Trend Study 28-4-98

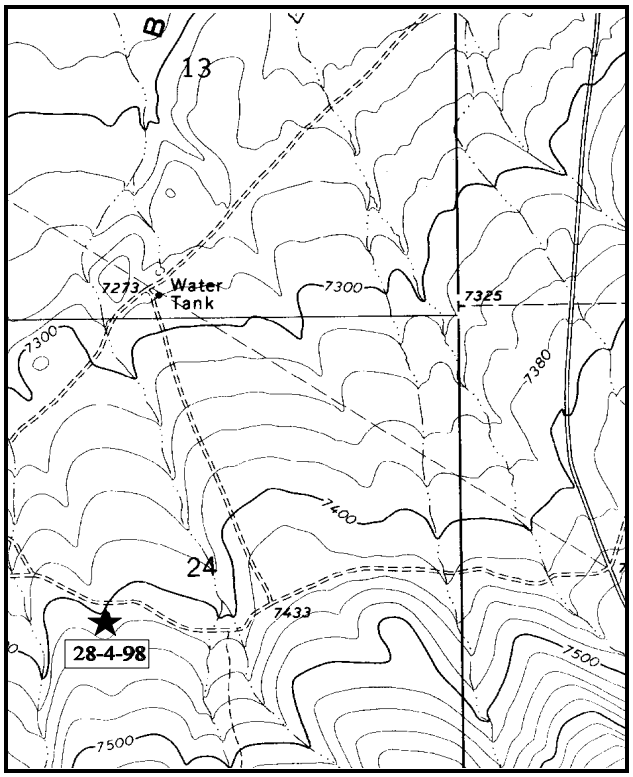
Study site name: Buckskin Valley . Range type: Mixed Mountain Brush .

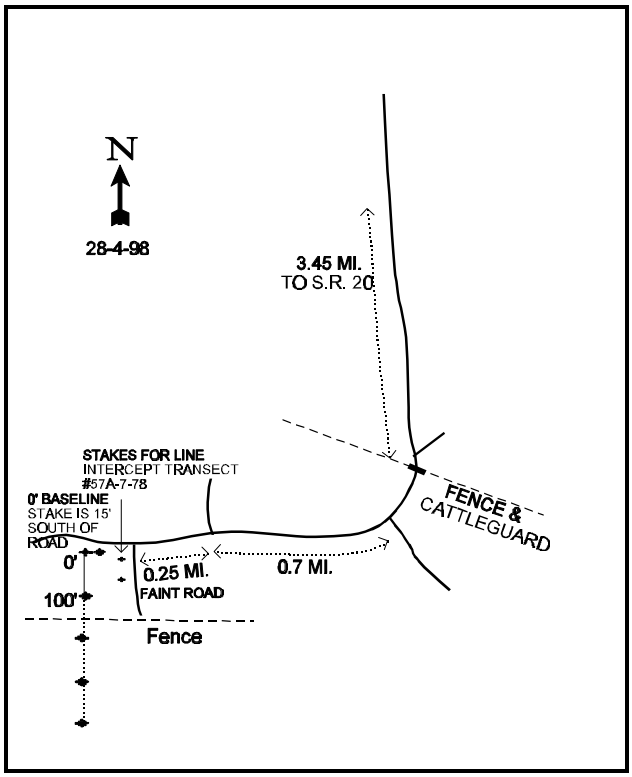
Compass bearing: frequency baseline 182 M degrees.

Footmark (first frame at) 5 feet, footmarks (frequency belts) line 1 (11 & 71ft), line 2 (34ft), line 3 (59ft), line 4 (95ft).

LOCATION DESCRIPTION

From SR 20 just west of mile marker 7, turn south onto the Buckskin Valley road. Travel 3.45 miles to a cattleguard. Just beyond the fence and cattleguard, bear right and proceed west 0.95 miles to an intersection where a very faint road goes to the south. About 60 feet west of this intersection, and 15 feet south of the main road, is the 0-foot baseline stake. This 2-foot tall green fencepost is marked by a red browse tag #9005. The frequency baseline runs south-southwest from here. The old line-intercept transect 57A-7-78 is marked by a red-painted steel fencepost 10 feet east of the new study.





Map Name: Burnt Peak Diagrammatic Sketch

Township 32S , Range 7W , Section 24 UTM 4207346.233 N, 359510.770 E

DISCUSSION

Trend Study No. 28-4 (47-4)

Buckskin Valley, located on the northern end of the unit, is important as transitional range. Elevation of the site is 7,400 feet on a gentle (5%) north slope. A variety of browse, dominated by sagebrush, is available throughout the valley. The lower areas have been extensively treated by the BLM to enhance livestock grazing. The area of the transect, in the upper part of the valley, is a cattle-sheep allotment used for late spring grazing. Cattle were on the site during the 1992 reading in early August. A pellet group transect read on the study site in 1998 indicates 49 deer days use/acre and 7 cow days use/acre.

Soil textural analysis indicates a loam with a moderately acid pH (5.9). The average effective rooting depth (see methods) is just over 14 inches. The soil is dark in color and rocks are fairly common on the surface. There is evidence of compaction and crusting due to the relatively high clay content (26%), however erosion is not a problem. Vegetation and litter provide abundant cover which helps protect the soil.

A moderately dense stand of mountain big sagebrush dominates the study site with an estimated density of 5,160 plants/acre in 1998. This estimated density is lower then the 1987 estimate of 8,732 plants/acre and the 1992 estimate of 8,980 plants/acre. Mountain big sagebrush currently has a cover estimate of 25%. The proportion of decadent plants increased from 36% in 1987 to 56% in 1992, then decreased to 26% in 1998. Few seedlings were observed during any year. Biotic potential is still very low, but is slowly increasing. Utilization of sagebrush increased in 1992, yet utilization has subsequently decreased to light and moderate use. The proportion of plants displaying poor vigor increased from 7% in 1987 to 16% in 1992, then it declined to 8% in 1998.

Interspersed in the dense sagebrush canopy are highly preferred bitterbrush plants. Density of bitterbrush increased from 1,732 plants/acre in 1987 to 3,080 plants/acre in 1992. The density then decreased to 1,900 plants/acre in 1998. In 1992, 34% of the population were classified as young and 55% were classified as mature. In 1998, 15% of the population were classified as young and 85% were classified as mature. Biotic potential remains good with many seedlings encountered in 1998. During the 1987 reading, 73% of the bitterbrush displayed heavy use. By 1992, 53% of the shrubs were heavily browsed and this has declined slightly to 43% in 1998. The proportion of the plants that exhibit poor vigor is low over all years. Other important browse species which occur in smaller numbers on the site include Gambel oak and snowberry, both of which were moderately hedged in 1992 and lightly hedged in 1998. Less desirable browse encountered on the site include the aggressive increasers prickly-pear cactus and stickyleaf low rabbitbrush.

Sheltered by the dense shrub overstory is a variety of fairly abundant herbaceous species. Western wheatgrass, bottlebrush squirreltail, and Kentucky bluegrass are the predominant grasses. One disturbing change is the significant increase in the nested frequency of cheatgrass since 1992. Perennial grass sum of nested frequency is currently declining, while annual grass sum of nested frequency is increasing. Twenty-five perennial forbs were encountered in frequency plots in 1998. Common palatable species include: sulfur buckwheat, redroot buckwheat, lupine, and clover. As with the perennial grasses, forb perennial sum of nested frequency has declined from 508 in 1992 to 358 in 1998.

1987 APPARENT TREND ASSESSMENT

Soil is well protected from erosion on this site with litter providing an estimated 75% ground cover. Overstory and basal vegetative cover is also good, leaving only 9% bare soil exposed. The soil trend appears stable. The sagebrush population is overly mature with little reproductive potential and a high proportion of decadent plants. Bitterbrush has a younger population with good biotic and reproductive potentials. However, 73% of the bitterbrush encountered displayed heavy use. Trend for these key browse species appears stable for the time being. Herbaceous plants are diverse and fairly abundant.

1992 TREND ASSESSMENT

The soil trend appears stable with abundant litter and vegetation cover with 15% bare ground. Browse trend is down for sagebrush due to low biotic and reproductive potentials and increased heavy use and increases in percent decadency, now at 56%. Sagebrush makes up 72% of the total browse cover. Trend for bitterbrush is up slightly, but it is still being heavily utilized and it only makes up 17% of the browse cover. Overall, the browse trend is slightly down. The herbaceous understory is diverse and abundant. Grasses account for 18% of the total vegetative cover while forbs make up 13%. Perennial herbaceous understory sum of nested frequency slightly increased indicating a slightly upward trend.

TREND ASSESSMENT
soil - stable
browse - slightly down
herbaceous understory - slightly upward

1998 TREND ASSESSMENT

The soil trend is slightly upward with an increase in the proportion of protective ground cover. Although percent bare ground increased slightly, there is adequate vegetative and litter cover to protect against erosion. Ideally, percent browse cover would be lower and more of the cover would be contributed by the herbaceous understory. While browse dominates the site, the herbaceous understory cover will remain low as the grasses and forbs are shaded out. The browse trend is slightly downward. The mountain big sagebrush population will continue to decline as long as the biotic potential stays low. The mountain big sagebrush population has lower percent decadency then 1992, but the percentage of decadent plants classified as dying increased. A slight thinning of the mountain big sagebrush population could occur without being detrimental to the mountain big sagebrush community and actually be beneficial to the herbaceous understory. The antelope bitterbrush population is healthy with good biotic potential and many young plants encountered. The herbaceous understory trend is downward with a decrease in perennial herbaceous understory sum of nested frequency from 919 in 1992 to 705 in 1998. Cheatgrass has significantly increased in nested frequency since 1992 and could easily dominate the understory in a matter of years. If this happens, the site is at risk of being lost due to a wildfire.

TREND ASSESSMENT
soil - slightly upward
browse - slightly downward
herbaceous understory - downward

HERBACEOUS TRENDS --
Herd unit 28 , Study no: 4

Type	Species	Nested Frequency			Quadrat Frequency			Average Cover %	
		'87	'92	'98	'87	'92	'98	'92	'98
G	Agropyron cristatum	-	-	6	-	-	2	-	.06
G	Agropyron smithii	[ab]173	[b]185	[a]136	61	65	48	4.03	1.58
G	Agropyron spicatum	-	-	2	-	-	1	-	.00
G	Bromus ciliatus	-	2	-	-	1	-	.01	-
G	Bromus tectorum (a)	-	[a]42	[b]167	-	17	58	.11	2.90
G	Poa fendleriana	[a]37	[b]47	[ab]33	21	20	14	1.52	.95
G	Poa pratensis	[a]-	[a]-	[b]44	-	-	14	-	2.20

Type	Species	Nested Frequency			Quadrat Frequency			Average Cover %	
		'87	'92	'98	'87	'92	'98	'92	'98
G	Poa secunda	-	3	2	-	3	2	.01	.01
G	Sitanion hystrix	119	115	89	42	46	39	2.17	1.43
G	Stipa comata	$_{a}$5	$_{b}$31	$_{a}$2	3	11	2	.18	.01
G	Stipa lettermani	$_{a}$-	$_{b}$28	$_{b}$33	-	15	14	.51	.22
Total Annual Grasses		0	42	167	0	17	58	0.11	2.90
Total Perennial Grasses		334	411	347	127	161	136	8.46	6.47
F	Agoseris glauca	-	-	4	-	-	3	-	.04
F	Allium spp.	-	3	1	-	1	1	.00	.00
F	Arabis holboellii	$_{b}$44	$_{b}$27	$_{a}$2	18	12	2	.06	.01
F	Astragalus convallarius	1	8	5	1	4	3	.67	.06
F	Astragalus panguicensis	$_{a}$6	$_{ab}$9	$_{b}$27	3	6	12	.03	.36
F	Astragalus spp.	$_{ab}$15	$_{b}$16	$_{a}$1	8	10	1	.07	.09
F	Balsamorhiza sagittata	-	-	2	-	-	1	-	.00
F	Calochortus nuttallii	2	-	5	2	-	3	-	.01
F	Chaenactis douglasii	$_{b}$84	$_{a}$32	$_{a}$12	44	15	5	.17	.02
F	Cirsium wheeleri	$_{b}$35	$_{ab}$24	$_{a}$16	22	12	8	.38	.41
F	Comandra pallida	5	7	6	2	2	2	.03	.03
F	Collinsia parviflora (a)	-	$_{a}$115	$_{b}$262	-	46	84	.55	2.22
F	Crepis acuminata	$_{a}$-	$_{b}$9	$_{b}$6	-	4	5	.04	.05
F	Erigeron eatonii	11	-	-	5	-	-	-	-
F	Erigeron spp.	-	-	2	-	-	1	-	.00
F	Eriogonum racemosum	41	32	24	18	16	13	.28	.14
F	Eriogonum umbellatum	19	18	8	8	9	4	.07	.09
F	Ipomopsis aggregata	2	-	-	1	-	-	-	-
F	Linum lewisii	-	-	2	-	-	1	-	.03
F	Lithophragma	-	-	3	-	-	1	-	.03
F	Lomatium spp.	$_{a}$-	$_{b}$9	$_{a}$-	-	5	-	.03	-
F	Lupinus argenteus	31	45	55	17	22	26	1.42	3.22
F	Machaeranthera canescens	$_{b}$36	$_{a}$4	$_{a}$2	21	2	1	.04	.00
F	Microsteris gracilis (a)	-	$_{b}$112	$_{a}$61	-	44	22	.44	.26
F	Phlox longifolia	$_{a}$118	$_{b}$177	$_{a}$115	65	71	41	1.02	.97
F	Polygonum douglasii (a)	-	-	4	-	-	3	-	.04
F	Senecio douglasii	4	-	-	1	-	-	-	-
F	Senecio multilobatus	$_{b}$18	$_{a}$1	$_{a}$1	12	1	1	.00	.00
F	Sphaeralcea coccinea	8	4	4	3	2	2	.01	.01
F	Taraxacum officinale	$_{b}$6	$_{ab}$1	$_{a}$-	4	1	-	.03	-
F	Tragopogon dubius	8	2	7	5	1	3	.00	.04
F	Trifolium spp.	$_{a}$16	$_{b}$42	$_{b}$43	7	21	19	.15	.31
F	Zigadenus paniculatus	$_{a}$7	$_{b}$38	$_{a}$5	4	19	3	.82	.04

Type	Species	Nested Frequency '87	Nested Frequency '92	Nested Frequency '98	Quadrat Frequency '87	Quadrat Frequency '92	Quadrat Frequency '98	Average Cover % '92	Average Cover % '98
Total Annual Forbs		0	112	327	0	44	109	0.44	2.52
Total Perennial Forbs		517	623	358	271	282	162	5.93	6.03

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

BROWSE TRENDS --
Herd unit 28 , Study no: 4

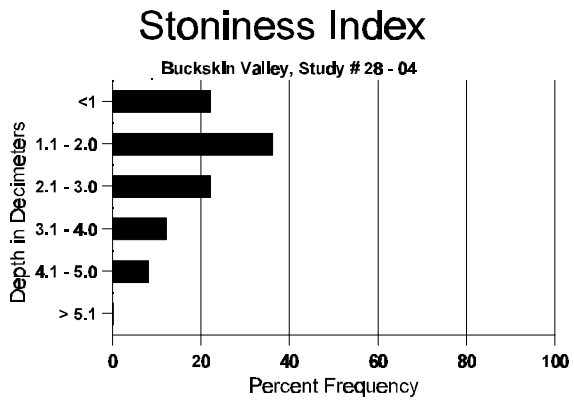
Type	Species	Strip Frequency '92	Strip Frequency '98	Average Cover % '92	Average Cover % '98
B	Artemisia tridentata vaseyana	98	94	24.29	24.87
B	Cercocarpus ledifolius	0	0	-	-
B	Chrysothamnus depressus	1	0	-	-
B	Chrysothamnus viscidiflorus viscidiflorus	2	0	-	-
B	Juniperus scopulorum	1	1	-	.03
B	Opuntia spp.	44	28	1.29	1.03
B	Purshia tridentata	79	65	5.57	8.25
B	Quercus gambelii	2	3	1.62	.56
B	Symphoricarpos oreophilus	17	17	.77	3.24
Total for Browse		244	208	33.56	38.00

BASIC COVER --
Herd unit 28 , Study no: 4

Cover Type	Nested Frequency '92	Nested Frequency '98	Average Cover % '87	Average Cover % '92	Average Cover % '98
Vegetation	352	355	7.50	42.98	50.00
Rock	227	120	5.50	5.53	4.95
Pavement	34	114	1.00	1.26	1.68
Litter	265	395	74.50	59.12	66.59
Cryptogams	74	40	2.25	1.64	.98
Bare Ground	276	200	9.25	14.50	16.27

SOIL ANALYSIS DATA --
Herd Unit 28, Study # 04, Study Name: Buckskin Valley

Effective rooting depth (inches)	Temp °F (depth)	pH	%sand	%silt	%clay	%OM	PPM P	PPM K	dS/m
14.3	50.4 (15.7)	5.9	44.2	30.0	25.8	3.8	22.7	236.8	.4



PELLET GROUP FREQUENCY --
Herd unit 28 , Study no: 4

Type	Quadrat Frequency '92	'98
Sheep	-	1
Rabbit	44	22
Elk	-	1
Deer	28	37
Cattle	-	2

BROWSE CHARACTERISTICS --
Herd unit 28 , Study no: 4

AGE	YR	Form Class (No. of Plants) 1	2	3	4	5	6	7	8	9	Vigor Class 1	2	3	4	Plants Per Acre	Average (inches) Ht.	Cr.	Total
Artemisia tridentata vaseyana																		
S	87	1	-	-	-	-	-	-	-	-	1	-	-	-	66			1
	92	1	-	-	6	-	-	1	-	-	8	-	-	-	160			8
	98	10	-	-	-	-	-	-	-	-	10	-	-	-	200			10
Y	87	7	6	1	-	-	-	-	-	-	14	-	-	-	933			14
	92	3	10	-	-	-	-	1	-	-	14	-	-	-	300			15
	98	9	1	-	-	-	-	-	-	-	10	-	-	-	200			10
M	87	15	42	13	-	-	-	-	-	-	70	-	-	-	4666	26	28	70
	92	34	101	43	-	5	-	-	-	-	183	-	-	-	3660	-	-	183
	98	93	83	6	-	-	-	-	-	-	176	4	2	-	3640	29	37	182
D	87	14	21	12	-	-	-	-	-	-	38	-	-	9	3133			47
	92	42	96	99	4	8	-	1	-	-	171	8	31	40	5020			251
	98	42	18	6	-	-	-	-	-	-	48	-	2	16	1320			66
X	87	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	92	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	98	-	-	-	-	-	-	-	-	-	-	-	-	-	1160			58

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'87	53%	20%	07%	+ 3%
'92	49%	32%	16%	-43%
'98	40%	05%	08%	

Total Plants/Acre (excluding Dead & Seedlings)			Dec:
	'87	8732	36%
	'92	8980	56%
	'98	5160	26%

AGE	YR	Form Class (No. of Plants) 1	2	3	4	5	6	7	8	9	Vigor Class 1	2	3	4	Plants Per Acre	Average (inches) Ht.	Cr.	Total
Cercocarpus ledifolius																		
S	87	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	92	-	-	-	1	-	-	-	-	-	1	-	-	-	20			1
	98	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'87	00%	00%	00%	
'92	00%	00%	00%	
'98	00%	00%	00%	

Total Plants/Acre (excluding Dead & Seedlings)				
'87	0	Dec:	-	
'92	0		-	
'98	0		-	

Chrysothamnus depressus																		
M	87	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	92	1	-	-	-	-	-	-	-	-	1	-	-	-	20	-	-	1
	98	-	-	-	-	-	-	-	-	-	-	-	-	-	0	8	28	0

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'87	00%	00%	00%	
'92	00%	00%	00%	
'98	00%	00%	00%	

Total Plants/Acre (excluding Dead & Seedlings)				
'87	0	Dec:	-	
'92	20		-	
'98	0		-	

Chrysothamnus viscidiflorus viscidiflorus																		
Y	87	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	92	2	-	-	-	-	-	-	-	-	2	-	-	-	40			2
	98	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'87	00%	00%	00%	
'92	00%	00%	00%	
'98	00%	00%	00%	

Total Plants/Acre (excluding Dead & Seedlings)				
'87	0	Dec:	-	
'92	40		-	
'98	0		-	

Juniperus scopulorum																		
Y	87	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	92	-	1	-	-	-	-	-	-	-	1	-	-	-	20			1
	98	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
M	87	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	92	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	98	1	-	-	-	-	-	-	-	-	1	-	-	-	20	-	-	1

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'87	00%	00%	00%	
'92	100%	00%	00%	+ 0%
'98	00%	00%	00%	

Total Plants/Acre (excluding Dead & Seedlings)				
'87	0	Dec:	-	
'92	20		-	
'98	20		-	

AGE	YR	Form Class (No. of Plants) 1	2	3	4	5	6	7	8	9	Vigor Class 1	2	3	4	Plants Per Acre	Average (inches) Ht.	Cr.	Total
Opuntia spp.																		
S	87	3	-	-	-	-	-	-	-	-	2	-	-	1	200			3
	92	5	-	-	-	-	-	-	-	-	5	-	-	-	100			5
	98	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
Y	87	7	-	-	-	-	-	-	-	-	2	-	2	3	466			7
	92	19	-	-	4	-	-	18	-	-	39	-	2	-	820			41
	98	4	-	1	1	-	-	-	-	-	6	-	-	-	120			6
M	87	7	3	-	-	-	-	-	-	-	6	-	2	2	666	3	4	10
	92	43	-	2	6	-	-	5	-	-	47	-	9	-	1120	-	-	56
	98	24	-	-	4	-	-	-	-	-	28	-	-	-	560	6	13	28
D	87	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	92	10	-	-	-	-	-	-	-	-	-	-	6	4	200			10
	98	3	-	-	-	-	-	-	-	-	1	-	-	2	60			3

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'87	18%	00%	53%	+47%
'92	00%	02%	20%	-65%
'98	00%	03%	05%	

Total Plants/Acre (excluding Dead & Seedlings)				
'87	1132	Dec:		0%
'92	2140			9%
'98	740			8%

AGE	YR	1	2	3	4	5	6	7	8	9	1	2	3	4	Plants Per Acre	Ht.	Cr.	Total
Purshia tridentata																		
S	87	6	5	2	-	-	-	-	-	-	13	-	-	-	866			13
	92	3	-	-	-	-	-	4	-	-	7	-	-	-	140			7
	98	9	-	-	-	-	-	-	-	-	9	-	-	-	180			9
Y	87	2	4	7	-	-	-	-	-	-	13	-	-	-	866			13
	92	4	10	10	7	15	1	6	-	-	53	-	-	-	1060			53
	98	6	5	-	3	-	-	-	-	-	14	-	-	-	280			14
M	87	-	1	12	-	-	-	-	-	-	13	-	-	-	866	22	31	13
	92	-	12	54	-	11	7	1	-	-	84	-	1	-	1700	-	-	85
	98	6	20	27	-	7	18	-	-	-	77	-	-	1	1560	22	35	78
D	87	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	92	-	-	9	1	5	-	-	-	1	12	-	4	-	320			16
	98	1	1	-	-	1	-	-	-	-	2	-	-	1	60			3
X	87	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	92	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	98	-	-	-	-	-	-	-	-	-	-	-	-	-	40			2

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'87	19%	73%	00%	+44%
'92	34%	53%	03%	-38%
'98	36%	47%	02%	

Total Plants/Acre (excluding Dead & Seedlings)				
'87	1732	Dec:		0%
'92	3080			10%
'98	1900			3%

AGE	YR	Form Class (No. of Plants) 1	2	3	4	5	6	7	8	9	Vigor Class 1	2	3	4	Plants Per Acre	Average (inches) Ht.	Cr.	Total
Quercus gambelii																		
S	87	1	-	-	-	-	-	-	-	-	1	-	-	-	66			1
	92	-	-	-	6	-	-	-	-	-	6	-	-	-	120			6
	98	-	-	-	1	-	-	-	-	-	1	-	-	-	20			1
Y	87	1	1	-	-	-	-	-	-	-	2	-	-	-	133			2
	92	-	-	-	2	-	-	3	-	-	5	-	-	-	100			5
	98	2	-	-	-	-	-	-	-	-	2	-	-	-	40			2
M	87	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	92	-	-	-	-	8	-	8	-	-	16	-	-	-	320	-	-	16
	98	18	-	-	-	-	-	-	-	-	18	-	-	-	360	75	39	18
D	87	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	92	-	2	-	-	-	-	-	-	-	-	-	-	2	40			2
	98	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'87	50%	00%	00%	+71%
'92	43%	00%	09%	-13%
'98	00%	00%	00%	

Total Plants/Acre (excluding Dead & Seedlings)			Dec:
	'87	133	0%
	'92	460	9%
	'98	400	0%

Symphoricarpos oreophilus																		
S	87	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	92	2	-	-	-	-	-	3	-	-	5	-	-	-	100			5
	98	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
Y	87	6	1	-	-	-	-	-	-	-	7	-	-	-	466			7
	92	5	4	-	1	-	-	-	-	-	10	-	-	-	200			10
	98	6	-	-	-	-	-	-	-	-	6	-	-	-	120			6
M	87	1	1	-	-	-	-	-	-	-	2	-	-	-	133	20	19	2
	92	1	3	3	2	13	-	2	-	-	21	-	3	-	480	-	-	24
	98	4	11	-	14	1	-	-	-	-	30	-	-	-	600	14	25	30
D	87	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	92	-	-	1	-	-	-	-	-	-	1	-	-	-	20			1
	98	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'87	22%	00%	00%	+14%
'92	57%	11%	09%	+ 3%
'98	33%	00%	00%	

Total Plants/Acre (excluding Dead & Seedlings)			Dec:
	'87	599	0%
	'92	700	3%
	'98	720	0%