Cheseboro Canyon

Fatima Carrera, Chloe Marchman, Aaron Luangphonh, Steven Koteras


PLAY OUR BEST

Introduction

- The northernmost section of the Santa Monica Mountains.
- These canyons were flrst inhabited by the Chumash for thousands of years prior to the westward expansion.
- For 150 years, Ranchers made these canyons their home. They replaced many of the native species with European annuals which were better suited for grazing.
- Despite numerous years of cattle grazing we can still find some native species throughout the canyon!

The project

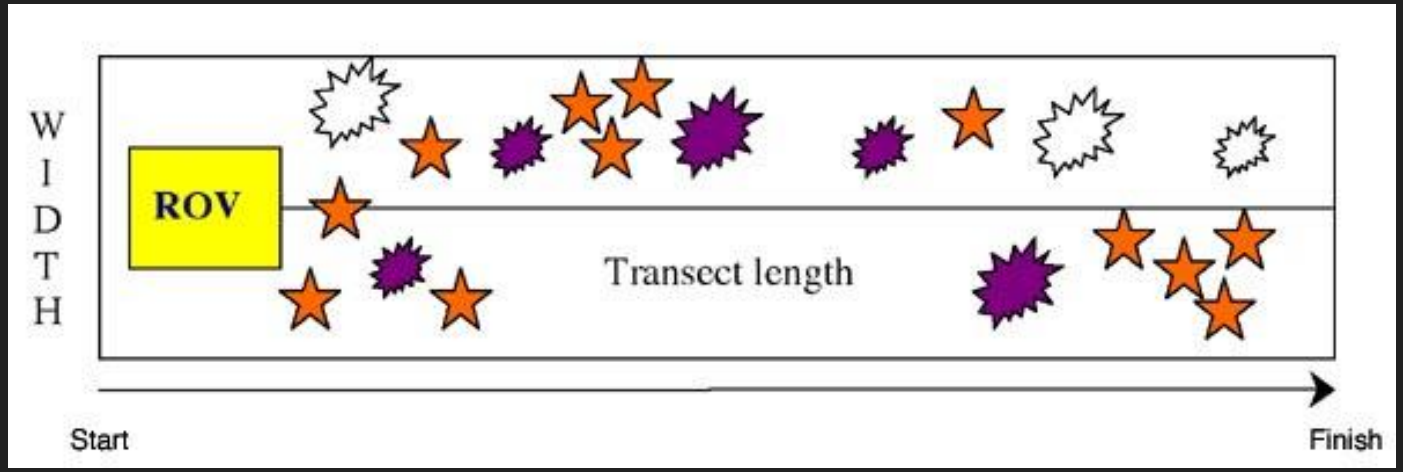
- The previous data was collected by Scott Eckardt who focused on post wildfire recovery of CSS in Cheseboro Canyon.
- He urged that there was a strong influence from local disturbances. (Like fire)
- His data was collected over 11 years ago!
- Within the 11 years, California has experienced a major drought-- we collected the data at the end of a huge rain season, which is why we believe our data collected differs with his.

Hypothesis

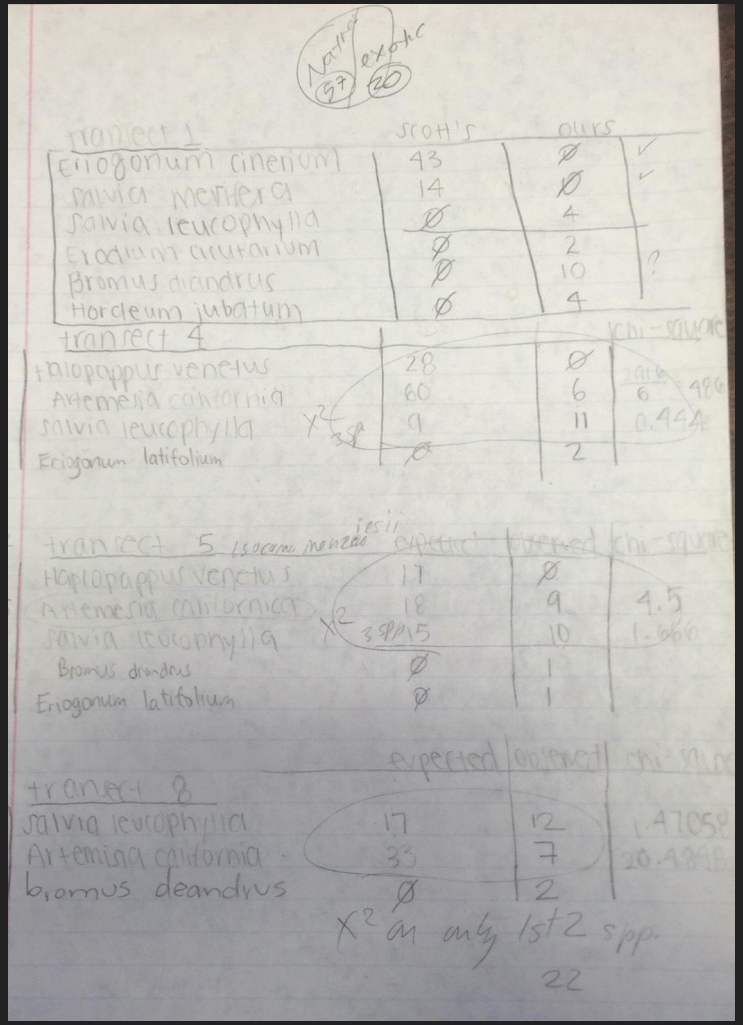
- Working Hypothesis: Over the course of 11 years there would be a significant difference in the presence of CSS species composition.

- Null: There would not be a significant difference in species composition.

DATA & METHODS







$$\chi^2 = \sum \frac{(O - E)^2}{E}$$

χ^2 = the test statistic $\sum$ = the sum of

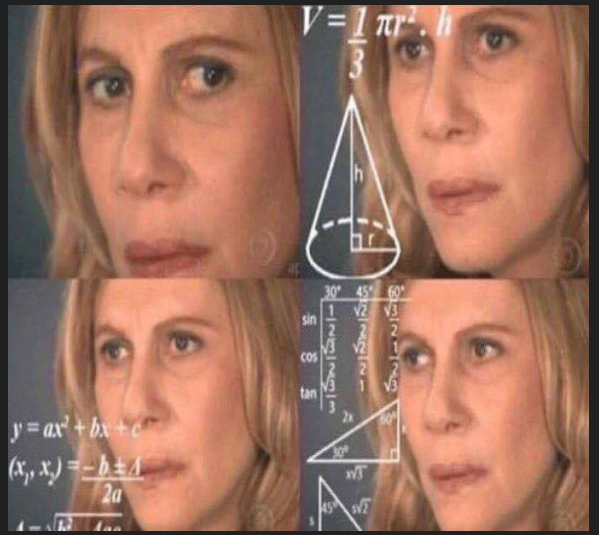
O = Observed frequencies E = Expected frequencies

TABLE IV

Chi-Square (χ^2) Distribution

Area to the Right of Critical Value

Degrees of Freedom	0.99	0.975	0.95	0.90	0.10	0.05	0.025	0.01
1	—	0.001	0.004	0.016	2.706	3.841	5.024	6.635
2	0.020	0.051	0.103	0.211	4.605	5.991	7.378	9.210
3	0.115	0.216	0.352	0.584	6.251	7.815	9.348	11.345
4	0.297	0.484	0.711	1.064	7.779	9.488	11.143	13.277
5	0.554	0.831	1.145	1.610	9.236	11.071	12.833	15.086
6	0.872	1.237	1.635	2.204	10.645	12.592	14.449	16.812
7	1.239	1.690	2.167	2.833	12.017	14.067	16.013	18.475
8	1.646	2.180	2.733	3.490	13.362	15.507	17.535	20.090
9	2.088	2.700	3.325	4.168	14.684	16.919	19.023	21.666
10	2.558	3.247	3.940	4.865	15.987	18.307	20.483	23.209
11	3.053	3.816	4.575	5.578	17.275	19.675	21.920	24.725
12	3.571	4.404	5.226	6.304	18.549	21.026	23.337	26.217
13	4.107	5.009	5.892	7.042	19.812	22.362	24.736	27.688
14	4.660	5.629	6.571	7.790	21.064	23.685	26.119	29.141
15	5.229	6.262	7.261	8.547	22.307	24.996	27.488	30.578
16	5.812	6.908	7.962	9.312	23.542	26.296	28.845	32.000
17	6.408	7.564	8.672	10.085	24.769	27.587	30.191	33.409
18	7.015	8.231	9.390	10.865	25.989	28.869	31.526	34.805
19	7.633	8.907	10.117	11.651	27.204	30.144	32.852	36.191
20	8.260	9.591	10.851	12.443	28.412	31.410	34.170	37.566
21	8.897	10.283	11.591	13.240	29.615	32.671	35.479	38.932
22	9.542	10.982	12.338	14.042	30.813	33.924	36.781	40.289
23	10.196	11.689	13.091	14.848	32.007	35.172	38.076	41.638
24	10.856	12.401	13.848	15.659	33.196	36.415	39.364	42.980
25	11.524	13.120	14.611	16.473	34.382	37.652	40.646	44.314
26	12.198	13.844	15.379	17.292	35.563	38.885	41.923	45.642
27	12.879	14.573	16.151	18.114	36.741	40.113	43.194	46.963
28	13.565	15.308	16.928	18.939	37.916	41.337	44.461	48.278
29	14.257	16.047	17.708	19.768	39.087	42.557	45.722	49.588
30	14.954	16.791	18.493	20.599	40.256	43.773	46.979	50.892



Results

Results	X^2	Prob	Cramer's	Power
Transect 1	57.561	0.000	0.865	1.000
Transect 4	32	<0.001	0.53	0.999
Transect 5	8.861	0.012	0.35	0.763
Transect 8	4.804	0.028	0.264	0.592

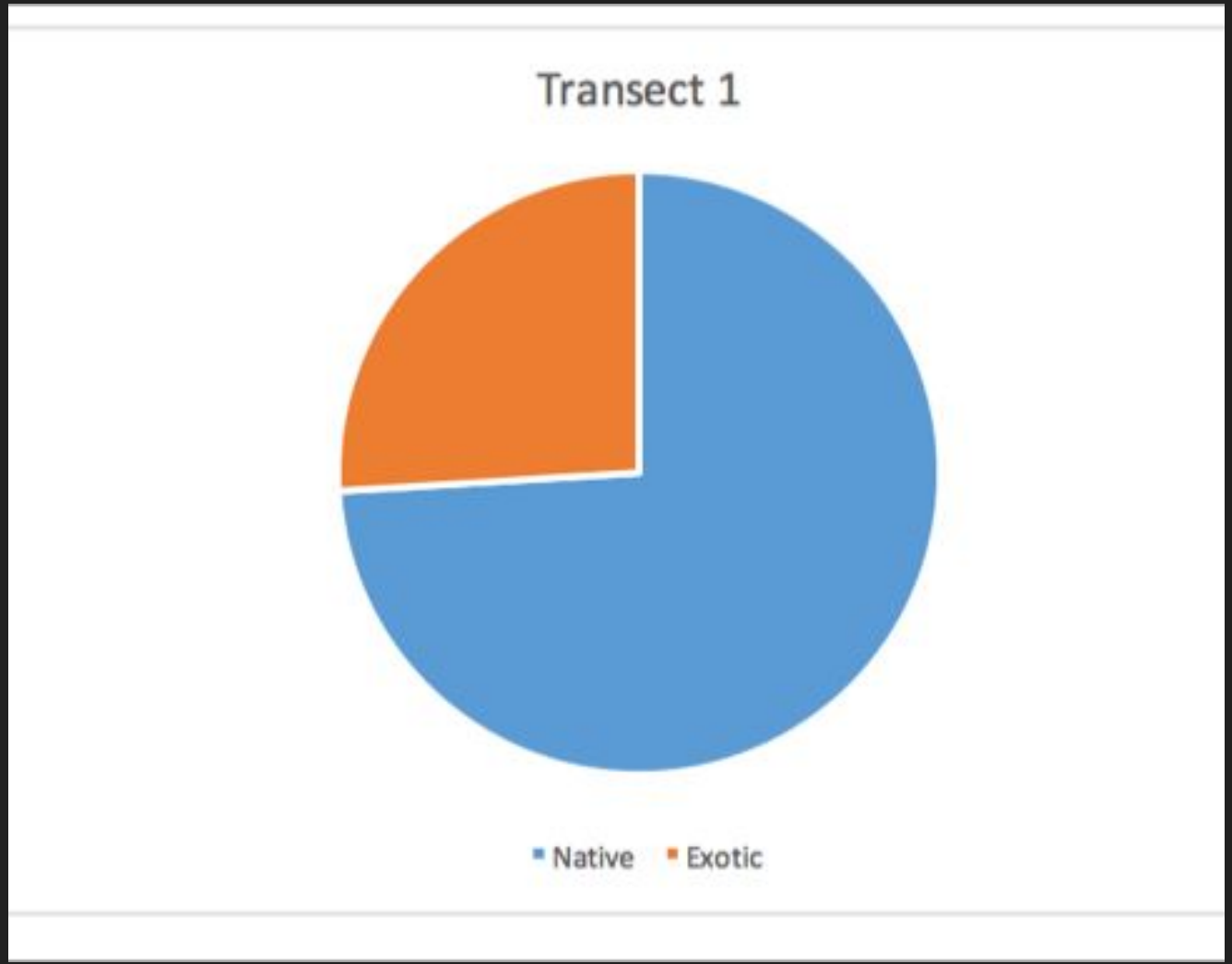
Results

- Eckardt used much larger sample areas
- Most of the species Eckardt observed were absent
  - *Eriogonum cinereum* went from 43 to zero
  - *Isocoma arguta* went from 28 to zero
  - *Artemisia californica* went from 60 to 6
- Most of the species we observed were exoctic
- Chi-squared values were consistent with our hypothesis

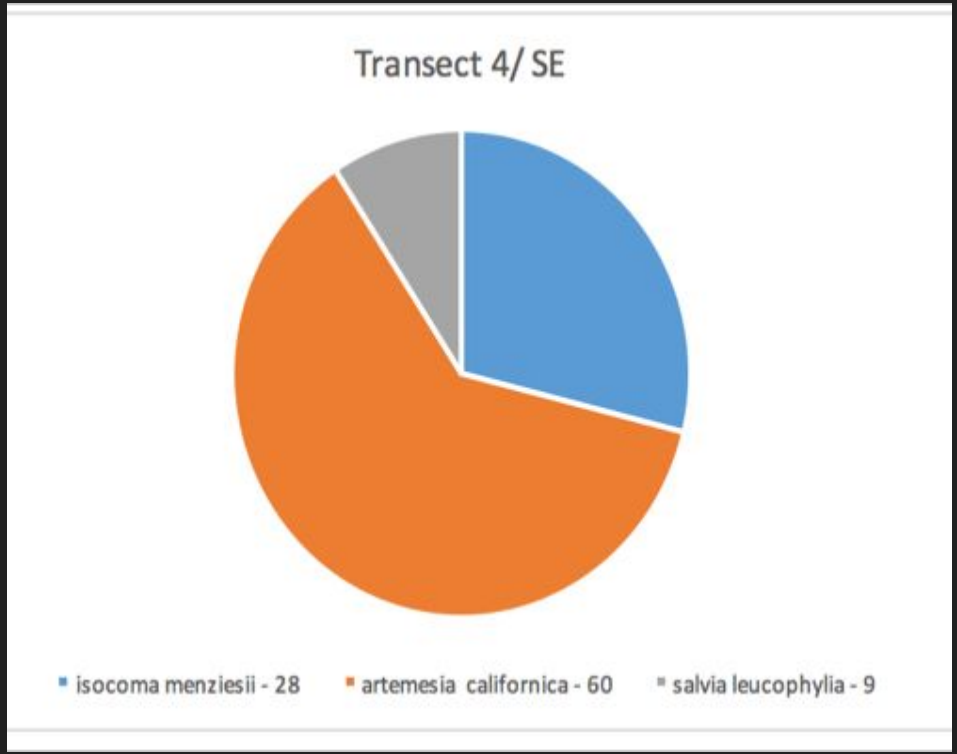
Results

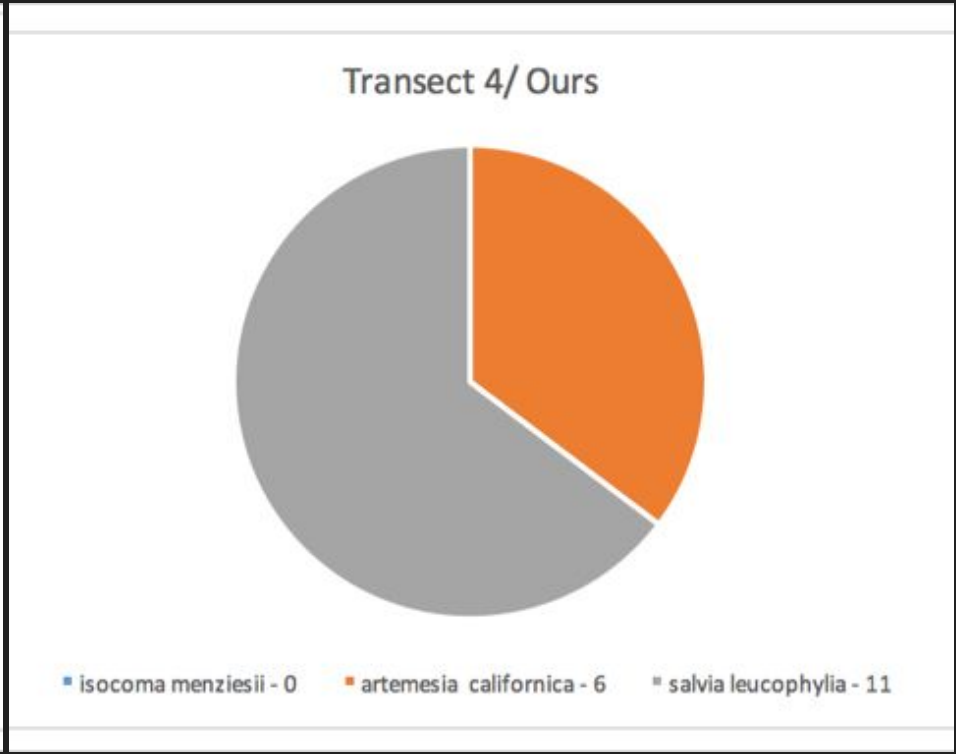
Artemisia californica

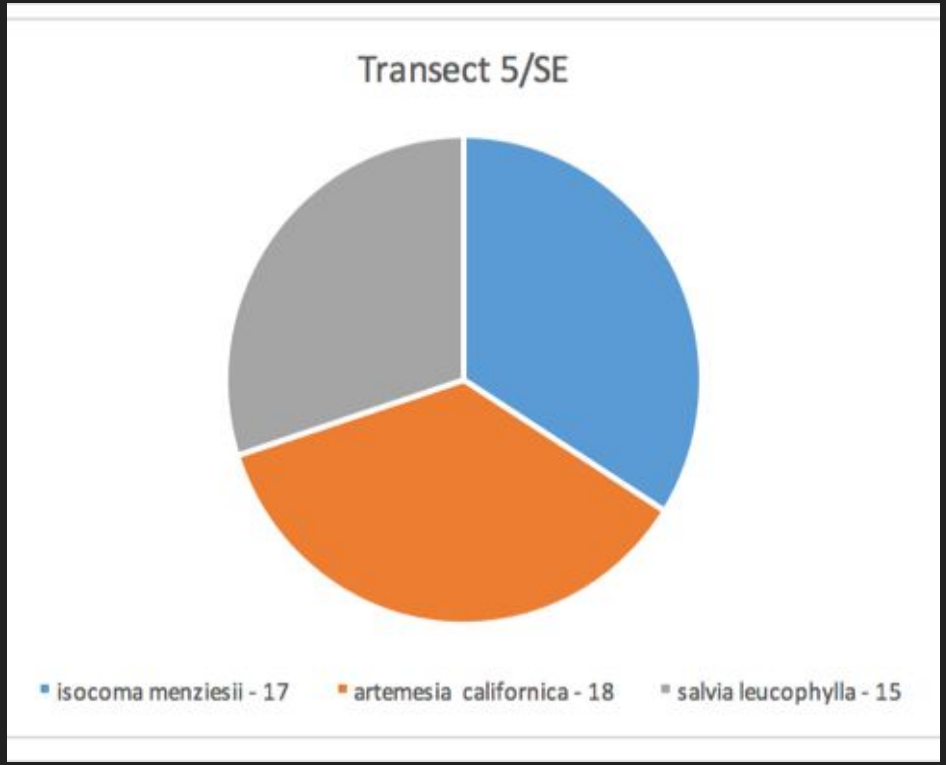
Salvia Leucophylla

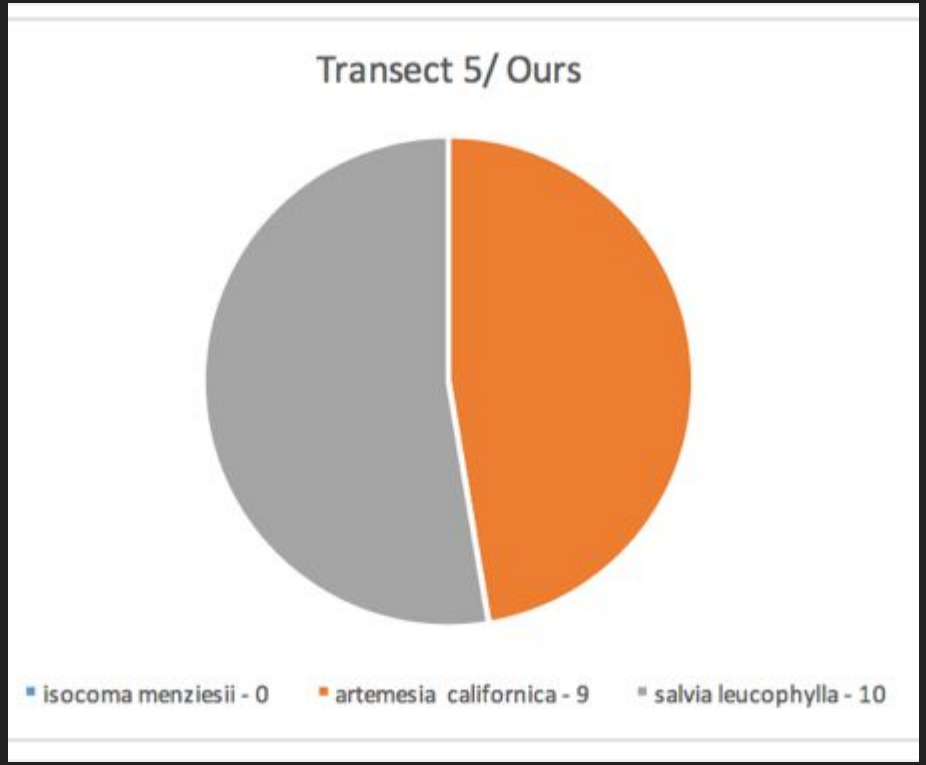


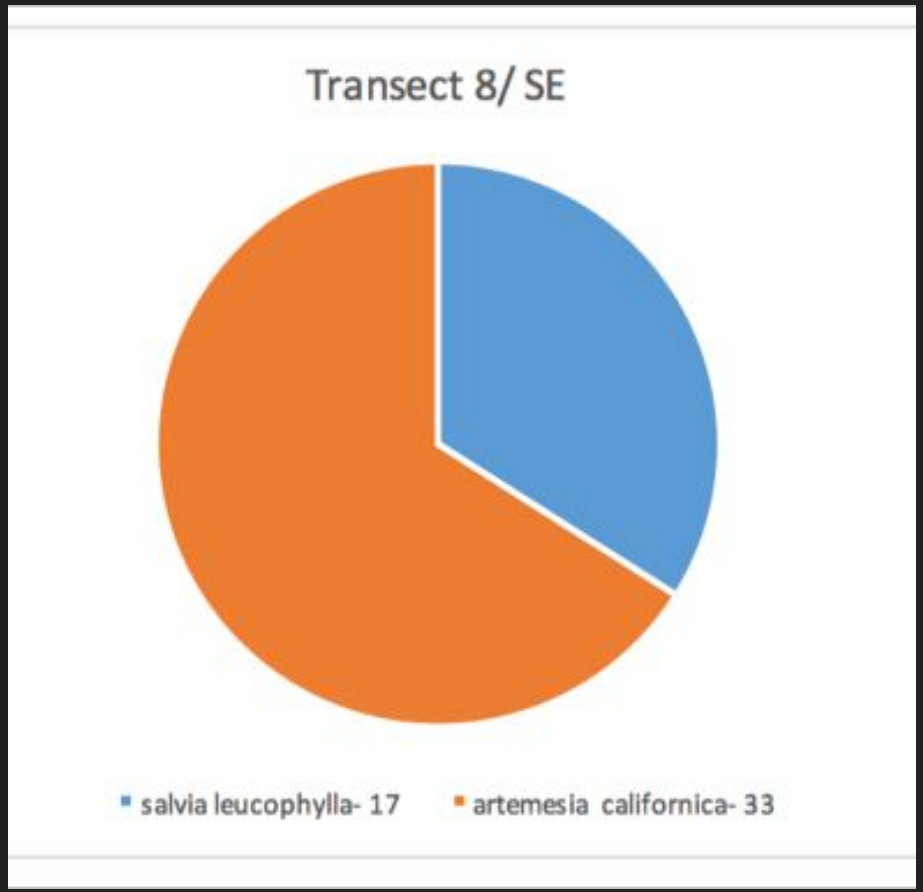
N: 57
E: 20

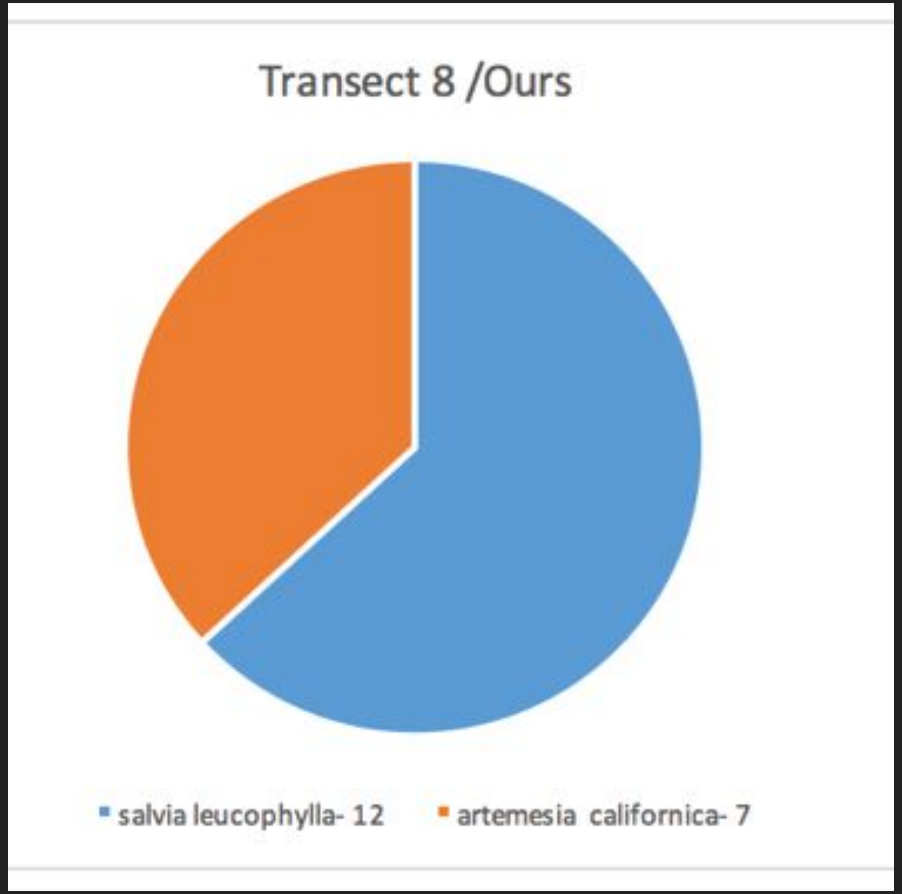

Transect 4/ SE
isocoma menziesii - 28
artemesia californica - 60
salvia leucophylia - 9


Transect 4/ Ours
isocoma menziesii - 0
artemesia californica - 6
salvia leucophylia - 11


Transect 5/SE
isocoma menziesii - 17
artemesia californica - 18
salvia leucophylla - 15


Transect 5/ Ours
isocoma menziesii - 0
artemesia californica - 9
salvia leucophylla - 10


Transect 8/ SE
salvia leucophylla- 17
artemesia californica- 33


Transect 8 /Ours
salvia leucophylla- 12
artemesia californica- 7

Conclusion

- We reject the Null Hypothesis
- In three of the locations (4,5,8) that we transected there was persistence of CSS, however, there was a change within the species
- Transect 1- lost ground and was dominated by annual grasses
- Suggestions: further monitoring of change where CSS is declining for future conservancy projects
- Transect 3: Find and collect samples


The End