

Numbers of flowering *Frasera speciosa* plants in East River Valley meadows near the Rocky Mount annual count by David Inouye. Metadata at bottom of file, last updated December 2011

Site #	Year						
	1979	1980	1981	1982	1983	1984	
	0	?	?	?	?	?	?
	1	2	0	0	0	2	0
	1A						
	1B						
	2	3	26	0	1	2	0
	3	5	68	5	1	4	0
	3A	?	132	0	1	1	0
	3B	?	35	0	0	3	0
annex		?				2	
	3C	?	33	0	0	0	0
	3D	?	140	4	0	8	0
	3E	?	11	2	1	2	0
annex		?				1	
	3F	?	18	2	0	15	0
	3G	?	30	1	0	18	0
	3H	?	38	8	0	17	0
	4	0	0	?	0	?	0
	5	18	?	?	0	?	0
	6	114	295	21	8	201	4
annex						57	
	7	1	7	0	0	0	0
	7A						
	8	1	3	0	0	0	0
8A							
	9	5	0	1	1	6	0
	9A	?	2	?	?	?	0
	9B	?	?	?	?	?	?
	9C	?	?	?	?	?	?
	9D	?	?	?	?	?	?
	9E	?	?	?	?	?	?
	9F	?	?	?	?	?	?
	9G						
	10	7	76	5	1	9	0
	10A	?	?	?	?	49	1
	10B	?	?	?	?	?	?
	11	14	260	65	1	285	0
	12	0	78	23	0	36	0
	12A		22	11	0	67	0
annex						28	
	12B	?	1	1	0	1	0
	12C	?	16	1	1	3	1
	12D	?	200	36	0	181	1
	12E	?	35	37	2	45	0
	12F	?	7	1	0	0	0
	12G	?	86	18	1	51	0
	12H	?	48	7	0	38	0
	12I	?	2	0	0	1	0
	12J	?	4	1	0	6	0

	12K	?	37	1	0	0	0
	12L	?	24	0	0	3	0
	12M	?	35	2	0	7	0
	12N	?	60	1	0	14	0
	12O	?	65	4	1	?	0
	12P	?	?	?	?	?	?
	12Q	?	?	?	?	?	?
	12R						
	12S						
	13	6	48	0	0	17	0
	14	3	54	1	0	15	0
	15	2	7	0	0	0	0
15B						no rosettes seen in #1	
15A							
	16	3	50	?	0	9	0
	17	9	10	?	0	0	0
	18	4	133	0	0	16	0
	18A	?	?	?	?	?	?
	19	9	147	1	0	34	0
	20	27	3350	65	0	351	0
	21	3	114	?	0	33	12
	21A	?	?	?	?	4	0
	21B	?	?	?	?	8	1
	22	4	2	0	0	0	0
	23	1	6	0	0	0	0
	24	18	2	?	0	0	0
	24A	?	?	?	?	3	0
	25	4	30	1	0	6	0
	26	15	4	0	0	3	0
	27	?	5	0	0	5	0
	28	?	11	0	0	4	0
	29	?	4	0	0	2	0
	30	?	12	0	0	0	0
	30A	?	?	?	?	?	?
	31	?	7	0	0	2	0
	32	?	12	0	0	9	0
	just above left of plot					5	
	33	?	89	1	0	5	0
	34	?	41	4	0	2	0
	34A	?					
	35	?	43	1	0	15	0
	36	?	17	0	0	15	0
	37	?	5	0	0	1	0
	37A	?	?	?	?	?	?
	37B	?	?	?	?	?	?
	38	?	45	0	0	9	0
	38A	?	1	?	0	1	0
	39	?	55	1	0	3	0
	40	?	21	0	0	0	0
	41	?	77	0	0	2	0
	42	?	17	0	0	2	0
	42A						
	42B						

43	?	36	0	0	5	0
44	?	5	0	0	0	0
45	?	8	0	0	1	0
46	?	11	0	0	3	0
46A						
47	?	72	2	0	8	0
48	?	30	0	0	3	0
49	?	83	2	0	18	0
49A	?	?	?	?	?	?
50	?	38	0	0	3	0
51	?	900	14	11	97	3
52	?	25	0	0	6	0
53	?	41	0	0	4	0
54	?	6	0	0	6	0
55	?	20	?	?	?	0
56	?	5	?	?	?	0
57	?	9	?	?	?	0
58	?	1	?	?	?	0
59	?	2	?	?	?	0
60	?	3	?	?	?	0
61	?	66	?	?	?	0
62	?	48	?	?	?	0

63	?	?	?	?	?	?
64	?	?	?	?	?	?
65						
66						
67						

Total, 1-62	278	7722	351	31	1898	23
Total, 0-2,6-62, 67 without motocross area (sites in yellow above)	255	7217	329	28	1827	23

meadow below water treatment plant pond in Mt. Crested Butte

55 = Rustler's Gulch to left fork (up Bellview), mile 0  
56 = see map  
57 = east of CR 317, Lower Bellview H.q. site, mile 1.1

- 58 = Friends' Pond parking lot, west side of road, mile 2.0
- 59 = west side of road, across from Bellview Ipomopsis site, mile 2.25
- 60 = upper right hill between rocks, mile 2.45
- 61 = above snow slide in ooching place, on slopes of Baldy, mile 2.90
- 62 = Emerald Lake, south of lake, along both sides of driveway to lake
- 63 = ?
- 64 = ?
- 65 = just below Bellview parking area, E side of road
- 66 = West of Bellview parking area, between road and river

Note: In 1995 2 flower stalks in sites 16 (120 cm) and 20 (125 cm) were I

Each year from 1979 - 2011 the number of flowering *Frasera speciosa* plants visible with binoculars along approximately 14 km of County Road 317 (Gothic Road) was counted in approximately 130 meadows or parts of meadows. Plants are also counted in four areas not completely visible from the road, the "Research Meadow" at the Rocky Mountain Biological Laboratory (a large meadow just south of Copper Creek), the townsite of Gothic, where RMBL is located, a meadow surrounding the Kyle cabin (N38° 56' 50", W106° 59' 13") between the Gothic Road and the East River, and meadows along about 2km of the Kettle Pond Road, a dirt road that parallels the Gothic Road but on the East side of the East River (south to N38° 52' 68", W106° 58' 23.80"). The N – S road segment starts a few hundred m south of the border of the Gunnison National Forest, at the North Village valley of Mount Crested Butte (N38° 55.1582', W106° 57.6223'), on the west side of the road, and continues to the north end of Emerald Lake (N39° 0.6949', W107° 2.5683'), shortly before Schofield Pass at the top of the East River valley. Altitude along the transect ranges from 2,920m to 3,190m, and areas included in the census extend approximately 2,850m below the road to as far as 3,322m above it, and range as far as

tain Biological Laboratory, Gothic, Colorado

	1985	1986	1987	1988	1989	1990	1991	1992
	119	0	0	2064	0	42	0	23
	1	0	0	11	0	1	0	3
	2	0	0	123	0	4	0	0
	30	0	0	275	0	22	1	5
	5	0	0	0	0	2	0	0
	18	0	0	60	0	9	0	0
	10							
	0	0	0	153	0	36	0	0
	14	2	1	437	0	53	0	3
	5	0	0	143	0	5	0	0
	1	0	0	12	0	0	0	0
	0	0	0	123	0	23	0	0
	10	0	0	251	0	53	0	0
4	where is site??							
delete site								
	59	16	2	1926	0	651	1	16
	15					98	0	2
	2	0	0	18	0	1	0	1
	0	0	0	0	0	0	0	0
	5	0	0	75	0	4	0	1
delete site								
	?	?	?	4	0			
	?	?	?	16	0			
	?	?	?	16	0	0	0	0
	?	?	?	3	0	0	0	0
	?	?	?	9	0	3	0	1
								1
	7	0	0	196	0	22	0	2
	4	2	0	286	0	140	0	11
	?	?	?	6	0	0	0	0
	65	0	3	1609	0	532	0	125
	2	0	0	68	0	38	0	12
	2	0	0	357	0	89	0	6
	3							
	0	0	0	1	0	2	0	0
	0	0	0	15	0	48	0	1
	46	6	0	1026	0	302	0	153
	0	0	0	120	0	52	0	44
	12	0	0	10	0	3	0	3
	18	2	1	555	0	108	0	27
	2	0	1	430	0	56	0	28
	0	0	0	6	0	2	0	2
	0	0	0	21	0	6	0	7

0	1	0	210	0	43	0	31
6	0	0	5	0	33	0	0
2	0	0	104	0	32	0	3
5	0	0	64	0	8	0	2
3	1	0	142	0	5	0	4
3	3	0	121	0	122	0	32
?	?	?	234	0	76	0	26

4	0	0	163	0	43	0	24
9	0	0	143	0	20	0	10
0	0	0	0	0	0	0	1

15

0	0	4	221	0	278	0	45
0	0	0	18	0	7	0	3
13	0	0	104	0	43	0	21
?	?	?	23	0	3	0	0
9	3	2	455	1	131	1	40
33	29	0	4377	4	1778	0	170
5	30	1	140	0	127	0	17
0	0	0	14	0	5	0	0
1	0	0	20	0	1	0	1
0	0	0	2	0	19	0	2
0	0	0	2	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	8	0	5	0	0
4	0	0	107	0	79	0	9
1	0	0	10	0	12	0	2
0	0	0	5	0	13	1	0
2	0	0	1	0	16	0	3
1	0	0	4	0	19	0	4
0	0	0	0	0	2	0	0
?	?	?	9	0	8	0	3
1	0	0	7	0	4	0	0
0	0	0	10	0	15	0	0

5	0	0	30	0	92	0	5
2	0	0	11	0	27	0	11

					5	0	0
0	0	0	49	0	25	0	0
0	0	0	2	0	21	0	1
1	0	0	10	0	4	0	0
1	0	0	with above		3	0	2
?	?	?	4	0	28	0	1
0	0	0	13	0	47	0	1
0	0	0	1	0			
0	0	0	1	0	25	0	3
0	0	0	0	0	42	0	2
1	0	0	26	0	30	0	4
0	0	0	0	0	19	0	0

0	0	0	2	0	65	0	3
0	0	1	5	0	14	0	4
0	0	0	2	0	8	0	0
1	0	0	0	0	8	0	3
							2
0	0	0	24	0	49	0	1
0	0	0	1	0	33	0	0
1	0	0	2	0	242	0	9
?	?	?	1	0	0	0	0
2	2	0	15	0	161	0	11
10	4	6	183	5	2238	1	10
0	0	0	20	0	201	0	0
0	0	0	10	0	225	0	0
0	0	5	56	0	128	1	1
0	0	?	0	0		0	
0	0	0	5	0		0	0
2	0	1	3	0	14	0	6
0	0	0	0	0	4	0	0
0	0	0	4	0	21	0	6
0	0	0	0	0		0	6
3	0	0	1	0	52	0	1
4	18	0	80	4	159	10	15

?	?	?	354	1	281	5
?	?	?	?	?	542	?

477	119	28	15645	14	9302	16	1015
499	117	27	16255	14	9141	15	1030

222 7  
I speculate that this flow

both short; compare with mean in a better year for flowering



1993	1994	1995	1996	1997	1998	1999	2000
21	0	0	1559	8	0	0	0
0	6	0	0	0	0	0	0
				0	0	0	0
				1	0	0	1
2	0	0	64	2	0	0	1
7	4	0	367	1	0	8	1
0	0	0	4	2	0	0	0
0	0	0	380	1	0	0	0
			3B,D,E,F can't be disting		0	0	0
0	0	0	203	0	0	0	0
1	0	0 see 3B		7	0	0	0
5	0	0 see 3B		0	0	0	0
					0	0	0
0	0	0 see 3B		2	0	0	0
1	1	0	103	0	0	0	0
1	0	0	195	0	0	0	0
30	0	0	1820	4	0	5	7
21	0	0	161	14	0	0	0
0	0	0	5	0	0	0	0
			42	0	0	0	0
0	0	0	0	0	0	0	0
			84	0	0	0	0
					0	0	0
			0	0	0	0	0
			0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	11	0	0	0	0
0	0	0	2	0	0	0	0
0	0	0	3	0	0	0	0
0	0	0	67	0	0	0	4
0	0	0	44	1	0	0	0
0	0	0	2	0	0	0	1
0	2	0	864	6	0	4	8
0	0	0	27	0	0	3	0
0	0	0	329	1	0	0	0
0	0	0			0	0	0
0	0	0	0	0	0	0	0
0	0	0	9	1	0	0	0
4	1	0	1024	47	0	12	2
0	0	0	239	1	0	0	0
0	0	0	2	1	0	4	1
3	0	0	397	4	0	15	0
1	1	0	384	1	0	0	4
0	0	0	0	1	0	0	0
0	0	0	8	1	0	0	0

0	0	1	166	47	0	33	1
0	0	0	11	7	0	0	0
2	1	0	16	0	1	0	1
0	3	0	27	0	0	0	0
1	0	0	30	0	0	0	2
2	0	0	150	1	1	3	3
4	0	0	207	13	0	7	0
			43	24	0	0	0
			2	0	0	0	0
1	0	0	96	0	0	1	0
0	0	0	91	0	0	2	3
0	0	0	2	0	0	0	0
0	0	1	70	3	0	6	0
0	0	0	0	1	0	0	0
0	0	0	83	0	0	2	0
0	0	0	16	0	0	0	0
0	0	0	261	5	0	1	0
5	0	1	3308	28	0	23	3
5	0	0	256	2	1	16	0
0	0	0	13	0	0	0	0
0	0	0	12	0	0	0	0
0	0	0	10	0	0	0	0
0	0	0	3	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	3	0	0	0	0
0	0	0	123	0	0	0	0
0	0	0	26	0	0	0	0
0	0	0	22	1	0	0	0
0	0	0	19	0	0	0	0
0	0	0	20	0	0	0	0
0	0	0	13	0	0	0	0
0	0	0	8	0	0	0	0
0	0	0	5	0	0	0	0
1	0	0	13	0	0	0	0
5	1	0	102	1	0	0	0
0	0	0	166	2	0	4	0
0	0	0	7	2	0	0	0
3	0	0	3	0	0	0	0
0	0	0	27	0	0	2	0
0	0	0	13	0	0	0	0
0	0	0	27	1	0	0	0
0	0	0	41	0	0	0	0
0	0	0	59	0	0	1	0
	0 included in 38				0	0	0
0	0	0	28	0	0	0	0
0	0	0	14	0	0	0	0
5	0	0	103	8	0	4	0
3	0	0	29	0	0	0	0
			1	0	0	0	0

6	0	0	85	0	0	0	0
0	1	0	3	1	0	3	0
2	0	0	17	0	0	0	0
0	0	0	2	0	0	0	0
0	0	0		0	0	0	0
0	0	0	28	16	0	13	0
2	0	0	14	22	0	3	0
2	0	0	111	0	0	0	0
0	0	0	1	0	0	0	0
6	0	0	221	12	0	4	0
7	3	0	1471	26	0	10	2
0	0	0	146	0	0	0	0
0	0	0	122	1	0	0	0
2	1	0	166	0	0	0	0
		0	0	1	0	0	0
0		0	16	0	0	0	0
0		0	16	0	0	0	0
0		0	0	0	0	0	0
0		0	26	0	0	0	0
0					0		
13		0	115	33	0	63	0
31	27	6	2230	47	2	169	3

	2	0	0	0	0	0	0
	2	0	3	0	0	0	0

184	52	9	17375	404	5	421	48
190	47	9	17682	399	5	413	47

ering is the consequence of a leak in the pond in previous years



2001	2002	2003	2004	2005	2006	2007	2008	
25	0	1671	0	301	0	0		
0	0		0	0	0	0		
0	0	0	0	5	0	0		
0	0	16	0	6	0	0		
0	0	97	0	19	0	2		
0	0	171	0	21	0	0		
0	0	320	0	28	0	1		
1	0 lumped with 3A							
0	0 lumped with 3A							
0	0 lumped with 3A							
0	0 lumped with 3A							
0	0 lumped with 3A							
0	0 lumped with 3A							
0	0 lumped with 3A							
0	0	43	0	7	0	0		
0	0	98	0	31	0	0		
0	0	1772	0	323	0	0		
3	0 added to above							
0	0	47	0	1	0	0		
0	0	0	0	0	0	0		
0	0	0	0	0	0	0		
		2	0	0	0	0		
0	0	27	0	9	0	0		
0	0							
0	0	1	0	0	0	0		
0	0	0	0	0	0	0		
0	0	6	0	0	0	0		
0	0	6	0	11	0	0		
0	0	1	0	0	0	0		
0	0	21	0					
0	0	100	0	25	0	0		
0	0	77	0	77	0	0		
0	0	3	0	0	0	0		
2	0	698	0	667	0	1	1	
0	0	6	0	16	0	0		
0	0	276	0	178	0	0		
0	0 added to 12A							
0	0	0	0	1	0	0		
0	0	6	0	6	0	0		
5	0	921	0	541	0	0		
0	0	132	0	117	0	0		
0	0	39	0	14	0	0		
1	0	287	0	203	0	2		
0	0	198	0	92	0	0	1	
0	0			0	0	0		
1	0	11	0	3	0	0		

1	0	237	0	81	0	0	
0	0	19	0	15	0	0	
0	0	1	0	8	0	0	
1	0	20	0	18	0	0	
2	0	27	0	7	0	0	
1	0	192	0	194	0	0	3
2	0	164	0	78	0	1	
0	1	50	0	45	0	0	
0	0	25	0	22	0	0	
2	0	139	0	37	0	0	
0	0	91	0	27	0	0	
2	0	28	0	5	0	0	
				2	0	0	
		1	0	3	0	0	
0	0	282	0	47	0	0	
0	0	58	0	14	0	0	
0	0	305	0	40	0	0	
0	0	7	0	0	0	0	
0	0	225	0	57	1	0	
49	1	1943	1	1847	1	0	
45	0	222	0	330	0	0	4
0	0	9	0	6	0	0	
0	0	7	0	18	0	0	
4	0	43	0	4	0	0	
0	0			0	0	0	
0	0			2	0	0	
0	0	1	0	0	0	0	
2	0	66	0	61	0	4	
0	0	8	0	5	0	0	
0	0	11	0	16	0	2	
0	0	3	0	6	0	0	
0	0	0	0	1	0	0	
0	0	2	0	0	0	0	
0	0	1	0	5	0	0	
0	0	5	0	11	0	0	
0	0	13	0	29	0	0	
0	0						
0	0	48	0	35	0	0	
0	0	15	0	54	0	1	
0	0	12	0	11	0	0	
0	0	33	0	72	0	0	
0	0	1	0	27	0	0	
0	0	2	0	0	0	0	
0	0	12	0	7	0	0	
0	0	1	0	11	0	0	
0	0	6	0	12	0	0	
0	0			9	0	0	
0	0	3	0	60	0	0	
0	0	0	0	25	0	0	
5	0	31	0	81	0	0	
0	0	1	0	29	0	0	
0	0	0	0	13	0	0	
		25	0	34	0	0	

0	0	24	0	62	0	0	
4	0	1	0	27	0	0	
0	0	2	0	23	0	0	
1	0	1	0	5	0	0	
0	0	0	0	0	0	0	
6	0	12	0	85	0	0	
16	0	16	0	37	0	0	1
0	0	26	0	91	0	1	
0	0	1	0	0	0	0	
2	0	40	0	195	0	0	1
41	0	434	1	1337	0	0	10
0	0	34	0	57	0	0	
4	0	40	0	79	0	0	
3	0	68	0	62	0	0	
0	0	1	0	0	0	0	
0	0	1	0	12	0	0	
not on map'	0		0				
not on map'	0		0				
not on map'	0		0				
not on map'	0		0				
52	0	166	0	62	0	0	2
229	1	494	0	1682	0	1	49

21

20

	0		0				
	0		0				
not on map'	0		0				
not on map'	0		0				
				11		0	0

487      3      11138      11      9738      2      16      72

511      3      12177      2      9963      2      15      113



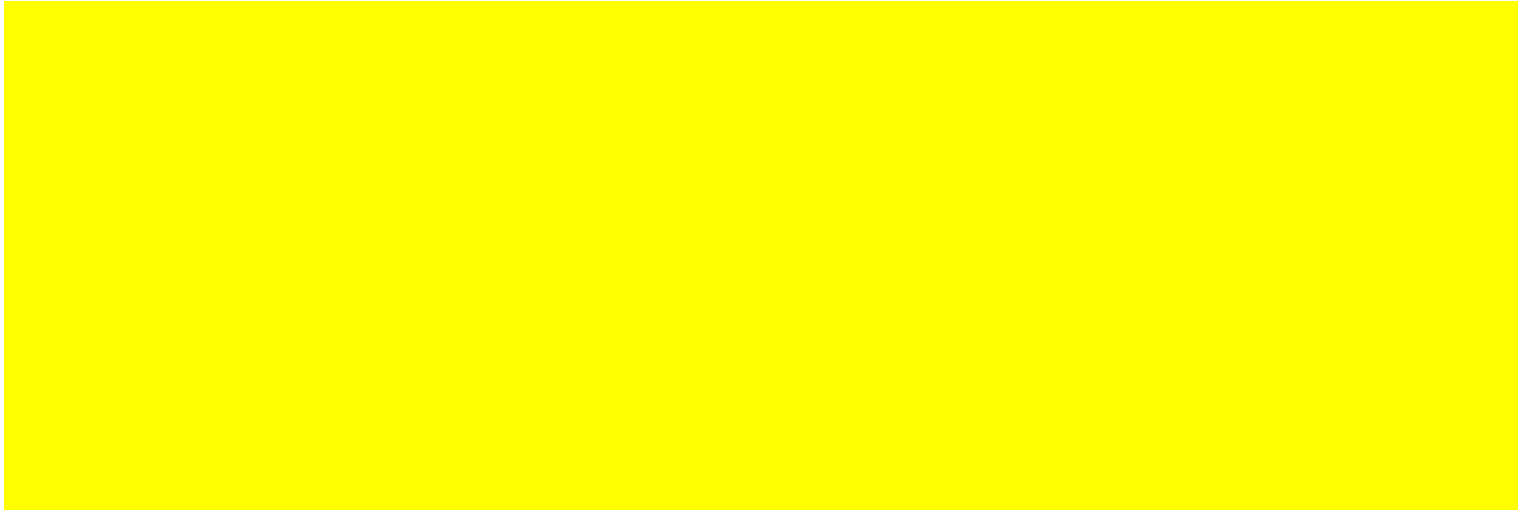


e motocross area this year or subsequent years (highlighted in yellow)

2009 2010 2011 area (square meters) Description

1579 9  
0  
0  
2 0  
11 0

2005: some digging to bury power line, dug up so



1257 1  
170  
1  
23 0  
0  
0  
26 0  
0  
0  
0  
21 0  
1 0  
3 0  
110 0  
101 0  
9 1  
940 10  
14 0  
68 2  
6 0  
0  
786 78  
17 3  
15 0  
545 3  
1 343 6  
0  
1 62 1

3	4	
42		along drive before Kyle cabin
35	1	
37	3	
52	0	Maxfield meadow
	12	
208	0	Kyle cabin meadow
80	0	
385	1	
191	6	
36	0	
	0	
8	0	
199	1	
15		
365	0	34931 South Gothic hill down to county road, as seen fr
15	0	1604 north of South Gothic driveway just past the line
252	0	15183 West of county road from south of Gothic to the E
3814	9	67360 Research meadow
534	22	15164 Gothic townsite east of the county road
42	0	595 Between Richards cabin and Red Rock cabin, nc
28	2	3194 From below Baker cabin to below Enders cabin, :
107	0	14151 Gothic townsite west of the county road, from nor
6	0	dining hall and Tincup
1	0	
1	0	north of Ore house
130	0	south of billy's cabin
	1	
18	1	
15	1	
2	2	
1	1	
	0	
8	0	
44	0	
214	2	
17	0	
11	0	
30	12	
10	0	
0	0	
55	0	
29	1	
22	0	
55	0	
41	0	
15	0	
88	1	
39	0	
20	0	

	85	0	
	11	4	
	20	0	
	0	0	
	0	0	
	67	0	
	34	0	
	179	1	
	4	0	
1	199	4	
	1689	5	Picnic
	144	0	
	182	0	
	131	4	
	0	0	
	3	1	east of CR 317, Lower Bellview Helianthella site,
	3	0	Friends' Pond parking lot, west side of road, mile
		0	west side of road, across from Bellview Ipomopsi
		0	upper right hill between rocks, mile 2.45
1		0	slope of Baldy, above snow plug, mile 2.90
4		0	Emerald Lake, south of lake, along both sides of
	53	0	east side of road to lake
	296	2	west side of road to lake
	63	18	above CR 317
	410	27	east of lake, below CR 317
	276	2	west of lake, on side of Baldy

find notes - where is site?  
find notes - where is site?

2 0 just below Bellview parking lot (below snow slide

8 15702 256

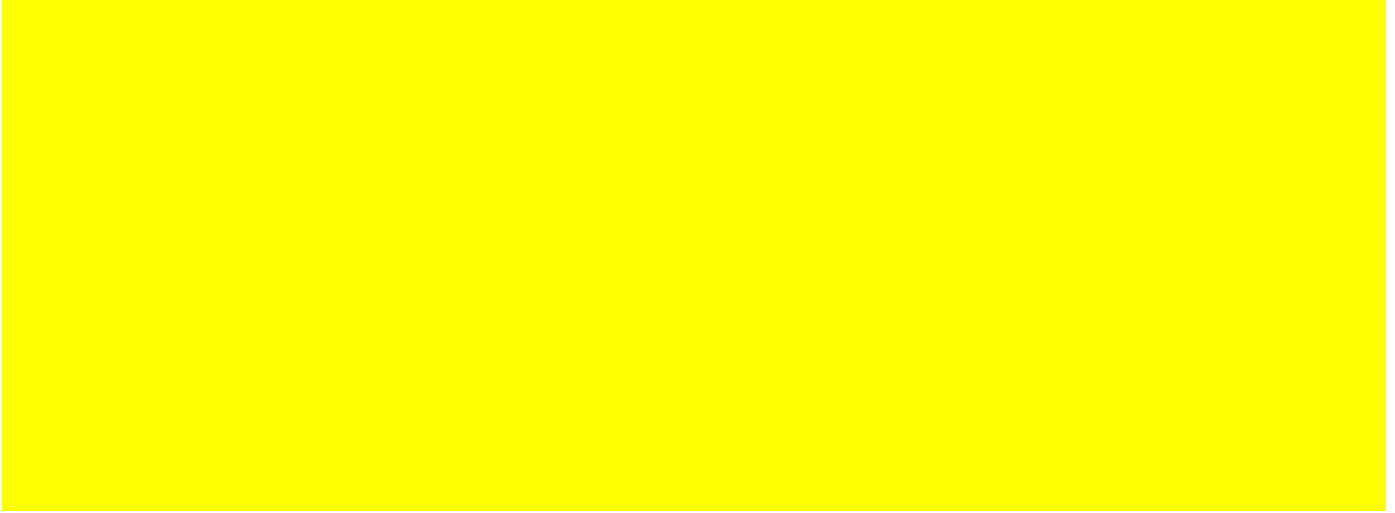
8 17281 265

255  
7217  
329  
28  
1827  
23  
499  
117  
27  
16255  
14  
9141  
15  
1030

190  
47  
9  
17682  
399  
5  
413  
47  
511  
3  
12177  
2  
9963  
2  
15  
113  
8  
17281

2988.875 mean  
5617.6813 SD  
1.8795304 CV

ome plants



om Inouye cabin

of willows on Lab property, to just above Bench ditch, south to foot path up South Gothic hill  
East River bridge, and area west of river

orth of road up hill

south of road up hill (and a few plants below the road and above Johnson lab)

rth of Savoy to Levy cabin to Hull (VIP) cabin, back along road

mile 1.1 [ Rustler Gulch is mile 0]  
2.0  
is site, mile 2.25

driveway to lake



area)