

Trend Study 2-26-01

Study site name: Wellsville Canyon.

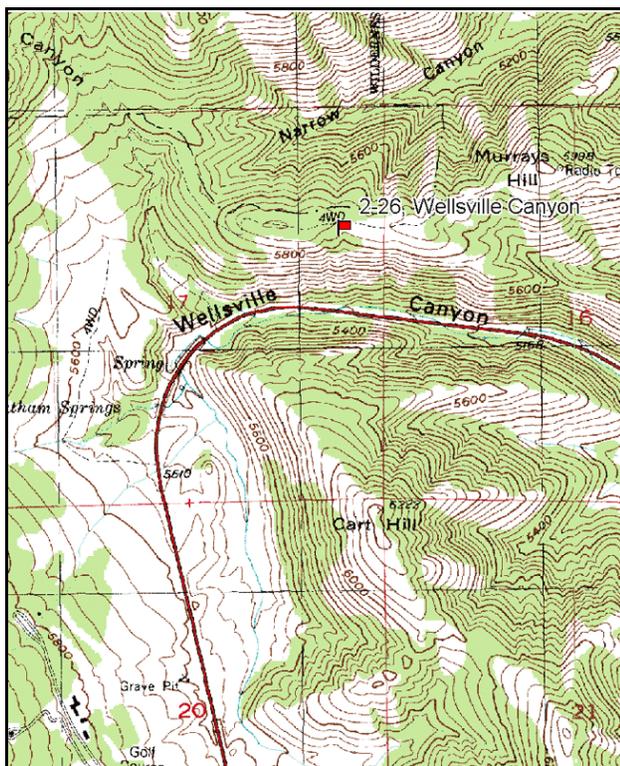
Vegetation type: Mountain Brush.

Compass bearing: frequency baseline 170 degrees magnetic.

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

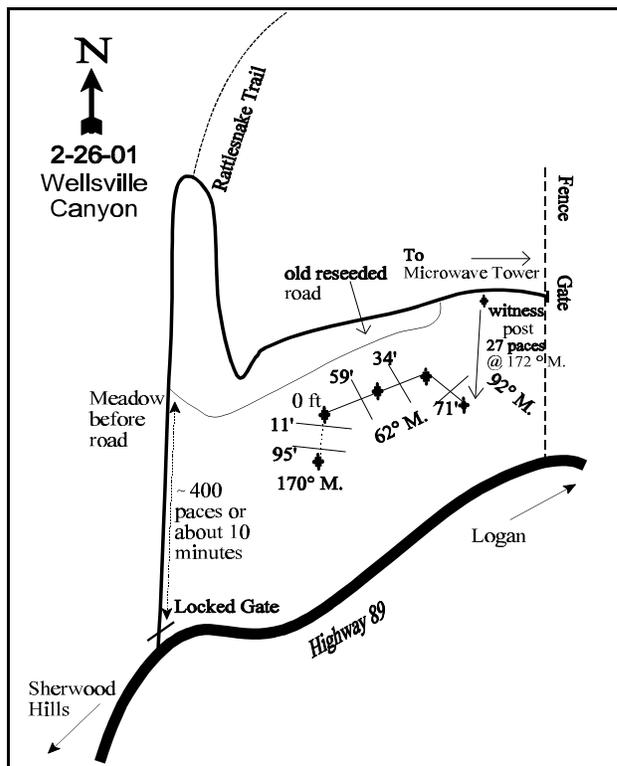
LOCATION DESCRIPTION

From the Sherwood Hills turnoff on U-89, proceed north towards Wellsville Canyon for 1.4 miles to a dirt road and locked gate to Rattlesnake Canyon. Walk up the road approximately 400 paces to a small meadow where an old road (no longer open to vehicle traffic and difficult to tell that it was a road) turns off to the east. Follow the old road approximately ½ mile to near the top of the mountain. Look for another old road coming in from the right. The witness post is just off the fork. The 400-foot baseline stake is located 27 paces away bearing 172 degrees magnetic. The 0-foot baseline stake is 300 feet to the west. The 100-foot baseline runs 170 degrees magnetic. The rest of the baseline runs off the 0-foot baseline stake. Line 2 and 3 run 62 degrees magnetic. Line 4 runs 92 degrees magnetic. The 0-foot baseline stake is marked by browse tag #421.



Map Name: Mount Pisgah

Township 10N, Range 1W, Section 17



Diagrammatic Sketch

UTM 4606465 N, 419171 E

DISCUSSION

Trend Study No. 2-26

The Wellsville Canyon trend study was established in 1990 on an upper south-facing slope to sample a mixed community of sagebrush and mountain brush. The slope is dominated by scattered large clumps of maple, with openings of sagebrush and grass. The study is on a 45% south-facing slope at an elevation of 5,800 feet. It is on Forest Service lands with limited vehicular access. The road to the site is used for maintaining a microwave tower. This slope reportedly receives a large amount of deer winter use. However, sign of deer or elk have been rare with pellet group quadrat frequencies of only 1% in 1996. A pellet group transect read on site in 2001 encountered no pellet groups. A few pellet groups were seen in the area along trails and near a bedding site. It appears that the only use this area receives is during the summer by a few resident deer.

The soil is a shallow, stony clay loam with an effective rooting depth (see methods) estimated at almost 9 inches. Parent material is limestone. The soil reaction is slightly acidic (pH of 6.1). The surface has 14% rock cover along with a high percentage of vegetation and litter cover. Erosion is not a concern for this site and the erosion condition class was determined to be stable in 2001.

Mountain big sagebrush occurs in low densities across the whole south face of the ridge. On the study site, density may be slightly higher. Density was estimated at 1,466 plants/acre in 1990. The population was 68% mature with 23% determined as decadent and 9% classified as young. Utilization was light and vigor normal. Sagebrush density remained similar in 1996, but with a noticeable increase in the proportion of young plants (9% to 25%) and a decline in percent decadence (22% to 5%). Utilization continued to be light. In 2001, density was estimated at 2,220 plants/acre. Utilization was light to moderate, vigor generally good, and percent decadence low at 10%.

Other preferred browse include small numbers of snowbrush ceanothus and widely scattered bitterbrush. A few bitterbrush seen near the site were heavily hedged, but this is expected when they occur in such low numbers. The most numerous browse species include Oregon hollygrape and woods rose. Both species have shown large declines in density after 1990, likely due to the much larger sample size used in 1996 and 2001.

There is a very abundant herbaceous understory comprised of a large diversity of grass and forb species. Introduced grasses have spread from where they were seeded on the old road, down the slope and onto the site. Grasses are dominated by bluebunch and intermediate wheatgrass, tall oatgrass, and Kentucky bluegrass. Annual grasses, Japanese brome and cheatgrass, are also found on the site. Japanese brome is more abundant and accounted for 25% of the grass cover in 1996. It declined significantly in 2001 and now provides only 3% of the grass cover.

The forb composition is very diverse, yet contains several weedy species including ragweed, dog bane, pacific aster, hounds tongue, curly cup gumweed, dyers woad, prickly lettuce, tarweed, curly dock, and yellow salsify.

1990 APPARENT TREND ASSESSMENT

The diverse, vigorous, and productive vegetation on the study site illustrates a stable trend. Other sites on the slope, especially the steeper areas, are in worse condition and have a limited browse component. This site is representative of the more productive areas. The soil trend appears stable as a result of adequate protection by vegetation and litter.

1996 TREND ASSESSMENT

Ground cover characteristics have improved slightly due to an increase in litter cover and a decline in percent bare ground. Vegetation and litter cover are abundant and erosion is not a problem on this site. The browse trend appears stable for the key browse species, mountain big sagebrush. The herbaceous understory is abundant and diverse. Sum of nested frequency for perennial grasses has increased by 33% with sum of nested frequency for Kentucky bluegrass increasing significantly. Perennial forbs declined in their sum of nested frequency value. Overall, trend for the herbaceous understory is considered stable.

TREND ASSESSMENT

soil - up slightly (4)

browse - stable (3)

herbaceous understory - stable (3)

2001 TREND ASSESSMENT

Trend for soil continues to be stable with abundant vegetation and litter cover to protect the soil. Trend for the key browse species, mountain big sagebrush, is stable. Use is heavier than in 1996, but vigor is still normal on most plants and percent decadence has remained low at 10%. The number of young plants has declined but it is still adequate to maintain the stand. Trend for the herbaceous understory is up for perennial grasses and stable for forbs. Sum of nested frequency for perennial grasses has increased 21%. The composition has changed with bluebunch wheatgrass declining significantly in nested frequency while intermediate wheatgrass, tall oatgrass, and Kentucky bluegrass increased significantly. Another positive change in the grass composition is the significant decline in nested frequency of the annuals, Japanese brome and cheatgrass. In 1996, these annual grasses provided 29% of the grass cover. They now produce only 3% of the grass cover. The forb composition is diverse and abundant. There are some useful species found on the site, although several weedy forbs like ragweed, spreading dogbane, and pacific aster provide most of the cover. Overall the herbaceous trend is considered up slightly.

TREND ASSESSMENT

soil - stable (3)

browse - stable (3)

herbaceous understory - up slightly (4)

HERBACEOUS TRENDS --

Herd unit 02 , Study no: 26

T y p e	Species	Nested Frequency			Quadrat Frequency			Average Cover %	
		'90	'96	'01	'90	'96	'01	'96	'01
G	Agropyron intermedium	a-	b24	c72	-	8	22	1.66	5.77
G	Agropyron spicatum	b124	b177	a63	48	58	23	10.84	3.92
G	Arrhenatherum elatius	a-	b25	c89	-	12	34	.92	7.09
G	Bromus carinatus	-	-	2	-	-	2	-	.06
G	Bromus japonicus (a)	-	b263	a82	-	78	30	7.65	.80
G	Bromus tectorum (a)	-	b36	a10	-	14	4	1.24	.07
G	Elymus spp.	-	-	8	-	-	4	-	.09
G	Poa pratensis	a120	a171	b274	44	59	84	7.84	15.52

Type	Species	Nested Frequency			Quadrat Frequency			Average Cover %	
		'90	'96	'01	'90	'96	'01	'96	'01
G	<i>Poa secunda</i>	_b 25	_a 3	_a -	11	2	-	.06	-
Total for Annual Grasses		0	299	92	0	92	34	8.89	0.87
Total for Perennial Grasses		269	400	508	103	139	169	21.34	32.47
Total for Grasses		269	699	600	103	231	203	30.23	33.35
F	<i>Achillea millefolium</i>	31	34	28	13	14	13	.65	1.06
F	<i>Agoseris glauca</i>	_b 15	_a -	_a -	7	-	-	-	-
F	<i>Allium</i> spp.	_a 6	_a -	_b 24	3	-	12	-	.08
F	<i>Ambrosia psilostachya</i>	_a 61	_b 101	_b 103	28	44	41	2.56	1.84
F	<i>Apocynum androsaemifolium pumilum</i>	_b 107	_a 49	_a 30	46	22	12	2.58	1.13
F	<i>Artemisia ludoviciana</i>	36	33	22	14	13	10	.93	.32
F	<i>Aster chilensis</i>	_a 85	_b 121	_{ab} 118	37	44	44	3.41	3.84
F	<i>Camelina microcarpa</i> (a)	-	-	2	-	-	1	-	.00
F	<i>Calochortus nuttallii</i>	-	-	2	-	-	2	-	.01
F	<i>Cirsium undulatum</i>	5	2	-	3	2	-	.09	-
F	<i>Convolvulus arvensis</i>	_a -	_b 12	_c 21	-	6	8	.15	.21
F	<i>Collomia linearis</i> (a)	-	4	4	-	2	2	.01	.01
F	<i>Crepis acuminata</i>	2	-	-	1	-	-	-	-
F	<i>Cynoglossum officinale</i>	13	3	1	5	1	1	.03	.03
F	<i>Dipsacus sylvestris</i>	_a -	_b 20	_b 26	-	9	14	.81	.47
F	<i>Epilobium brachycarpum</i> (a)	-	_b 115	_a 19	-	44	11	2.33	.08
F	<i>Eriogonum umbellatum</i>	3	3	-	1	1	-	.15	-
F	<i>Galium aparine</i> (a)	-	_b 12	_a -	-	5	-	.10	-
F	<i>Gilia</i> spp. (a)	-	-	3	-	-	2	-	.01
F	<i>Grindelia squarrosa</i>	-	1	3	-	1	2	.03	.06
F	<i>Hackelia patens</i>	-	2	6	-	2	2	.03	.01
F	<i>Holosteum umbellatum</i> (a)	-	-	1	-	-	1	-	.00
F	<i>Isatis tinctoria</i>	_c 44	_b 25	_a -	20	12	-	.66	-
F	<i>Lappula occidentalis</i> (a)	-	3	1	-	1	1	.00	.00
F	<i>Lactuca serriola</i>	_b 80	_a 27	_a 32	37	13	19	.14	.19
F	<i>Lithospermum ruderales</i>	-	3	-	-	1	-	.00	-
F	<i>Lomatium grayi</i>	6	2	3	3	1	1	.15	.03
F	<i>Lupinus argenteus</i>	5	1	-	3	1	-	.03	-
F	<i>Madia glomerata</i> (a)	-	2	-	-	1	-	.03	-
F	<i>Melilotus alba</i>	7	3	-	5	1	-	.03	-
F	<i>Melilotus officinalis</i>	8	3	-	3	1	-	.00	-

T y p e	Species	Nested Frequency			Quadrat Frequency			Average Cover %	
		'90	'96	'01	'90	'96	'01	'96	'01
F	Phacelia spp.	_b 21	_a 3	_{ab} 3	7	2	2	.18	.18
F	Polygonum douglasii (a)	-	3	-	-	1	-	.03	-
F	Rumex crispus	-	6	1	-	2	1	.18	.03
F	Taraxacum officinale	-	1	-	-	1	-	.00	-
F	Tragopogon dubius	_b 225	_a 64	_a 89	83	26	42	.61	1.76
F	Trifolium gymnocarpon	-	2	-	-	1	-	.03	-
F	Zigadenus paniculatus	_a 3	_{ab} 9	_b 20	1	5	7	.15	.14
Total for Annual Forbs		0	139	30	0	54	18	2.51	0.11
Total for Perennial Forbs		763	530	532	320	226	233	13.65	11.47
Total for Forbs		763	669	562	320	280	251	16.17	11.58

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

BROWSE TRENDS --

Herd unit 02 , Study no: 26

T y p e	Species	Strip Frequency		Average Cover %	
		'96	'01	'96	'01
B	Acer grandidentatum	1	5	.00	.56
B	Artemisia tridentata vaseyana	62	65	7.13	11.04
B	Ceanothus velutinus	2	3	2.22	1.86
B	Gutierrezia sarothrae	0	1	-	.03
B	Mahonia repens	21	20	2.38	2.79
B	Opuntia spp.	0	0	-	.15
B	Rosa woodsii	24	27	.93	.87
B	Symphoricarpos oreophilus	0	1	-	.00
Total for Browse		110	122	12.68	17.32

CANOPY COVER --

Herd unit 02 , Study no: 26

Species	Percent Cover	
	'96	'01
Acer grandidentatum	-	2

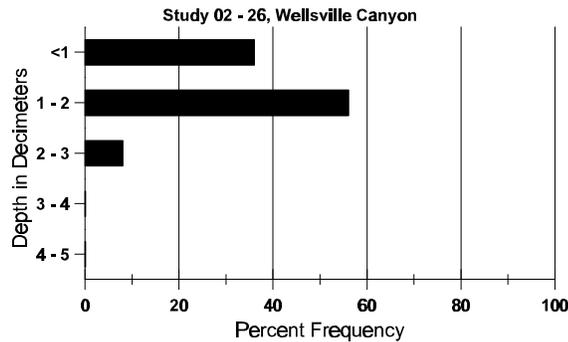
BASIC COVER --
Herd unit 02 , Study no: 26

Cover Type	Nested Frequency		Average Cover %		
	'96	'01	'90	'96	'01
Vegetation	386	385	21.25	60.94	59.15
Rock	230	203	18.50	14.07	13.55
Pavement	45	70	3.75	.23	1.29
Litter	394	382	51.50	60.87	50.37
Cryptogams	-	1	0	0	.03
Bare Ground	49	53	5.00	.75	1.20

SOIL ANALYSIS DATA --
Herd Unit 02, Study no: 26, Wellsville Canyon

Effective rooting depth (in)	Temp °F (depth)	PH	%sand	%silt	%clay	%0M	PPM P	PPM K	dS/m
8.6	60.6 (10.1)	6.1	32.6	36.1	31.4	6.2	10.7	390.4	.7

Stoniness Index



PELLET GROUP FREQUENCY --
Herd unit 02 , Study no: 26

Type	Quadrat Frequency	
	'96	'01
Elk	1	-
Deer	1	-

Pellet Transect	
Pellet Groups per Acre	Days Use per Acre (ha)
'01	'01
-	-
-	-

BROWSE CHARACTERISTICS --

Herd unit 02 , Study no: 26

A G R E	Y R E	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>Acer grandidentatum</i>																		
Y	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	96	1	-	-	-	-	-	-	-	-	1	-	-	-	20			1
	01	2	-	-	1	-	-	-	-	-	2	-	1	-	60			3
M	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	96	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	01	2	-	-	-	-	-	-	-	-	2	-	-	-	40	30	29	2
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'90		00%			00%			00%										
'96		00%			00%			00%			+80%							
'01		00%			00%			20%										
Total Plants/Acre (excluding Dead & Seedlings)												'90	0	Dec:	-			
												'96	20		-			
												'01	100		-			
<i>Artemisia tridentata vaseyana</i>																		
S	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	96	1	-	-	-	-	-	-	-	-	1	-	-	-	20			1
	01	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
Y	90	1	1	-	-	-	-	-	-	-	2	-	-	-	133			2
	96	25	-	-	-	-	-	-	-	-	25	-	-	-	500			25
	01	6	-	-	-	-	-	-	-	-	6	-	-	-	120			6
M	90	15	-	-	-	-	-	-	-	-	15	-	-	-	1000	32	30	15
	96	58	10	-	-	-	2	-	-	-	69	-	1	-	1400	24	46	70
	01	59	31	4	-	-	-	-	-	-	89	3	2	-	1880	25	37	94
D	90	3	1	-	1	-	-	-	-	-	5	-	-	-	333			5
	96	3	2	-	-	-	-	-	-	-	5	-	-	-	100			5
	01	7	4	-	-	-	-	-	-	-	9	-	-	2	220			11
X	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	96	-	-	-	-	-	-	-	-	-	-	-	-	-	220			11
	01	-	-	-	-	-	-	-	-	-	-	-	-	-	240			12
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'90		09%			00%			00%			+27%							
'96		12%			00%			01%			+10%							
'01		32%			04%			04%										
Total Plants/Acre (excluding Dead & Seedlings)												'90	1466	Dec:	23%			
												'96	2000		5%			
												'01	2220		10%			

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>Ceanothus velutinus</i>																		
M	90	-	3	-	-	-	-	-	-	-	3	-	-	-	200	30	20	3
	96	1	-	-	1	-	-	-	-	-	2	-	-	-	40	45	164	2
	01	-	-	-	-	-	-	-	-	-	-	-	-	-	0	54	119	0
D	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	96	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	01	-	3	-	-	-	-	-	-	-	2	-	-	1	60			3
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'90		100%			00%			00%			-80%							
'96		00%			00%			00%			+33%							
'01		100%			00%			33%										
Total Plants/Acre (excluding Dead & Seedlings)											'90	200	Dec:	0%				
											'96	40		0%				
											'01	60		100%				
<i>Gutierrezia sarothrae</i>																		
M	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	96	-	-	-	-	-	-	-	-	-	-	-	-	-	0	13	28	0
	01	1	-	-	-	-	-	-	-	-	1	-	-	-	20	7	4	1
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'90		00%			00%			00%										
'96		00%			00%			00%										
'01		00%			00%			00%										
Total Plants/Acre (excluding Dead & Seedlings)											'90	0	Dec:	-				
											'96	0		-				
											'01	20		-				
<i>Mahonia repens</i>																		
Y	90	460	-	-	55	-	-	-	-	-	515	-	-	-	34333			515
	96	52	-	-	4	-	-	-	-	-	56	-	-	-	1120			56
	01	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
M	90	153	-	-	40	-	-	-	-	-	193	-	-	-	12866	6	6	193
	96	210	-	-	10	-	-	-	-	-	220	-	-	-	4400	7	8	220
	01	359	-	-	27	-	-	-	-	-	361	25	-	-	7720	4	6	386
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'90		00%			00%			00%			-88%							
'96		00%			00%			00%			+28%							
'01		00%			00%			00%										
Total Plants/Acre (excluding Dead & Seedlings)											'90	47199	Dec:	-				
											'96	5520		-				
											'01	7720		-				

A G R E	Y R E	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				
Purshia tridentata																		
M	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	96	-	-	-	-	-	-	-	-	-	-	-	-	-	0	26	38	0
	01	-	-	-	-	-	-	-	-	-	-	-	-	-	0	30	50	0
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
	'90	00%			00%			00%										
	'96	00%			00%			00%										
	'01	00%			00%			00%										
Total Plants/Acre (excluding Dead & Seedlings)												'90	0	Dec:	-			
												'96	0		-			
												'01	0		-			
Rosa woodsii																		
S	90	1	-	-	-	-	-	-	-	-	1	-	-	-	66			1
	96	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	01	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
Y	90	140	-	-	47	-	-	-	-	-	187	-	-	-	12466			187
	96	29	-	-	-	-	-	-	-	-	29	-	-	-	580			29
	01	11	-	-	-	-	-	1	-	-	12	-	-	-	240			12
M	90	1	-	-	-	-	-	-	-	-	1	-	-	-	66	4	2	1
	96	24	-	-	11	-	-	-	-	-	35	-	-	-	700	17	12	35
	01	38	2	-	6	-	-	9	-	-	55	-	-	-	1100	15	8	55
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
	'90	00%			00%			00%			-90%							
	'96	00%			00%			00%			+ 4%							
	'01	03%			00%			00%										
Total Plants/Acre (excluding Dead & Seedlings)												'90	12532	Dec:	-			
												'96	1280		-			
												'01	1340		-			
Symphoricarpos oreophilus																		
Y	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	96	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	01	-	-	-	-	-	-	1	-	-	1	-	-	-	20			1
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
	'90	00%			00%			00%										
	'96	00%			00%			00%										
	'01	00%			00%			00%										
Total Plants/Acre (excluding Dead & Seedlings)												'90	0	Dec:	-			
												'96	0		-			
												'01	20		-			