

\*\*\*Not Read\*\*\*

Trend Study 5-6-96

Study site name: Franklin Canyon.

Vegetation type: Big Sagebrush.

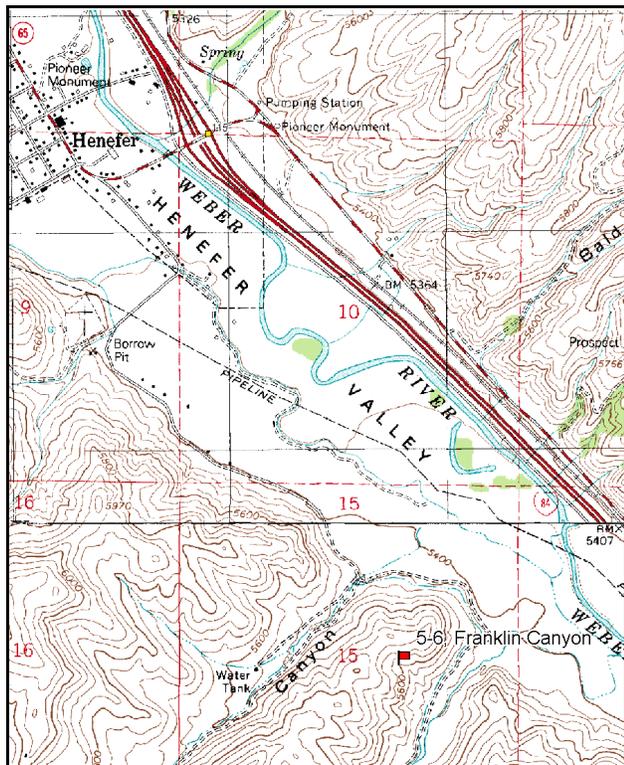
Compass bearing: frequency baseline 180 degrees magnetic.

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

LOCATION DESCRIPTION

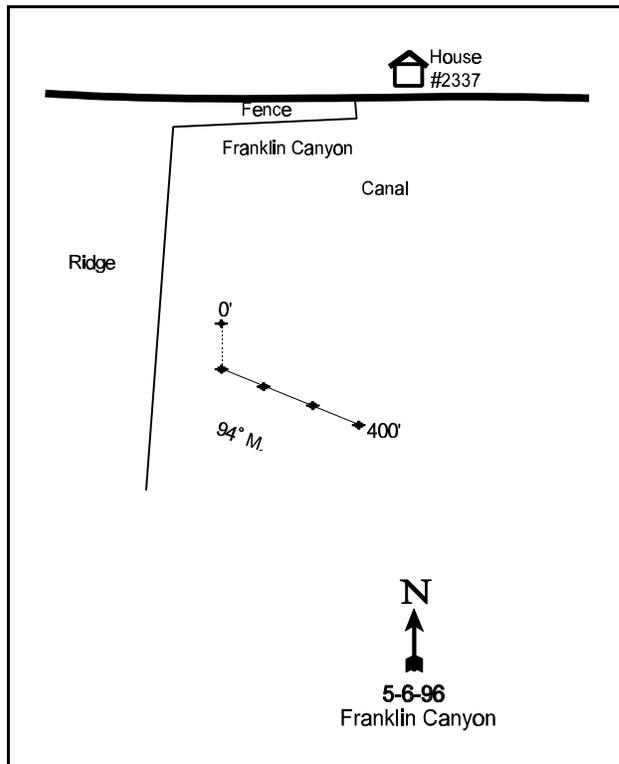
From Henefer, proceed south on the cemetery road to a farm house (No. 2333) at the mouth of Franklin Canyon. Turn right and travel up the canyon for 0.2 miles to a small grove of narrowleaf cottonwoods on the canal bank. From here walk approximately 125 yards on an azimuth of 260 degrees magnetic to the corner post on a fence line. Walk due west along the fence line past 4 large, wooden cross-braces. After the fourth brace, continue on past 3 metal fenceposts. From here walk 30 paces on an azimuth of 180 degrees the 0-foot stake of the baseline. The 0-foot stake of the baseline is marked with browse tag #7948.

Contact land owner for permission.



Map Name: Coalville

Township 3N, Range 4E, Section 15



Diagrammatic Sketch

UTM 4538214 N 459628 E

## DISCUSSION

### Trend Study No. 5-6

\*\*\*This site was not read in 2001 and will be reevaluated in 2006. Access to the area occurs only through private land at the mouth of Franklin Canyon. We were denied permission to enter the area in 2001.

The Franklin Canyon study samples critical deer winter range near the lower end of Franklin Canyon. The site is mountain big sagebrush/grass range that has been seriously depleted by heavy livestock and some deer use in the past. Those plants on the west and south exposures (physiologically drier) appear to have the individuals most affected. Exposure at the site is east southeast with a 20-25% slope and elevation of 5,440 feet. Although big sagebrush/grass is widespread in lower Franklin Canyon, range condition varies widely. It was reported in 1990, that there were many pellet groups, heavy browse use, several antler drops, and at least 12 winter-killed deer in the area. Utilization on browse has declined since that time, although there are still many deer pellet groups in the area. Water is available about 1/4 of a mile downslope in the canal. In 1996, sheep were grazing the site and appeared to have been there for most of the spring.

Soil is rocky and classified as a sandy clay loam. Color is light brown with an effective rooting depth less than 8 inches. Soil temperature was measured at 70°F at 8 inches in depth. The soil profile has a high amount of cobblestone with some gravel as well. Current erosion is light due to the extensive litter and vegetation cover. Percent bare ground cover is low which limits most erosion.

The key browse species in this area is mountain big sagebrush. Slopes in the area with a southerly aspect are drier and dominated by cheatgrass. They contain abundant dead big sagebrush. This is usually representative of populations with winter injury in association with prolonged drought. Slopes with more northern and eastern aspects have much healthier stands of both big sagebrush and rabbitbrush. Utilization of sagebrush was extremely heavy in 1984. Vigor was poor on 15% of the plants sampled and over half (54%) of the population was decadent. Use was more moderate in 1990 but vigor was classified as poor on 43% of the sagebrush sampled and nearly 60% (57%) were decadent. In 1996, use was mostly light, vigor good and percent decadence low at only 4%. Density was estimated at 920 plants/acre in 1996, down from 2,466 plants/acre in 1990. Dead plants first sampled in 1996, number 1,100 plants/acre. It appears that most of the decadent plants sampled in 1990 are now dead.

Broom snakeweed shows an increase in density with many young plants sampled in 1996. White rubber rabbitbrush density has also increased to an estimated 940 plants/acre in 1996. Other species scattered around the site include Saskatoon serviceberry, prickly pear cactus, and mountain snowberry.

Understory composition, density, and production are dominated by cheatgrass brome and a variety of annual forbs. Sandberg bluegrass sum of nested frequency is nearly the same as measured in 1990, with other grasses occurring rarely. Perennial or biennial forbs occur occasionally. The most prevalent are yellow salsify, lupine, Utah milkvetch, thistle, and Louisiana sagebrush. Annual forbs include storksbill, pale alyssum, *Holosteum*. This study site has a high fire hazard due to the abundance of dry cheatgrass.

### 1984 APPARENT TREND ASSESSMENT

Soil trend appears stable only because of a dense litter cover. Soil depth and/or fertility are not the factors limiting development of a more desirable and productive plant community. Vegetative trend appears down due to excessive utilization of the major browse species and past depletion of perennial understory plants and their subsequent replacement by annual invaders. This has been exacerbated by the dry, steep aspect. Under these conditions, a destructive fire is a very real possibility.

1990 TREND ASSESSMENT

Density of mountain big sagebrush has increased 30%. However, age classifications indicate some changes in the population. In 1984, there were 466 mature sagebrush/acre and a high percentage of decadent plants. The 1990 reading found a stand with 266 mature sagebrush/acre and abundant seedlings. Sagebrush canopy cover averages 6%. Density depends on aspect. The shrubs are all dead on the south slopes (refer to discussion above on wintering injuries to sagebrush). Classified as moderately hedged in 1990, compared to the heavily hedged growth form noted in 1984, the sagebrush still have reduced vigor and a low amount of new growth. The data shows some improvements in the herbaceous vegetation, especially the large increase in the frequency of perennial grass. The ground cover changes indicate a decline in the percentage of litter cover and an increase in bare soil. The dense cheatgrass cover provides ephemeral protection. There is little evidence of soil erosion.

TREND ASSESSMENT

soil - stable (3)

browse - down (1)

herbaceous understory - up slightly but dominated by annuals (4)

1996 TREND ASSESSMENT

Soil trend is stable with very little bare ground cover. Although litter cover has declined since 1990, there is abundant vegetative cover to prevent erosion at this time. Browse trend is still down, even though there are fewer decadent plants reported in 1996 and a lower proportion of heavily utilized plants classified. Fifty-four percent of the population is dead. Browse populations appear to be gaining stability and may be more healthy than in the past. Grass composition is dominated by cheatgrass. Forbs are dominated by annual species and do not provide much forage at this time. Herbaceous understory trend is stable.

TREND ASSESSMENT

soil - stable (3)

browse - slightly downward (2)

herbaceous understory - stable, but still very poor (3)

HERBACEOUS TRENDS --

Herd unit 05 , Study no: 6

T y p e	Species	Nested Frequency			Quadrat Frequency			Average Cover %
		'84	'90	'96	'84	'90	'96	
G	Agropyron spicatum	ab12	a4	b15	6	2	9	.26
G	Bromus tectorum (a)	-	-	381	-	-	100	16.79
G	Oryzopsis hymenoides	2	-	3	1	-	2	.16
G	Poa secunda	a7	b227	b228	4	84	79	8.21
G	Vulpia octoflora (a)	-	-	3	-	-	1	.00
Total for Annual Grasses		0	0	384	0	0	101	16.79
Total for Perennial Grasses		21	231	246	11	86	90	8.64
Total for Grasses		21	231	630	11	86	191	25.44

T y p e	Species	Nested Frequency			Quadrat Frequency			Average Cover %
		'84	'90	'96	'84	'90	'96	'96
F	<i>Alyssum alyssoides</i> (a)	-	-	191	-	-	67	.68
F	<i>Artemisia ludoviciana</i>	a <sup>9</sup>	ab <sup>13</sup>	b <sup>26</sup>	3	5	10	.46
F	<i>Astragalus cibarius</i>	a <sup>-</sup>	a <sup>-</sup>	b <sup>15</sup>	-	-	5	.07
F	<i>Astragalus utahensis</i>	a <sup>5</sup>	a <sup>5</sup>	b <sup>28</sup>	3	3	16	.76
F	<i>Camelina microcarpa</i> (a)	-	-	3	-	-	1	.00
F	<i>Cirsium</i> spp.	a <sup>-</sup>	a <sup>8</sup>	b <sup>37</sup>	-	4	21	1.10
F	<i>Collomia linearis</i> (a)	-	-	5	-	-	3	.04
F	<i>Collinsia parviflora</i> (a)	-	-	14	-	-	6	.03
F	<i>Cymopterus</i> spp.	a <sup>-</sup>	a <sup>-</sup>	b <sup>33</sup>	-	-	17	.08
F	<i>Draba</i> spp. (a)	-	-	29	-	-	12	.06
F	<i>Erodium cicutarium</i> (a)	-	-	187	-	-	69	3.17
F	<i>Erigeron eatonii</i>	-	-	3	-	-	1	.00
F	<i>Erigeron pumilus</i>	1	-	-	1	-	-	-
F	<i>Erigeron strigosus</i>	a <sup>-</sup>	a <sup>-</sup>	b <sup>15</sup>	-	-	6	.42
F	<i>Grindelia squarrosa</i>	-	-	4	-	-	2	.03
F	<i>Holosteum umbellatum</i> (a)	-	-	161	-	-	58	.44
F	<i>Lactuca serriola</i>	a <sup>-</sup>	a <sup>-</sup>	b <sup>124</sup>	-	-	56	.70
F	<i>Lomatium</i> spp.	-	4	-	-	2	-	-
F	<i>Lupinus sericeus</i>	ab <sup>43</sup>	b <sup>73</sup>	a <sup>29</sup>	20	33	16	1.61
F	<i>Machaeranthera canescens</i>	a <sup>-</sup>	a <sup>-</sup>	b <sup>22</sup>	-	-	11	.08
F	<i>Phlox longifolia</i>	-	-	3	-	-	1	.00
F	<i>Polygonum douglasii</i> (a)	-	-	5	-	-	2	.01
F	<i>Ranunculus testiculatus</i> (a)	-	-	2	-	-	1	.00
F	<i>Sisymbrium altissimum</i> (a)	-	-	19	-	-	7	.55
F	<i>Sphaeralcea coccinea</i>	-	-	-	-	-	-	.00
F	<i>Taraxacum officinale</i>	a <sup>-</sup>	a <sup>-</sup>	b <sup>22</sup>	-	-	10	.29
F	<i>Tragopogon dubius</i>	a <sup>29</sup>	a <sup>13</sup>	b <sup>194</sup>	16	8	79	1.53
F	<i>Vicia americana</i>	-	-	1	-	-	1	.00
Total for Annual Forbs		0	0	616	0	0	226	5.00
Total for Perennial Forbs		87	116	556	43	55	252	7.20
Total for Forbs		87	116	1172	43	55	478	12.21

Values with different subscript letters are significantly different at alpha = 0.10 (annuals excluded)

BROWSE TRENDS --  
Herd unit 05 , Study no: 6

Type	Species	Strip Frequency	Average Cover %
		'96	'96
B	Artemisia tridentata vaseyana	26	1.99
B	Chrysothamnus nauseosus albicaulis	30	3.64
B	Chrysothamnus viscidiflorus viscidiflorus	5	.38
B	Gutierrezia sarothrae	18	.64
B	Opuntia spp.	6	.07
Total for Browse		85	6.72

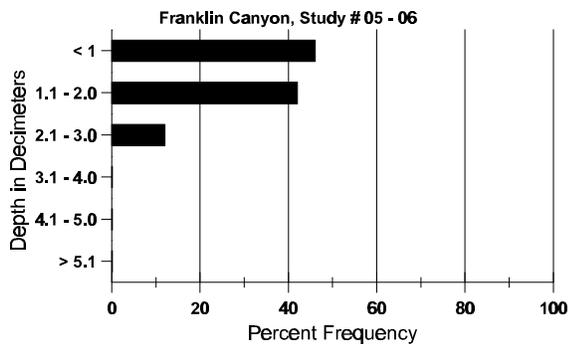
BASIC COVER --  
Herd unit 05 , Study no: 6

Cover Type	Nested Frequency	Average Cover %		
		'96	'84	'90
Vegetation	396	1.00	2.50	55.50
Rock	169	.50	1.25	4.57
Pavement	245	4.75	11.50	3.75
Litter	397	92.50	76.50	46.90
Cryptogams	59	.25	.25	.53
Bare Ground	178	1.00	8.00	1.74

SOIL ANALYSIS DATA --  
Herd Unit 05, Study no: 06, Franklin Canyon

Effective rooting depth (in)	Temp °F (depth)	PH	%sand	%silt	%clay	%OM	PPM P	PPM K	dS/m
7.6	70.2 (8.1)	7.2	56.7	22.0	21.3	2.8	26.6	166.4	.8

### Stoniness Index



PELLET GROUP FREQUENCY --

Herd unit 05 , Study no: 6

Type	Quadrat Frequency '96
Sheep	3
Rabbit	1
Deer	52
Cattle	9

BROWSE CHARACTERISTICS --

Herd unit 05 , Study no: 6

A G E	Y R	Form Class (No. of Plants)									Vigor Class				Plants Per Acre	Average (inches) Ht. Cr.	Total
		1	2	3	4	5	6	7	8	9	1	2	3	4			
Amelanchier alnifolia																	
D	'84	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0
	'90	-	-	-	-	1	-	-	-	-	-	-	-	1	66		1
	'96	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>				<u>%Change</u>					
'84		00%			00%			00%									
'90		100%			00%			00%									
'96		00%			00%			00%									
Total Plants/Acre (excluding Dead & Seedlings)												'84	0	Dec:	0%		
												'90	66		100%		
												'96	0		0%		

A G R E	Y R	Form Class (No. of Plants)									Vigor Class				Plants Per Acre	Average (inches) Ht. Cr.		Total
		1	2	3	4	5	6	7	8	9	1	2	3	4				
<i>Artemisia tridentata vaseyana</i>																		
S	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	90	69	-	-	-	-	-	-	-	-	69	-	-	-	4600		69	
	96	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
Y	84	5	-	-	-	-	-	-	-	-	5	-	-	-	333		5	
	90	9	3	-	-	-	-	-	-	-	12	-	-	-	800		12	
	96	5	-	-	-	-	-	-	-	-	5	-	-	-	100		5	
M	84	-	1	6	-	-	-	-	-	-	7	-	-	-	466	29 35	7	
	90	-	4	-	-	-	-	-	-	-	2	2	-	-	266	22 23	4	
	96	37	2	-	-	-	-	-	-	-	27	-	-	-	780	25 29	39	
D	84	-	1	13	-	-	-	-	-	-	10	-	3	1	933		14	
	90	2	16	3	-	-	-	-	-	-	5	-	-	16	1400		21	
	96	1	-	-	-	1	-	-	-	-	1	-	-	1	40		2	
X	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	96	-	-	-	-	-	-	-	-	-	-	-	-	-	1100		55	
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'84		08%			73%			15%			+30%							
'90		62%			08%			43%			-63%							
'96		07%			00%			02%										
Total Plants/Acre (excluding Dead & Seedlings)												'84	1732	Dec:	54%			
												'90	2466		57%			
												'96	920		4%			
<i>Chrysothamnus nauseosus albicaulis</i>																		
S	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	90	1	-	-	-	-	-	-	-	-	1	-	-	-	66		1	
	96	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
Y	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	90	3	1	-	-	-	-	-	-	-	4	-	-	-	266		4	
	96	4	-	-	2	-	-	-	-	-	6	-	-	-	120		6	
M	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0	- -	0	
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0	- -	0	
	96	37	1	-	3	-	-	-	-	-	40	-	1	-	820	25 37	41	
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'84		00%			00%			00%										
'90		25%			00%			00%			+72%							
'96		02%			00%			02%										
Total Plants/Acre (excluding Dead & Seedlings)												'84	0	Dec:	-			
												'90	266		-			
												'96	940		-			

A G R E	Y R	Form Class (No. of Plants)									Vigor Class				Plants Per Acre	Average (inches) Ht. Cr.		Total
		1	2	3	4	5	6	7	8	9	1	2	3	4				
<i>Chrysothamnus viscidiflorus viscidiflorus</i>																		
S	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	90	1	-	-	-	-	-	-	-	-	1	-	-	-	66		1	
	96	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
Y	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	96	1	-	-	-	-	-	-	-	-	1	-	-	-	20		1	
M	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	
	90	3	1	-	-	-	-	-	-	-	1	-	3	-	266	11	14	
	96	5	-	-	-	-	-	-	-	-	5	-	-	-	100	11	17	
D	84	-	3	9	-	-	-	-	-	-	-	12	-	-	800		12	
	90	5	10	1	-	-	-	-	-	-	5	-	-	11	1066		16	
	96	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'84		25%			75%			00%			+40%							
'90		55%			05%			70%			-91%							
'96		00%			00%			00%										
Total Plants/Acre (excluding Dead & Seedlings)												'84	800	Dec:	100%			
												'90	1332		80%			
												'96	120		0%			
<i>Gutierrezia sarothrae</i>																		
S	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	90	1	-	-	-	-	-	-	-	-	1	-	-	-	66		1	
	96	87	-	-	-	-	-	-	-	-	87	-	-	-	1740		87	
Y	84	-	3	-	-	-	-	-	-	-	3	-	-	-	200		3	
	90	3	-	-	-	-	-	-	-	-	3	-	-	-	200		3	
	96	82	-	-	-	-	-	-	-	-	82	-	-	-	1640		82	
M	84	1	4	-	-	-	-	-	-	-	1	4	-	-	333	11	16	
	90	4	-	-	-	-	-	-	-	-	4	-	-	-	266	9	8	
	96	21	-	-	-	-	-	-	-	-	21	-	-	-	420	7	11	
D	84	-	-	11	-	-	-	-	-	-	-	11	-	-	733		11	
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	96	2	-	-	-	-	-	-	-	-	1	-	-	1	40		2	
X	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	96	-	-	-	-	-	-	-	-	-	-	-	-	-	20		1	
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'84		37%			58%			00%			-63%							
'90		00%			00%			00%			+78%							
'96		00%			00%			.95%										
Total Plants/Acre (excluding Dead & Seedlings)												'84	1266	Dec:	58%			
												'90	466		0%			
												'96	2100		2%			

A G R E	Y R	Form Class (No. of Plants)									Vigor Class				Plants Per Acre	Average (inches) Ht. Cr.		Total
		1	2	3	4	5	6	7	8	9	1	2	3	4				
Opuntia spp.																		
S	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	96	1	-	-	-	-	-	-	-	-	1	-	-	-	20		1	
Y	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	90	1	-	-	-	-	-	-	-	-	1	-	-	-	66		1	
	96	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
M	84	-	1	-	-	-	-	-	-	-	1	-	-	-	66	7	6	1
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	96	9	-	-	-	-	-	-	-	-	9	-	-	-	180	4	11	9
D	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	90	1	-	-	-	-	-	-	-	-	-	-	1	-	66		1	
	96	1	-	-	-	-	-	-	-	-	1	-	-	-	20		1	
X	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	96	-	-	-	-	-	-	-	-	-	-	-	-	-	20		1	
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'84		100%			00%			00%			+50%							
'90		00%			00%			50%			+34%							
'96		00%			00%			00%										
Total Plants/Acre (excluding Dead & Seedlings)												'84	66	Dec:	0%			
												'90	132		50%			
												'96	200		10%			
Symphoricarpos oreophilus																		
M	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	96	-	-	-	-	-	-	-	-	-	-	-	-	-	0	28	57	0
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'84		00%			00%			00%										
'90		00%			00%			00%										
'96		00%			00%			00%										
Total Plants/Acre (excluding Dead & Seedlings)												'84	0	Dec:	-			
												'90	0		-			
												'96	0		-			