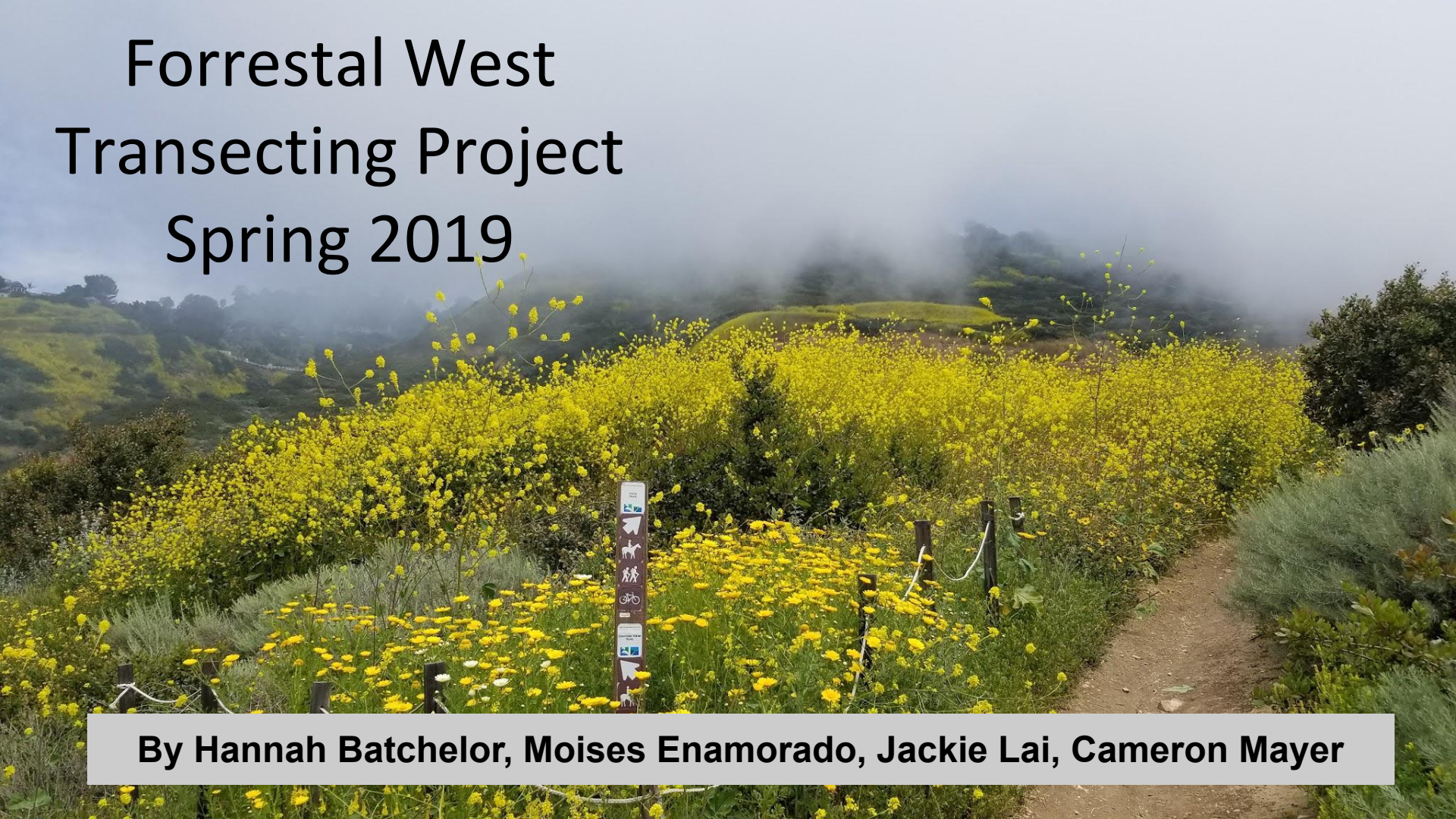
Forrestal West Transecting Project Spring 2019



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Introduction

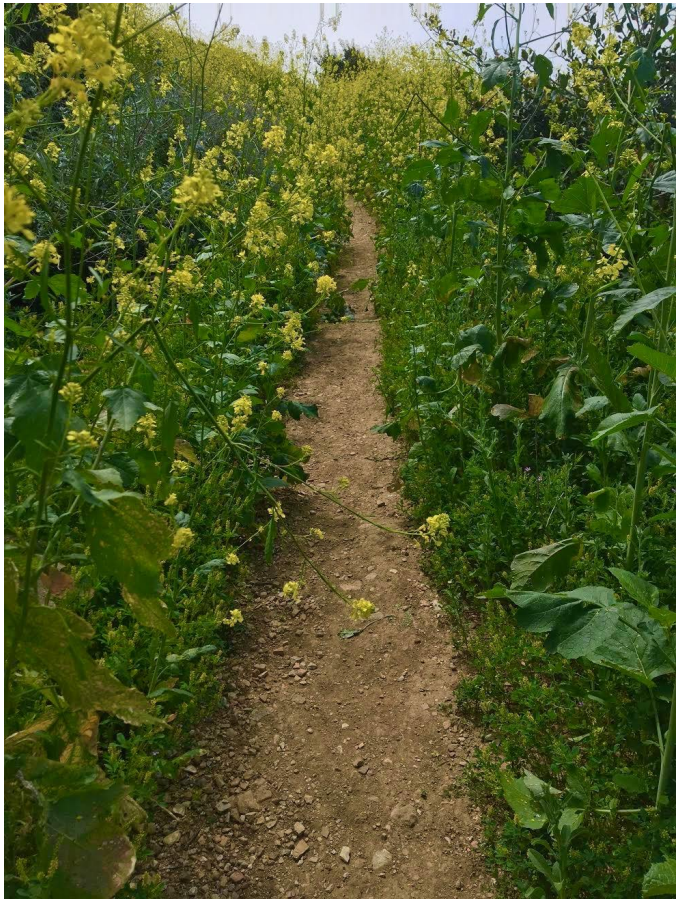
Objectives: Compare Spring 2019 species transecting data with Fall 2018 data from the West end of Forrestal Reserve and Portuguese Bend Reserve.

Working Hypothesis: Data gathered in the study exhibits a significant difference when compared to predecessors data from Forrestal Reserve (West) and Portuguese Bend.

Null Hypothesis: There is no significant difference between the data collected for this study and either of the groups of previously collected data.

Data and Methods

- Gathered data from Canyon Trail, Exultant Trail, and Fossil Trail in Forrestal West Reserve, Palos Verdes
- Took fifteen 10m transects total, five on each trail
- Selected the chi-square statistical method to draw inferences from the data collected due to its efficiency at analyzing course nominal data
- Set the alpha level at α=0.05



Results

Forrestal reserve (Ours) v. Forrestal reserve (Predecessors)

x^2 calculated	**105.469**
x^2 critical	**11.070**
Alpha α	**0.05**
(Effect size measure) Cramér's v	**0.488**
P-value	**0.000**
Corrected power	**0.999**

FR vs. FR

- X-squared calculated > X-squared critical (good sign!!)
- The null hypothesis is false and should be rejected
- Statistically significant difference between the data collected by our group in Forrestal reserve west and the data previously collected in the same area by another group

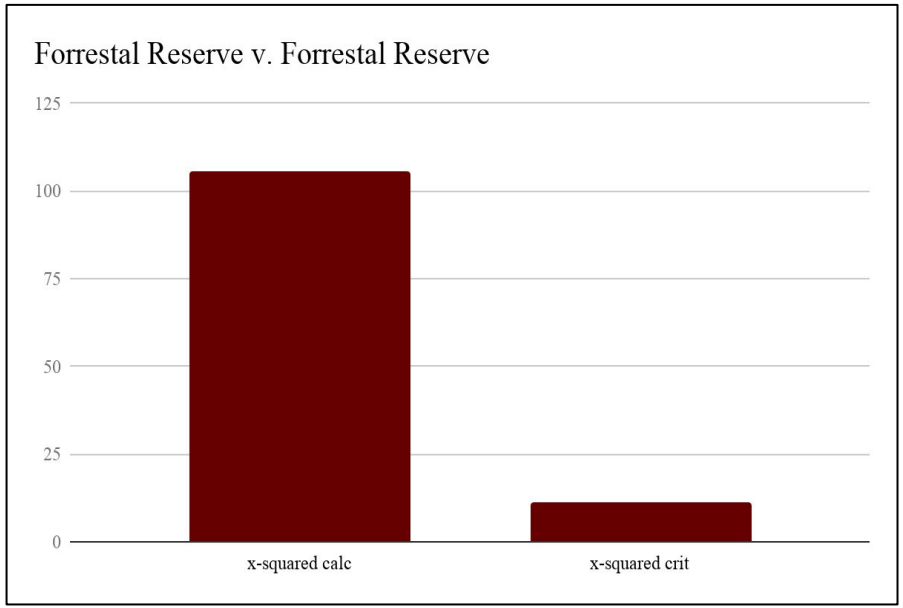
FR vs. PB

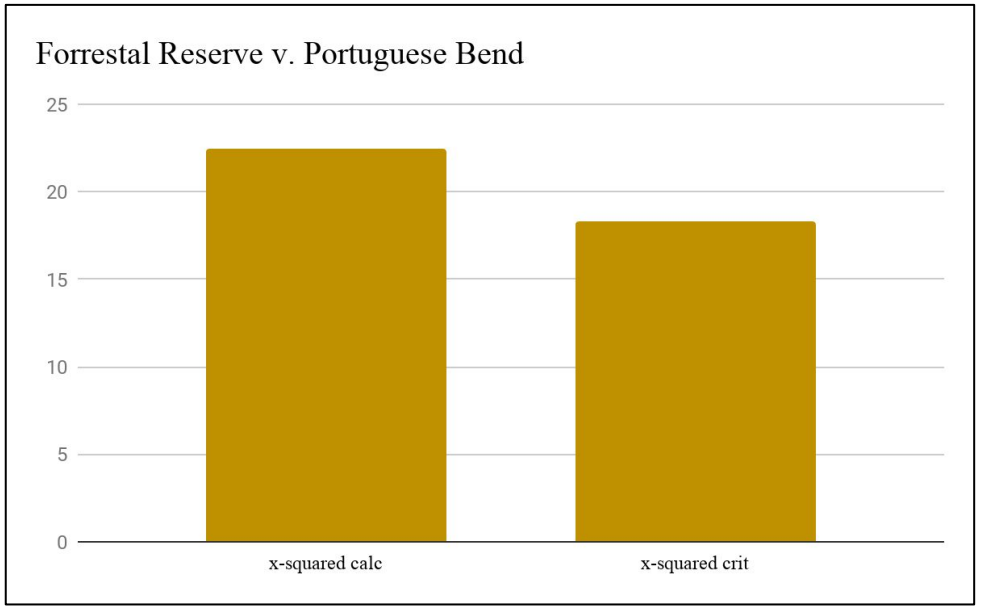
- P-value < alpha (good sign!!)
- The Alternate hypothesis is true and should be accepted
- Statistically significant difference between the data collected by our group in Forrestal reserve west and the data previously collected in the same area by another group

Forrestal reserve (Ours) v. Portuguese Bend (Predecessors)

x^2 calculated	**22.450**
x^2 critical	**18.307**
Alpha α	**0.05**
(Effect size measure) Cramér's v	**0.221**
P-value	**0.013**
Corrected power	**0.944**

Results


Forrestal Reserve v. Forrestal Reserve
125
100
75
50
25
0
x-squared calc
x-squared crit


Forrestal Reserve v. Portuguese Bend
25
20
15
10
5
0
x-squared calc
x-squared crit

Discussion

- X^2 calculated > X^2 critical → significance
- P-value < alpha → significance
- Effect size was small but was overpowered by the corrected power value
- α displayed a fairly strong effect

Conclusion

- We found overall significance as well as achieving strong powers for both our Forrestal Reserve data when compared to our predecessors' Forrestal Reserve data and our Forrestal Reserve data when compared to our predecessors' Portuguese Bend data.

→ This implies that no further data needs to be collected on our part, but further monitoring in the future is recommended.

- Complications that occurred while gathering data involved difficulty achieving proper functionality with the GPS device, therefore only one GPS reading was obtained (Cameron's phone) Conversions to the correct units were subsequently required. Another obstruction to data collecting progress was mustard overgrowth on trails.

References

- Adonis Agkis, Alfred Sanchez, Matthew Crane, Robin Matthews. 2018. Forrestal Reserve West Data. ESP/GEOL 330 (California Ecosystems) Course at CSULB