

Trend Study 25B-1-99

Study site name: Thousand Lake .

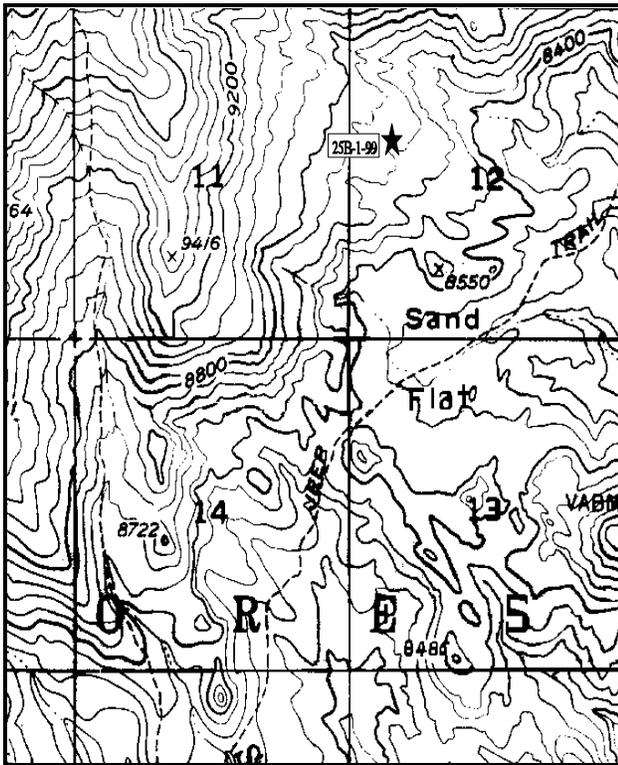
Range type: Mixed Mountain Brush .

Compass bearing: frequency baseline 180°M.

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

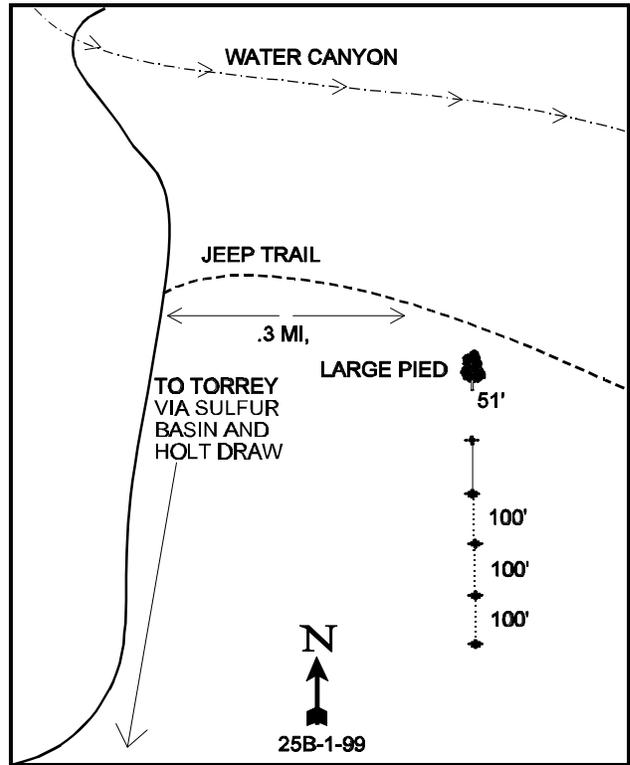
LOCATION DESCRIPTION

Take the Sand Creek-Sulfur Creek turnoff from SR 24 west of Torrey (0.35 miles from mile marker 68). Go 0.8 miles along this road to a Forest Service boundary and cattleguard. Continue 0.6 miles past two water tanks on the left. After another mile there is a road forking off to the right towards Hells Hole, continue straight through the wash. In 0.1 miles you will pass a fork, stay left on the main road which switchbacks up into the canyon (Holt Draw). Go 3.1 miles up the canyon and to the top of a ridge where a road forks to the right towards Sand Flat. Stay left on the main road (rough and rocky) and go 2.15 miles to a fork in Sulfur Basin. Take the right fork which cuts up the side of the ridge and go 1.25 miles into another basin where there is a faint road off to the right. Go 0.25 miles down this road to a large pinyon just off the right side of the road. The 0-foot baseline stake is 51 feet south of the pinyon. The stake is a rebar approximately 3 feet tall with a red browse tag #7123 attached.



Map Name: Torrey, Utah

Township 28S , Range 4E , Section 12



Diagrammatic Sketch

UTM 4249066.900 N, 462243.192 E

DISCUSSION

Trend Study No. 25B-1 (46-1)

The Thousand Lake trend study is located on the east side of Thousand Lake Mountain. The site has an aspect to the southeast with a slope of 5% to 10% and elevation of 8,600 feet. The vegetation type is mixed mountain brush. It is not unusual to see deer in this area, frequently in late summer and early fall. There is evidence that deer use the area during light to moderate winters. Pellet group data taken on site during the 1999 reading estimated 15 deer days use/acre (38 ddu/ha), 23 elk days use/acre (56 edu/ha), and 7 cow days use/acre (16 cdu/ha).

The soil appears moderately deep and quite compacted below the surface, making it difficult to drive transect stakes into the ground. Effective rooting depth was estimated at 15 inches. Soil texture was determined to be a sandy loam with a neutral pH (7.1). Soil phosphorus was low at 5.5 ppm, where values below 10 ppm could limit normal plant development and growth. There are rocks throughout the profile, although surface rock and pavement currently make up less than 12% of the ground cover. There was a high percentage of litter cover (>70%), primarily under the vegetation in the past, however currently litter cover is 45%. The north end of the transect lies in a small drainage where more abundant vegetation and litter provide good cover to help stop erosion. There is evidence of recent erosion with several shallow gullies.

The key browse species include bitterbrush, black sagebrush and mountain big sagebrush. They all have lower densities than mountain low rabbitbrush, however they are all larger and together appear to dominate the area. The black sagebrush had initially (1985) shown moderate (46%) to heavy (38%) utilization with 64% of the plants classified as decadent. Percent decadency has been declining since the first survey (64%, 56%, and 30%), however biotic potential has never been above 2% (proportion of seedlings to population) and percent young age class has never been above 7%. These numbers would indicate that black sagebrush would be declining in numbers, but not the decrease indicated by the population estimates. Some of the changes in density between 1991 and 1999 are due to the sample size being increased by more than three times. This is now giving a more accurate density estimate for the black sagebrush population. Black sagebrush currently makes up 18% of the total browse cover.

Bitterbrush currently ('99) makes up 24% of the total browse cover, making it the most productive of the key species. Percent decadence has varied through the years from a high of 42% in 1991 to 19% currently. Its biotic potential has varied from a high of 21% in 1985 to only 1% currently. Percent young has been as high as 47% in the past, but is currently moderately high at 19%. These data would indicate an improving trend for bitterbrush. Again, one should not focus too much on the population decrease. Due to the increased sample size, the density is now more representative of the true density of bitterbrush on this site.

The lower portion of the site also supports a fairly vigorous, lightly utilized population of mountain big sagebrush. It provides 11% of the total browse cover and has good biotic potential (8%) and a moderately large young age class (26%). This would indicate an improving trend for mountain big sagebrush. Gray horsebrush is also present but contributes to less than 1% of the browse cover. It currently shows mostly light (50%) to moderate (45%) hedging. Another shrub species of note is broom snakeweed, which is found on the drier portions of the site, but not in association with the more densely occurring shrub species. It is a very young population which has experienced a significant drop in its population (57%) in 1991. Since then its population has remained stable.

The pinyon population appears to be stable with only scattered young plants on the transect. Point quarter method data indicates that there are an estimated 87 trees/acre with an average diameter of almost 4 inches. Point quarter estimated juniper density at 20 trees/acre with an average diameter of just over 4 inches, while ponderosa's density was 19 trees/acre with an average diameter of almost 7 inches. More mature pinyon-juniper and ponderosa pine surrounded by the site. The most common browse species on the transect

was mountain low rabbitbrush, but only provides 15% of the browse cover. It is considered an aggressive increaser with fair to poor forage value for livestock and deer. Observations indicate that deer do browse it, with over 90% of the plants being lightly browsed. The population appeared to be stable in 1985, but it actually increased by 29% in 1991. However, in 1999 the sample size was increased by more than three times and now gives a much more accurate estimated density of only about 7,520/acre.

There is a good variety of grass species present. The grasses are desirable species which provide good ground cover and forage for big game and livestock. The grasses provide 71% of the herbaceous cover, however the herbaceous component only contributes to 19% of the total vegetative cover. The abundance of forbs is quite low to be significant in terms of production, but several of the common species are known to be utilized by big game whenever they are available, especially the buckwheat species (*Eriogonum* spp.), penstemon, and longleaf phlox. Grasses and forbs appear to have been depleted by overgrazing in the past, but since the reduction in numbers of livestock and implementation of a rest-rotation system, the herbaceous vegetation appears to be improving it's vigor and density.

1985 APPARENT TREND ASSESSMENT

Soil was depleted from past abuse, but with increased vegetative cover and litter, the soil surface and some of the gullies appear to be stabilizing. Therefore, trend appears to be improving. Vegetative trend is similar, although the presence of several woody increaser species and the poor vigor and declining population of black sagebrush is not desirable. Continued rest from livestock grazing appears necessary to allow the range to improve and herbaceous species to recover.

1991 TREND ASSESSMENT

Soil appears to be stable, but still only in fair condition. It would show good improvement if there could be an increase in grass cover and decrease of percent bare ground to less than 10%. This would be more practical than an increase in the forb cover, which has shown very little change since the last inventory in 1985. The key browse species, black sagebrush and bitterbrush, show some interesting changes. Black sagebrush has actually increased it's density by 2% (from 11,933 to 12,133 plants per acre). Even with this high density and the extended drought, percent decadency has gone from 64 to 56%. Bitterbrush has also done well through the drought period, for it's density has increased by 55% (from 999 to 2,199 plants per acre), but percent decadency has gone from 0% to 42%. This rate of decadency could be turned around with changing precipitation patterns and an end to this extended drought. Most of the key grasses have increased quadrat and nested frequency values except for slender wheatgrass. The forbs have not changed much since the last inventory.

TREND ASSESSMENT

soil - stable

browse - up

herbaceous understory - stable to slightly improving

1999 TREND ASSESSMENT

Trend for soil would be considered stable, but still only in fair condition. The increase in percent bare ground is because the transect was lengthened four times longer than the original transect and the black sagebrush type that is sampled more, has characteristically more bare soil than the mountain big sagebrush type. The two most productive key browse species, black sagebrush and bitterbrush, show some interesting density changes, however these decreases are from the greatly increased sample size which now gives better estimates for browse species. Black sagebrush shows characteristics of a stable population, but could decline in density in the future with low biotic potential (2%) and fairly low percent young age class (7%) if there are no improvements in the future. However, percent decadence has improved from 56% down to 30% and those

classified with poor vigor have decreased from a high of 25% (1991) to 10% in 1999. The percentage of plants with moderate to heavy use has also decreased from 53% in 1991 down to 19% in 1999. Bitterbrush has also done well through the extended drought period, with improvements in percent decadency from a high of 42% in 1991 to 19% in 1999. The percent classified in the young age class are still relatively high at 19%. Most of the key grasses are stable to decreasing nested frequency values except for slender wheatgrass and needle and thread grass. The forbs have changed little, but have improved slightly since 1991. Overall, trend for herbaceous species is stable.

TREND ASSESSMENT

soil - stable

browse - stable

herbaceous understory - stable

HERBACEOUS TRENDS --

Herd unit 25B, Study no: 1

T y p e	Species	Nested Frequency			Quadrat Frequency			Average Cover % '09
		'85	'91	'99	'85	'91	'99	
G	Agropyron smithii	-	-	2	-	-	1	.00
G	Agropyron trachycaulum	b ₄₅	a ₂₃	ab ₃₁	20	9	15	.60
G	Bouteloua gracilis	a ₈₃	b ₁₂₂	ab ₁₁₂	36	46	46	3.45
G	Bromus inermis	b ₁₅	a ₁	a ₋	6	1	-	-
G	Carex spp.	a ₅₀	b ₇₈	a ₃₄	21	33	15	.12
G	Oryzopsis hymenoides	2	1	-	1	1	-	-
G	Poa fendleriana	a ₋	a ₋	b ₄₄	-	-	20	.76
G	Poa pratensis	b ₁₀₂	ab ₆₄	a ₅₁	41	26	19	.78
G	Sitanion hystrix	a ₂₄	b ₈₀	a ₄₃	12	38	18	.89
G	Stipa comata	a ₋	a ₃	b ₂₄	-	1	10	.49
G	Stipa lettermani	a ₁₉	b ₄₇	ab ₃₁	8	19	14	.46
Total for Annual Grasses		0	0	0	0	0	0	0
Total for Perennial Grasses		340	419	372	145	174	158	7.57
Total for Grasses		340	419	372	145	174	158	7.57
F	Arabis demissa	4	4	3	3	2	1	.00
F	Artemisia ludoviciana	1	1	-	1	1	-	-
F	Aster spp.	-	-	5	-	-	2	.18
F	Astragalus spp.	-	2	-	-	1	-	-
F	Cryptantha spp.	a ₁₂	a ₁₉	b ₄₉	9	8	20	.42
F	Epilobium brachycarpum (a)	-	-	1	-	-	1	.15
F	Eriogonum brevicaulle	1	5	-	1	2	-	-
F	Eriogonum racemosum	b ₃₀	b ₂₉	a ₆	16	16	3	.06
F	Eriogonum umbellatum	a ₂	a ₋	b ₂₈	2	-	14	1.36
F	Hymenoxys richardsonii	-	3	4	-	1	3	.33
F	Linum lewisii	a ₋	a ₋	b ₇	-	-	3	.06

Type	Species	Nested Frequency			Quadrat Frequency			Average Cover % 09
		'85	'91	'99	'85	'91	'99	
F	Lygodesmia spp.	-	-	2	-	-	2	.03
F	Machaeranthera canescens	4	6	-	2	3	-	-
F	Penstemon comarrhenus	7	8	2	3	3	2	.16
F	Phlox longifolia	1	11	3	1	5	2	.06
F	Senecio multilobatus	_b 14	_a	_b 15	6	-	6	.20
F	Unknown forb-perennial	3	-	-	1	-	-	-
F	Zigadenus paniculatus	2	-	-	1	-	-	-
Total for Annual Forbs		0	0	1	0	0	1	0.15
Total for Perennial Forbs		81	88	124	46	42	58	2.89
Total for Forbs		81	88	125	46	42	59	3.04

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

BROWSE TRENDS --

Herd unit 25B, Study no: 1

Type	Species	Strip Frequency 09	Average Cover % 09
B	Artemisia frigida	2	.18
B	Artemisia nova	86	8.38
B	Artemisia tridentata vaseyana	36	5.01
B	Chrysothamnus nauseosus	1	-
B	Chrysothamnus viscidiflorus lanceolatus	82	6.81
B	Cowania mexicana stansburiana	2	-
B	Eriogonum microthecum	5	.04
B	Gutierrezia sarothrae	6	.15
B	Juniperus osteosperma	1	.38
B	Leptodactylon pungens	9	.21
B	Pinus edulis	6	13.63
B	Purshia tridentata	52	11.30
B	Ribes spp.	0	-
B	Symphoricarpos oreophilus	3	.00
B	Tetradymia canescens	17	.24
Total for Browse		308	46.35

CANOPY COVER --

Herd unit 25B, Study no: 1

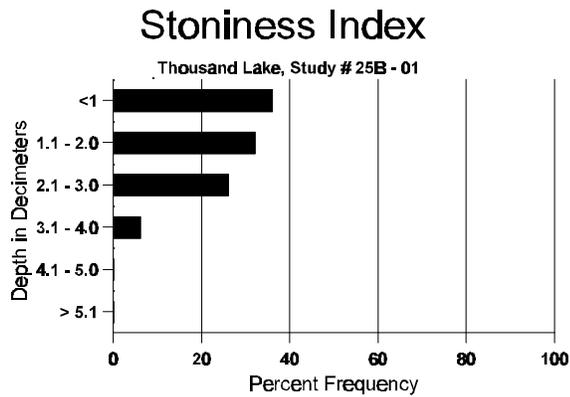
Species	Percent Cover 09
Pinus edulis	18

BASIC COVER --
Herd unit 25B, Study no: 1

Cover Type	Nested Frequency 09	Average Cover %		
		'85	'91	'99
Vegetation	298	5.25	8.50	49.81
Rock	152	7.00	5.25	8.80
Pavement	164	3.50	1.25	3.06
Litter	371	71.00	71.50	45.38
Cryptogams	20	.25	0	.38
Bare Ground	229	13.00	13.50	21.11

SOIL ANALYSIS DATA --
Herd Unit 25B, Study # 01, Study Name: Thousand Lake

Effective rooting depth (inches)	Temp °F (depth)	pH	%sand	%silt	%clay	%OM	PPM P	PPM K	dS/m
15.0	49.2 (16.4)	7.1	68.9	13.8	17.3	1.6	5.5	105.6	0.5



PELLET GROUP DATA --
Herd unit 25B, Study no: 1

Type	Quadrat Frequency		Pellet Transect Days Use/Acre (ha)
	04	09	
Rabbit	-	8	n/a
Elk	-	15	23 (57)
Deer	-	11	15 (37)
Cattle	-	2	7 (17)

BROWSE CHARACTERISTICS --

Herd unit 25B, Study no: 1

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				
Artemisia frigida																		
M	'85	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	'91	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	'99	1	-	-	2	-	-	-	-	-	3	-	-	-	60	4	5	3
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'85		00%			00%			00%										
'91		00%			00%			00%										
'99		00%			00%			00%										
Total Plants/Acre (excluding Dead & Seedlings)												'85	0	Dec:	-			
												'91	0		-			
												'99	60		-			
Artemisia nova																		
S	'85	3	-	-	-	-	-	-	-	-	3	-	-	-	200			3
	'91	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	'99	3	-	-	3	-	-	-	-	-	6	-	-	-	120			6
Y	'85	5	3	-	-	-	-	-	-	-	7	-	1	-	533			8
	'91	1	2	-	-	-	-	-	-	-	3	-	-	-	200			3
	'99	23	-	-	1	-	-	-	-	-	23	-	1	-	480			24
M	'85	19	36	2	-	-	-	-	-	-	53	-	4	-	3800	6	10	57
	'91	34	37	4	1	1	-	-	-	-	73	1	2	1	5133	6	16	77
	'99	153	42	-	16	-	-	3	-	-	214	-	-	-	4280	11	19	214
D	'85	5	43	66	-	-	-	-	-	-	81	-	17	16	7600			114
	'91	48	47	3	1	2	-	-	-	1	60	-	3	39	6800			102
	'99	65	19	-	8	4	-	4	-	-	67	-	-	33	2000			100
X	'85	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	'91	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	'99	-	-	-	-	-	-	-	-	-	-	-	-	-	820			41
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'85		46%			38%			21%			+ 2%							
'91		49%			04%			25%			-44%							
'99		19%			00%			10%										
Total Plants/Acre (excluding Dead & Seedlings)												'85	11933	Dec:	64%			
												'91	12133		56%			
												'99	6760		30%			

A Y G R E	Form Class (No. of Plants)	Vigor Class				Plants Per Acre	Average (inches) Ht. Cr.	Total							
		1	2	3	4										
<i>Artemisia tridentata vaseyana</i>															
S	85	-	-	-	-	-	-	-	-	-	-	0		0	
	91	-	-	-	-	-	-	-	-	-	-	0		0	
	99	5	-	-	3	-	-	-	-	-	8	-	-	160	8
Y	85	-	-	-	-	-	-	-	-	-	-	0		0	
	91	-	-	-	-	-	-	-	-	-	-	0		0	
	99	23	-	-	5	-	-	-	-	-	28	-	-	560	28
M	85	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	91	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	99	50	3	-	1	-	-	-	-	-	54	-	-	1080	22 29 54
D	85	-	-	-	-	-	-	-	-	-	-	0		0	
	91	-	-	-	-	-	-	-	-	-	-	0		0	
	99	22	1	-	1	-	-	-	-	-	24	-	-	480	24
X	85	-	-	-	-	-	-	-	-	-	-	0		0	
	91	-	-	-	-	-	-	-	-	-	-	0		0	
	99	-	-	-	-	-	-	-	-	-	-	200		10	
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>				
'85		00%			00%			00%							
'91		00%			00%			00%							
'99		04%			00%			00%							
Total Plants/Acre (excluding Dead & Seedlings)										'85	0	Dec:	0%		
										'91	0		0%		
										'99	2120		23%		
<i>Chrysothamnus nauseosus</i>															
M	85	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	91	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	99	1	-	-	-	-	-	-	-	-	1	-	-	20	25 26 1
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>				
'85		00%			00%			00%							
'91		00%			00%			00%							
'99		00%			00%			00%							
Total Plants/Acre (excluding Dead & Seedlings)										'85	0	Dec:	-		
										'91	0		-		
										'99	20		-		

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 lanceolatus</i>																		
S	85	1	-	-	-	-	-	-	-	-	1	-	-	-	66		1	
	91	1	-	-	-	-	-	-	-	-	1	-	-	-	66		1	
	99	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
Y	85	20	-	-	-	-	-	-	-	-	20	-	-	-	1333		20	
	91	25	-	-	-	-	-	-	-	-	25	-	-	-	1666		25	
	99	10	-	-	2	-	-	-	-	-	12	-	-	-	240		12	
M	85	135	2	-	-	-	-	-	-	-	137	-	-	-	9133	4	4	137
	91	233	11	-	4	-	-	6	-	-	251	3	-	-	16933	3	8	254
	99	309	9	-	24	-	-	2	-	-	344	-	-	-	6880	8	14	344
D	85	48	4	5	-	-	-	-	-	-	56	-	1	-	3800		57	
	91	8	10	-	-	2	-	-	-	-	14	-	-	6	1333		20	
	99	14	1	-	5	-	-	-	-	-	13	-	-	6	400		20	
X	85	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	91	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	99	-	-	-	-	-	-	-	-	-	-	-	-	-	60		3	
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'85		03%			02%			.46%			+28%							
'91		08%			00%			02%			-62%							
'99		03%			00%			02%										
Total Plants/Acre (excluding Dead & Seedlings)												'85	14266	Dec:	27%			
												'91	19932		7%			
												'99	7520		5%			
<i>Cowania mexicana stansburiana</i>																		
M	85	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	91	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	99	-	-	-	-	-	-	-	-	-	-	-	-	-	0	19	19	0
D	85	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	91	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	99	2	-	-	-	-	-	-	-	-	1	-	-	1	40		2	
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'85		00%			00%			00%										
'91		00%			00%			00%										
'99		00%			00%			50%										
Total Plants/Acre (excluding Dead & Seedlings)												'85	0	Dec:	0%			
												'91	0		0%			
												'99	40		100%			

A Y G R E	Form Class (No. of Plants)	Vigor Class				Plants Per Acre	Average (inches) Ht. Cr.	Total								
		1	2	3	4											
Eriogonum microthecum																
Y	85	-	-	-	-	-	-	-	-	-	-	0		0		
	91	-	-	-	-	-	-	-	-	-	-	0		0		
	99	3	-	-	-	-	-	-	-	-	3	-	-	60	3	
M	85	-	-	-	-	-	-	-	-	-	-	0	-	-	0	
	91	-	-	-	-	-	-	-	-	-	-	0	-	-	0	
	99	2	3	-	-	-	-	-	-	-	5	-	-	100	9 13	5
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>					
'85		00%			00%			00%								
'91		00%			00%			00%								
'99		38%			00%			00%								
Total Plants/Acre (excluding Dead & Seedlings)										'85	0	Dec:	-			
										'91	0		-			
										'99	160		-			
Gutierrezia sarothrae																
S	85	6	-	-	-	-	-	-	-	6	-	-	400		6	
	91	-	-	-	-	-	-	-	-	-	-	-	0		0	
	99	-	-	-	-	-	-	-	-	-	-	-	0		0	
Y	85	3	-	-	-	-	-	-	-	3	-	-	200		3	
	91	3	-	-	-	-	-	-	-	3	-	-	200		3	
	99	1	-	-	-	-	-	-	-	1	-	-	20		1	
M	85	3	-	-	-	-	-	-	-	3	-	-	200	4 4	3	
	91	-	-	-	-	-	-	-	-	-	-	-	0	-	0	
	99	9	-	-	-	-	-	-	-	9	-	-	180	11 21	9	
D	85	1	-	-	-	-	-	-	-	-	-	1	66		1	
	91	-	-	-	-	-	-	-	-	-	-	-	0		0	
	99	-	-	-	-	-	-	-	-	-	-	-	0		0	
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>					
'85		00%			00%			14%			-57%					
'91		00%			00%			00%			+ 0%					
'99		00%			00%			00%								
Total Plants/Acre (excluding Dead & Seedlings)										'85	466	Dec:	14%			
										'91	200		0%			
										'99	200		0%			
Juniperus osteosperma																
M	85	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	91	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	99	-	-	-	-	1	-	-	-	-	1	-	-	20	-	1
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>					
'85		00%			00%			00%								
'91		00%			00%			00%								
'99		100%			00%			00%								
Total Plants/Acre (excluding Dead & Seedlings)										'85	0	Dec:	-			
										'91	0		-			
										'99	20		-			

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				
Leptodactylon pungens																		
Y	85	4	-	-	-	-	-	-	-	-	4	-	-	-	266			4
	91	1	-	-	-	-	-	-	-	-	1	-	-	-	66			1
	99	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
M	85	21	-	-	-	-	-	-	-	-	21	-	-	-	1400	5	6	21
	91	1	1	-	2	-	-	1	-	-	5	-	-	-	333	5	5	5
	99	3	4	-	2	-	-	3	-	-	12	-	-	-	240	9	8	12
D	85	5	-	-	-	-	-	-	-	-	5	-	-	-	333			5
	91	5	3	-	-	-	-	1	-	-	5	-	-	4	600			9
	99	1	-	-	3	-	-	1	-	-	3	-	-	2	100			5
X	85	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	91	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	99	-	-	-	-	-	-	-	-	-	-	-	-	-	20			1
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'85		00%			00%			00%			-50%							
'91		27%			00%			27%			-66%							
'99		24%			00%			12%										
Total Plants/Acre (excluding Dead & Seedlings)												'85	1999	Dec:	17%			
												'91	999		60%			
												'99	340		29%			
Pinus edulis																		
S	85	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	91	-	-	-	4	-	-	-	-	-	4	-	-	-	266			4
	99	2	-	-	1	-	-	2	-	-	5	-	-	-	100			5
Y	85	1	-	-	-	-	-	-	-	-	1	-	-	-	66			1
	91	1	-	-	-	-	-	-	-	-	1	-	-	-	66			1
	99	2	-	-	-	-	-	-	-	-	2	-	-	-	40			2
M	85	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	91	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	99	2	-	-	-	-	-	2	-	-	4	-	-	-	80	-	-	4
X	85	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	91	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	99	-	-	-	-	-	-	-	-	-	-	-	-	-	20			1
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'85		00%			00%			00%			+ 0%							
'91		00%			00%			00%			+45%							
'99		00%			00%			00%										
Total Plants/Acre (excluding Dead & Seedlings)												'85	66	Dec:	-			
												'91	66		-			
												'99	120		-			

A G R E	Y	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																		
S	85	4	-	-	-	-	-	-	-	-	3	-	1	-	266		4	
	91	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	99	-	-	-	-	1	-	-	-	-	1	-	-	-	20		1	
Y	85	6	1	-	-	-	-	-	-	-	7	-	-	-	466		7	
	91	3	-	-	-	-	-	-	-	3	-	-	-	200		3		
	99	7	7	-	-	2	-	-	-	16	-	-	-	320		16		
M	85	2	1	5	-	-	-	-	-	8	-	-	-	533	9	22	8	
	91	5	3	7	-	-	-	-	-	15	1	-	-	1066	7	19	16	
	99	4	14	8	3	13	9	-	-	51	-	-	-	1020	17	49	51	
D	85	-	-	-	-	-	-	-	-	-	-	-	-	0		0		
	91	3	-	6	-	-	-	4	-	10	-	-	4	933		14		
	99	2	2	-	4	5	3	-	-	13	-	-	3	320		16		
X	85	-	-	-	-	-	-	-	-	-	-	-	-	0		0		
	91	-	-	-	-	-	-	-	-	-	-	-	-	0		0		
	99	-	-	-	-	-	-	-	-	-	-	-	-	220		11		
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'85		13%			33%			00%			+55%							
'91		09%			45%			12%			-25%							
'99		52%			24%			04%										
Total Plants/Acre (excluding Dead & Seedlings)												'85	999	Dec:	0%			
												'91	2199		42%			
												'99	1660		19%			
Ribes spp.																		
M	85	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0	
	91	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0	
	99	-	-	-	-	-	-	-	-	-	-	-	-	0	35	50	0	
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'85		00%			00%			00%										
'91		00%			00%			00%										
'99		00%			00%			00%										
Total Plants/Acre (excluding Dead & Seedlings)												'85	0	Dec:	-			
												'91	0		-			
												'99	0		-			
Symphoricarpos oreophilus																		
M	85	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0	
	91	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0	
	99	-	-	-	4	-	-	-	-	4	-	-	-	80	20	44	4	
D	85	-	-	-	-	-	-	-	-	-	-	-	-	0		0		
	91	-	-	-	-	-	-	-	-	-	-	-	-	0		0		
	99	1	-	-	-	-	-	-	-	1	-	-	-	20		1		
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'85		00%			00%			00%										
'91		00%			00%			00%										
'99		00%			00%			00%										
Total Plants/Acre (excluding Dead & Seedlings)												'85	0	Dec:	0%			
												'91	0		0%			
												'99	100		20%			

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				
Tetradymia canescens																		
S	'85	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	'91	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	'99	1	-	-	-	-	-	-	-	-	1	-	-	-	20			1
Y	'85	3	-	-	-	-	-	-	-	-	3	-	-	-	200			3
	'91	1	-	-	-	-	-	-	-	-	1	-	-	-	66			1
	'99	1	1	-	-	-	-	-	-	-	2	-	-	-	40			2
M	'85	1	1	1	-	-	-	-	-	-	3	-	-	-	200	9	7	3
	'91	4	1	-	-	-	-	-	-	-	5	-	-	-	333	6	7	5
	'99	5	7	1	2	-	-	-	-	-	15	-	-	-	300	13	12	15
D	'85	1	1	1	-	-	-	-	-	-	2	-	1	-	200			3
	'91	2	-	-	-	-	-	-	-	-	1	-	-	1	133			2
	'99	1	1	-	1	-	-	-	-	-	-	1	-	2	60			3
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'85		22%			22%			11%			-11%							
'91		13%			00%			13%			-25%							
'99		45%			05%			10%										
Total Plants/Acre (excluding Dead & Seedlings)												'85	600	Dec:	33%			
												'91	532		25%			
												'99	400		15%			