: 60, Study Name: Jones Hollow 1

Effective rooting depth (in)	Temp °F (depth)	pH	% sand	% silt	% clay	% OM	PPM P	PPM K	ds/m
14.5	48.6 (1998) (16.1)	6.1	68.0	17.4	14.6	1.5	10.2	99.2	0.7

Stoniness Index



PELLET GROUP DATA --

Management unit 30 , Study no: 60

Type	Quadrat Frequency	
	'98	'03
Rabbit	4	N/A
Deer	13	N/A

Days use per acre (ha)	
'98	'03
-	-
17 (42)	1 (3)

BROWSE CHARACTERISTICS --

Management unit 30 , Study no: 60

		Age class distribution (plants per acre)					Utilization				
Y e a r	Plants per Acre (excluding seedlings)	Seedling	Young	Mature	Decadent	Dead	% moderate	% heavy	% decadent	% poor vigor	Average Height Crown (in)
<i>Amelanchier utahensis</i>											
86	6133	4400	6133	-	-	-	0	0	0	16	-/-
87	2900	700	2900	-	-	-	11	3	0	0	-/-
92	1133	466	700	433	-	-	0	0	0	0	40/49
98	1520	180	80	1340	100	20	22	1	7	5	39/47
<i>Arctostaphylos patula</i>											
86	0	-	-	-	-	-	0	0	-	0	-/-
87	0	-	-	-	-	-	0	0	-	0	-/-
92	300	-	300	-	-	-	0	0	-	0	-/-
98	500	40	20	480	-	-	0	0	-	0	25/43
<i>Artemisia tridentata vaseyana</i>											
86	0	-	-	-	-	-	0	0	0	0	-/-
87	0	100	-	-	-	-	0	0	0	0	-/-
92	165	-	66	66	33	-	0	0	20	0	17/18
98	320	20	80	240	-	200	6	0	0	0	22/31
<i>Ceanothus greggii</i>											
86	0	-	-	-	-	-	0	0	-	0	-/-
87	0	1533	-	-	-	-	0	0	-	0	-/-
92	166	-	166	-	-	-	0	0	-	0	-/-
98	680	-	-	680	-	-	21	0	-	0	22/34
<i>Eriodictyon angustifolium</i>											
86	0	-	-	-	-	-	0	0	0	0	-/-
87	700	333	700	-	-	-	0	0	0	0	-/-
92	833	133	200	633	-	-	0	0	0	0	14/11
98	500	-	-	440	60	20	0	4	12	32	25/24

		Age class distribution (plants per acre)					Utilization				
Year	Plants per Acre (excluding seedlings)	Seedling	Young	Mature	Decadent	Dead	% moderate	% heavy	% decadent	% poor vigor	Average Height Crown (in)
Garrya flavescens											
86	1866	1166	1866	-	-	-	0	0	0	0	-/-
87	266	233	266	-	-	-	0	0	0	0	-/-
92	100	33	-	100	-	-	0	0	0	0	60/56
98	360	-	60	260	40	-	0	0	11	11	38/47
Gutierrezia sarothrae											
86	0	-	-	-	-	-	0	0	-	0	-/-
87	0	-	-	-	-	-	0	0	-	0	-/-
92	0	-	-	-	-	-	0	0	-	0	-/-
98	240	-	-	240	-	-	0	0	-	0	5/6
Opuntia spp.											
86	0	-	-	-	-	-	0	0	0	0	-/-
87	0	-	-	-	-	-	0	0	0	0	-/-
92	0	-	-	-	-	-	0	0	0	0	-/-
98	80	-	-	60	20	-	0	0	25	0	7/16
Quercus gambelii											
86	5966	1833	5966	-	-	-	0	0	0	0	-/-
87	3100	300	3100	-	-	-	0	0	0	0	-/-
92	1000	33	200	800	-	-	0	0	0	0	64/51
98	3920	40	1060	2780	80	600	0	0	2	0	52/30
Quercus gambelii-turbinella hybrid											
86	0	-	-	-	-	-	0	0	-	0	-/-
87	433	33	433	-	-	-	0	0	-	0	-/-
92	0	-	-	-	-	-	0	0	-	0	-/-
98	0	-	-	-	-	-	0	0	-	0	-/-
Quercus turbinella											
86	2566	500	2566	-	-	-	0	0	-	39	-/-
87	33	-	33	-	-	-	0	0	-	0	-/-
92	0	33	-	-	-	-	0	0	-	0	-/-
98	1480	20	160	1320	-	60	0	0	-	0	67/62
Unknown browse											
86	0	-	-	-	-	-	0	0	-	0	-/-
87	0	500	-	-	-	-	0	0	-	0	-/-
92	0	-	-	-	-	-	0	0	-	0	-/-
98	0	-	-	-	-	-	0	0	-	0	-/-