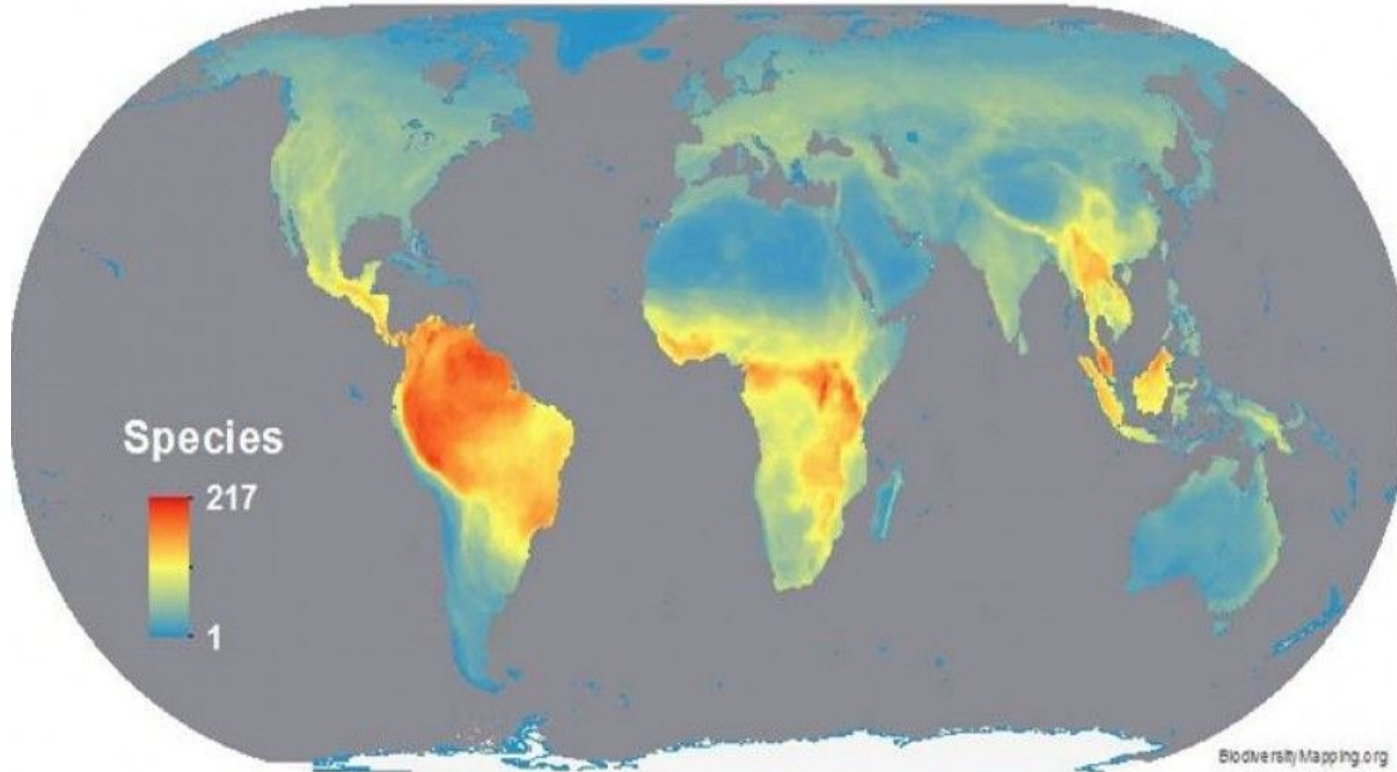


**Dietary niche width, but not
infection rates, differ among
Channel Island Song Sparrows**

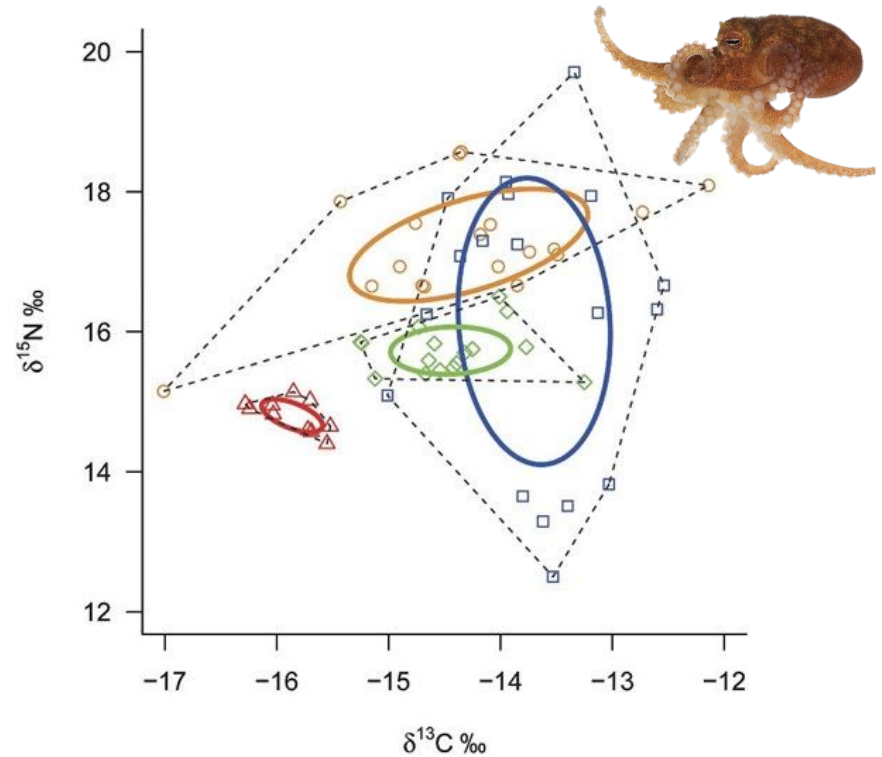
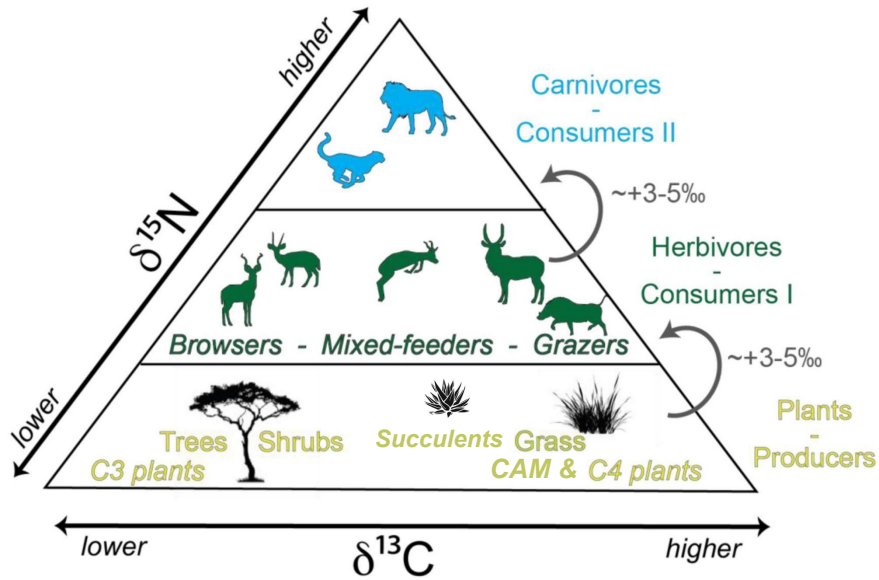
Lucy Soulliere

March 8th, 2024

Global climate variability affects biodiversity and, consequently, community assemblages



Broad scale differences in community assemblage affect diet



Song sparrows exhibit a wide range of phenotypic variation associated with climate



maxima
46.9 grams



sanaka
44.4 grams



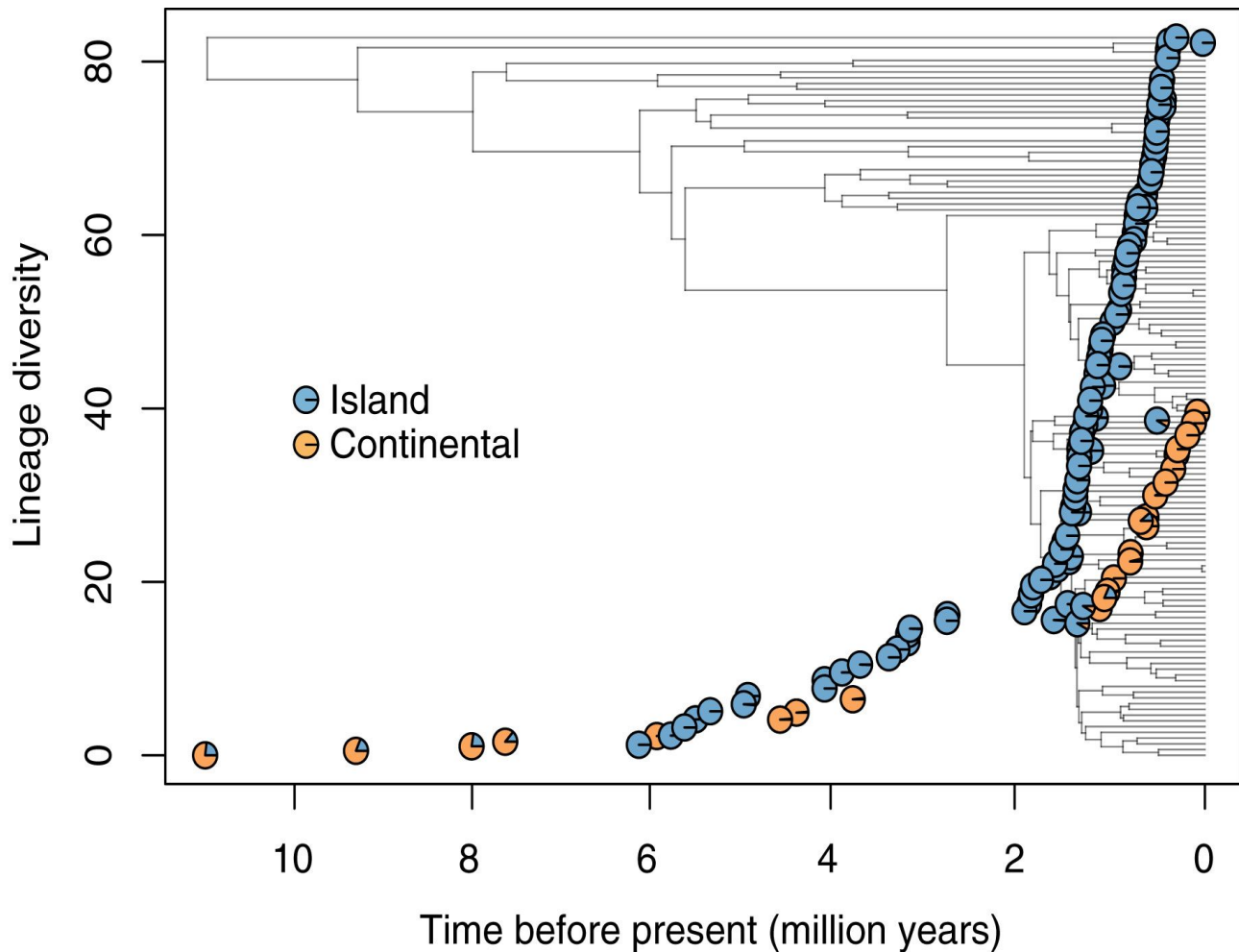
rufina
29.2 grams



merrilli
23.4 grams



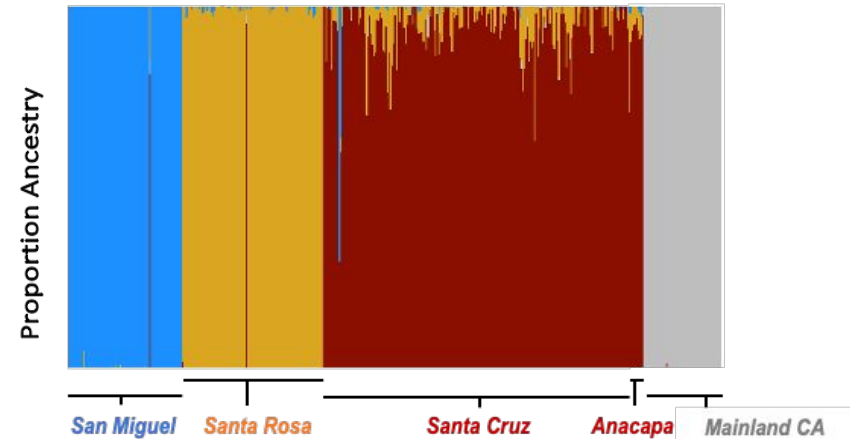
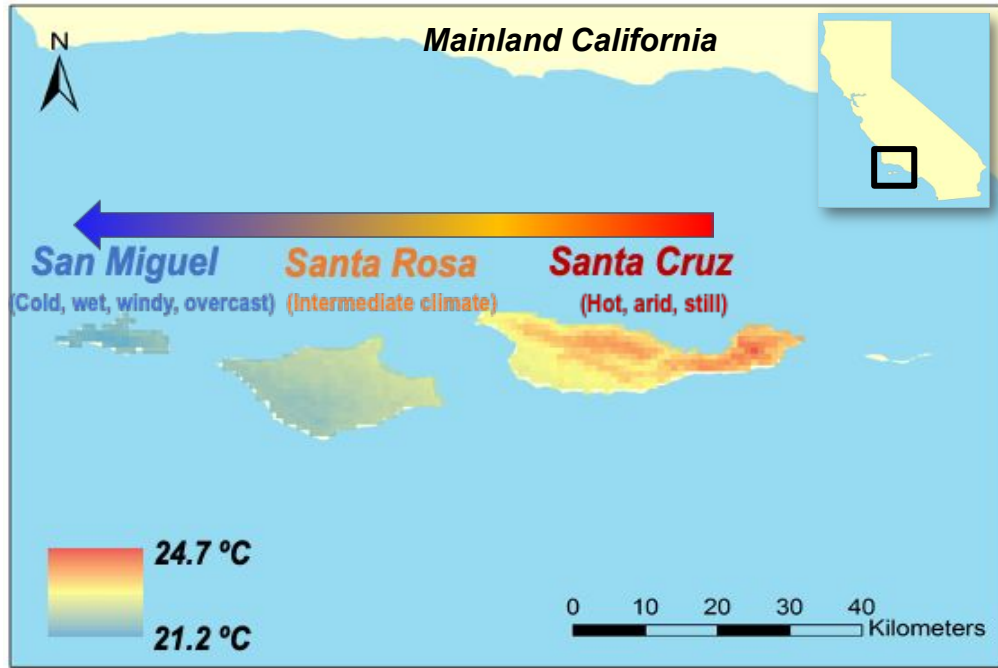
The island syndrome suggests island birds have reduced dispersal distances



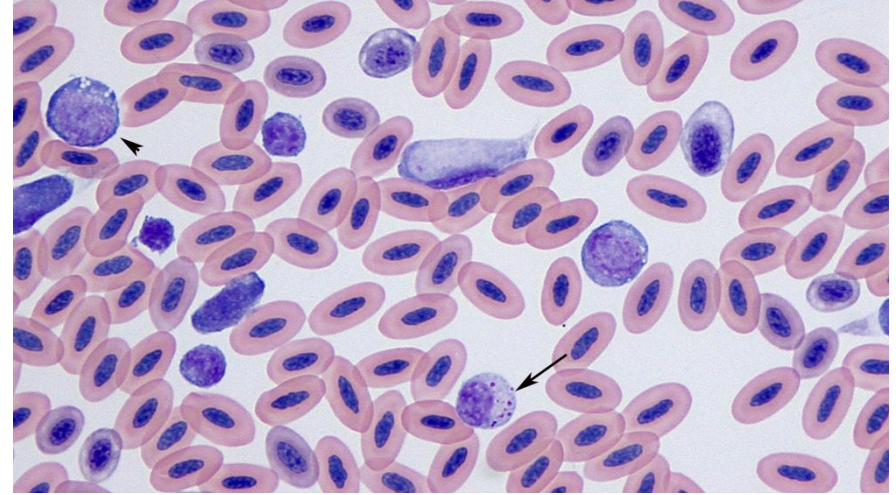
Low dispersal & strong selection enable differentiation in Channel Islands song sparrows

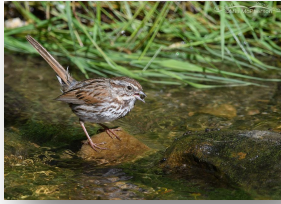


Channel Island Song Sparrow
(*Melospiza melodia graminea*)

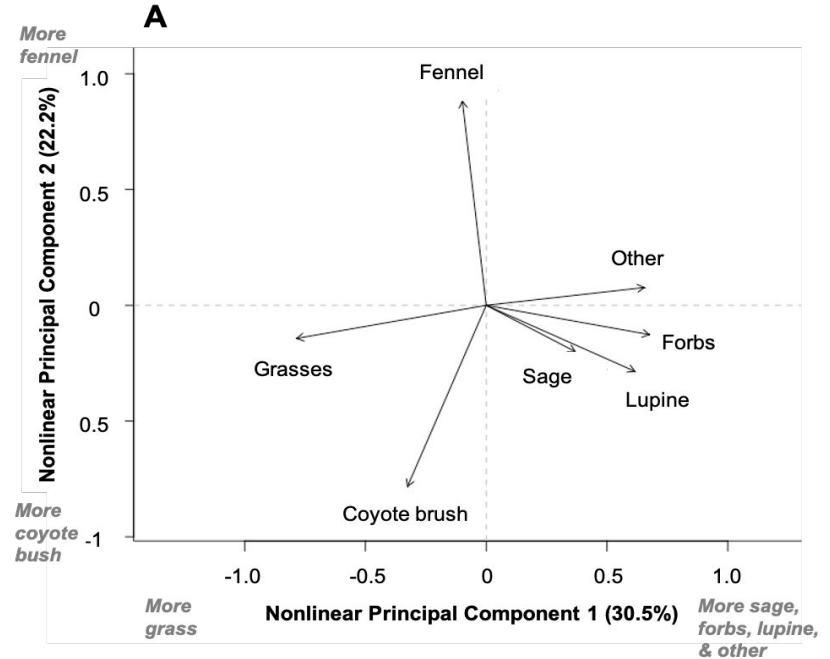
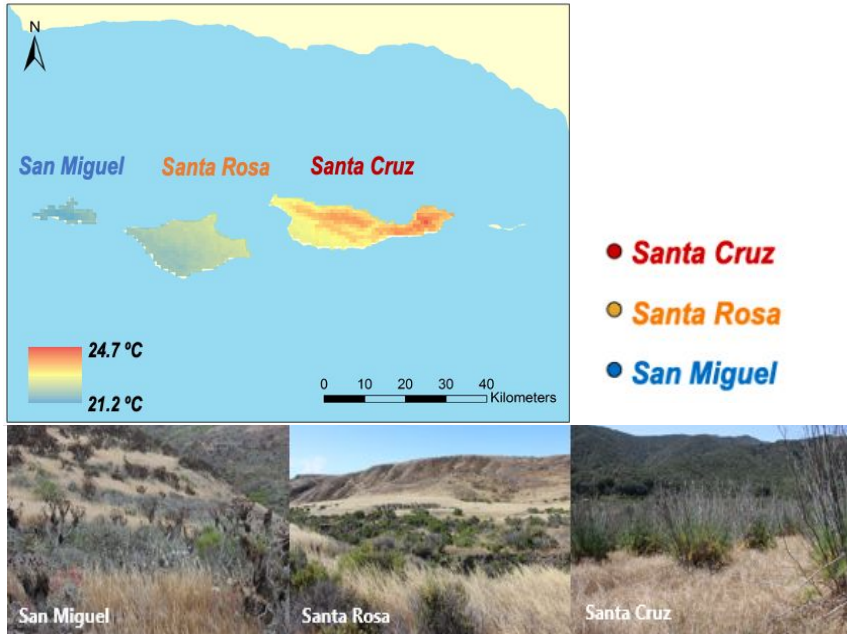


Do we see differences in behaviorally-linked phenotypes associated with...



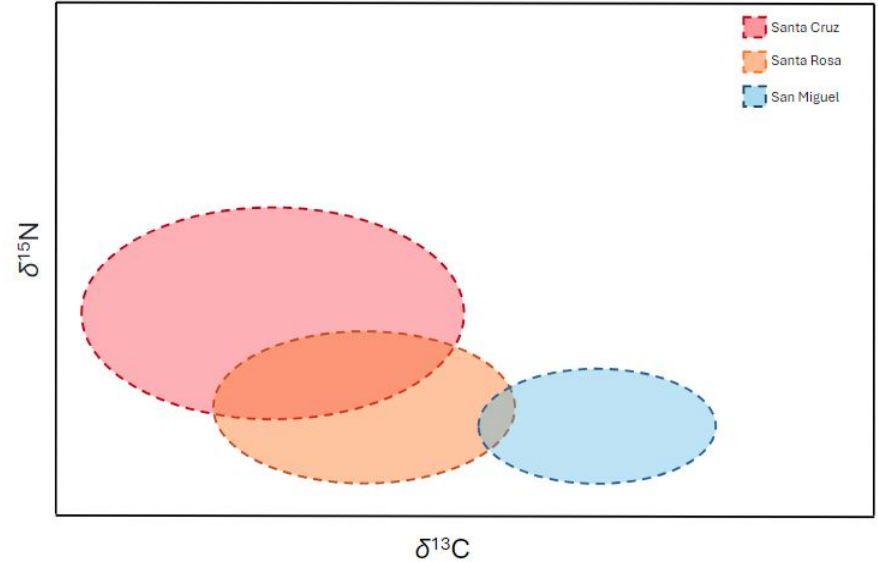
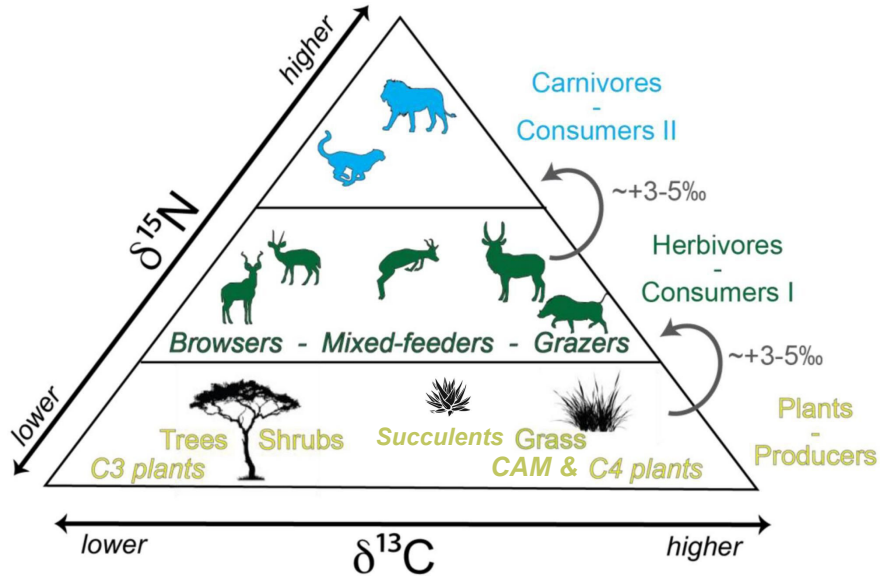


Birds *may* be foraging on **different resources** despite similar habitat types



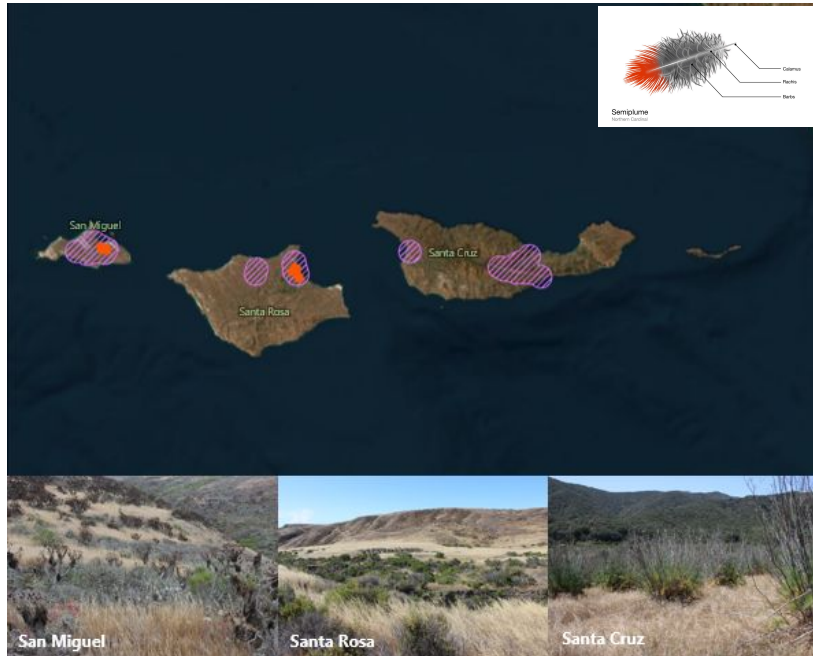


Stable isotope analyses can inform **dietary niche** width in **secretive species**



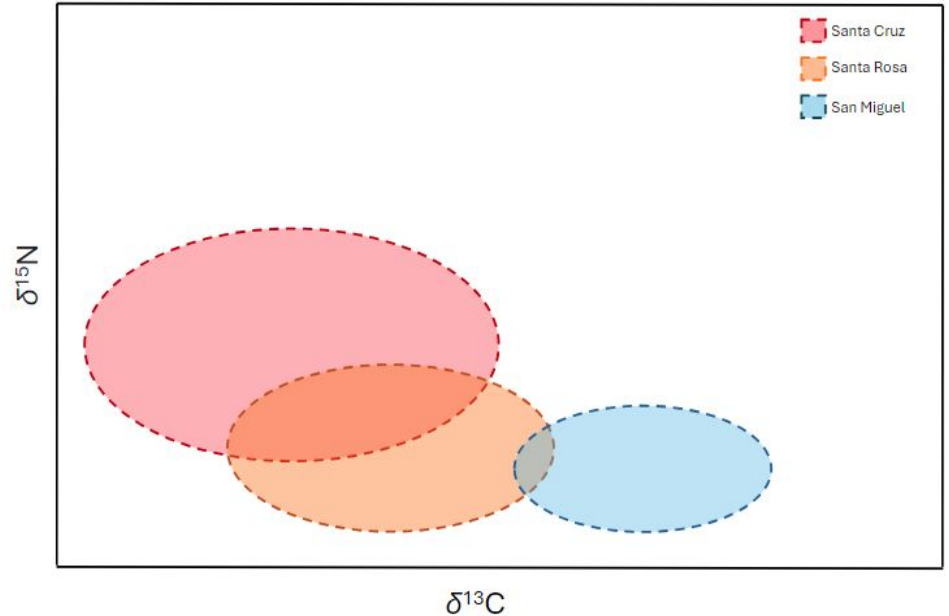
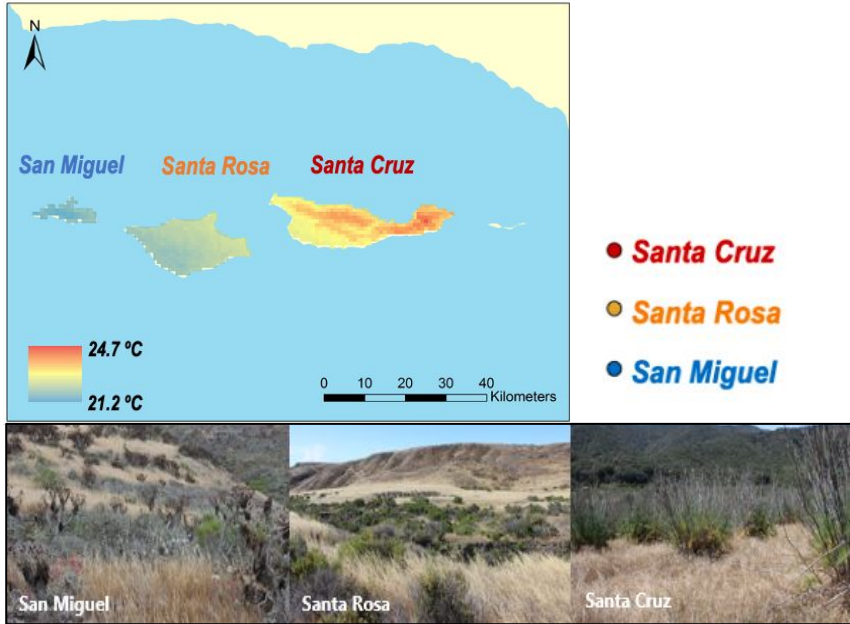


Analyzing **breast feathers** for stable isotopes



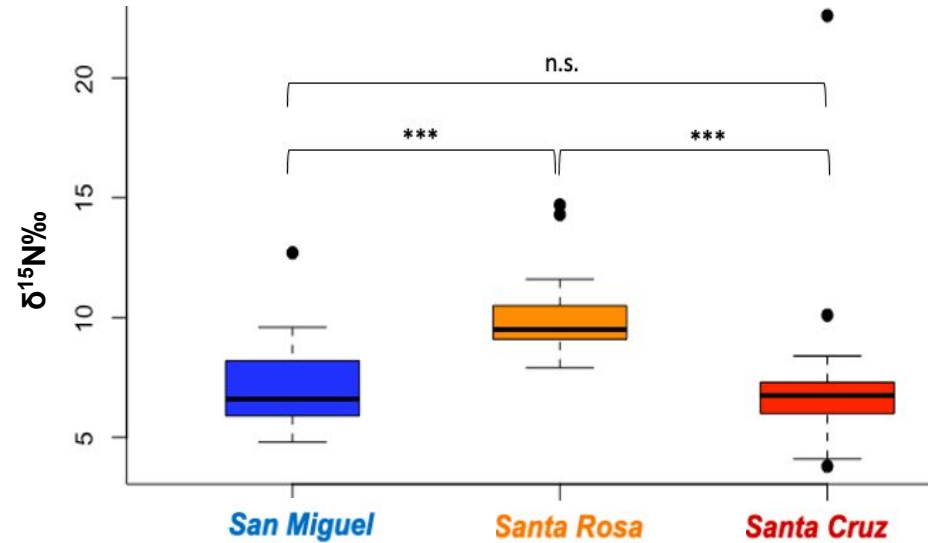
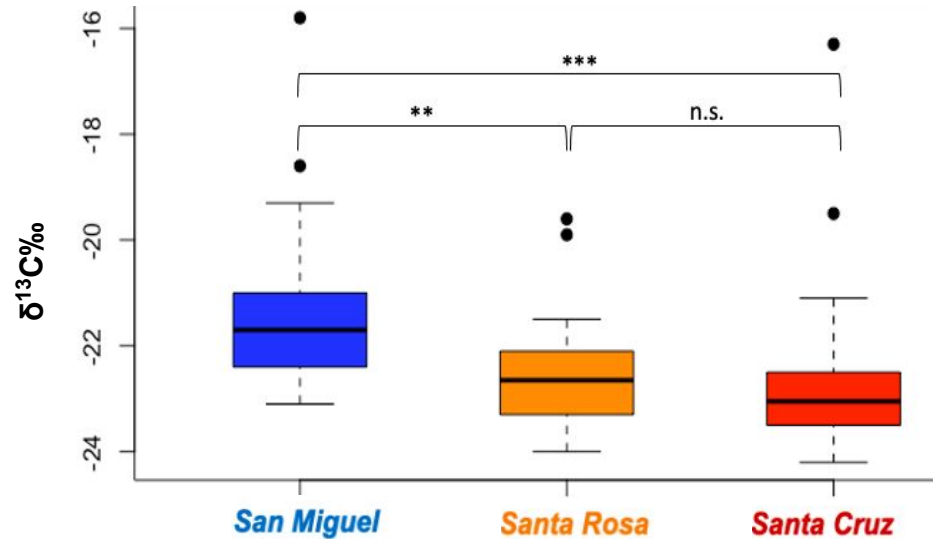


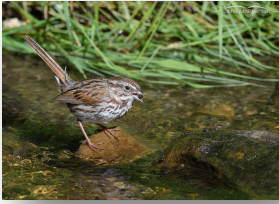
Dietary niche breadth is greater on Santa Cruz Island compared to other islands





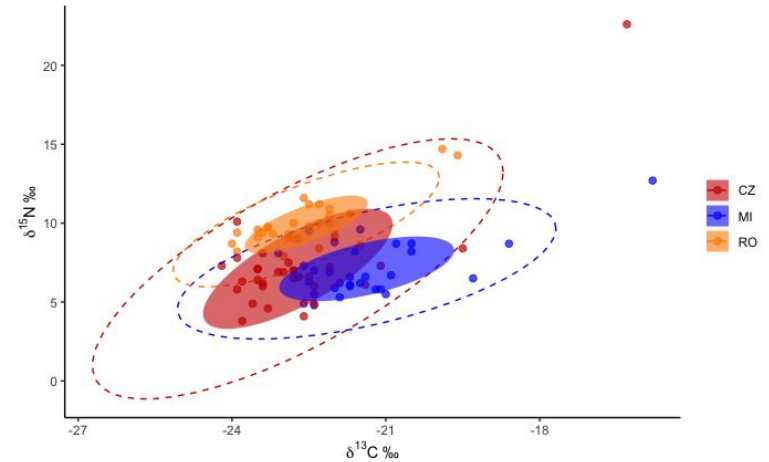
San Miguel & Santa Rosa Island birds have significantly different foraging niches



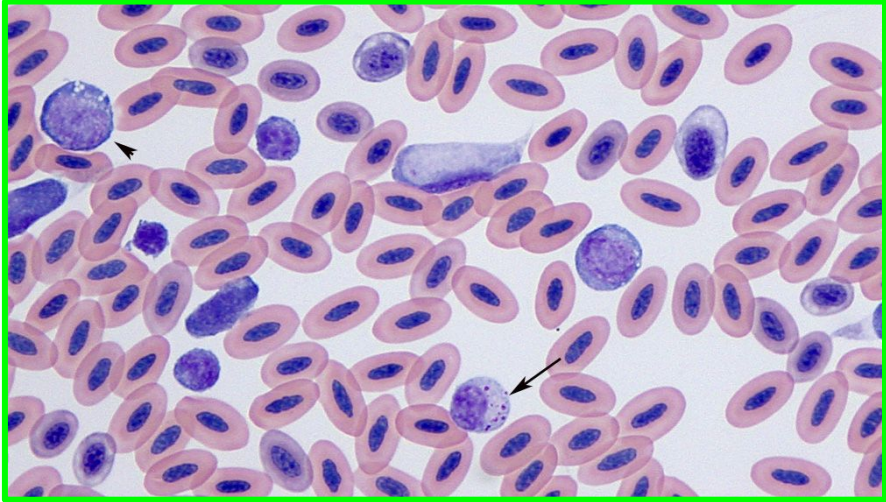


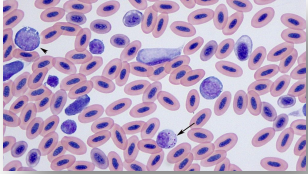
Niche width differences are a result of variation in plant community assemblage & climate

- Less fennel may suggest more dependence on invertebrates
- San Miguel is characterized by grasses, succulents, & high salinity
- Cascading effects of plant community & climate on diet

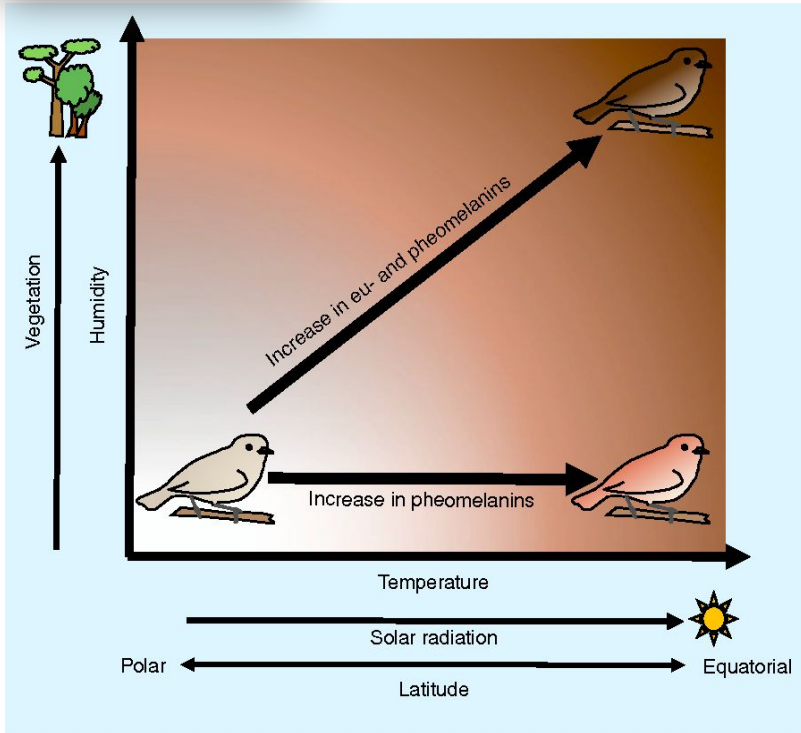


Do we see differences in behaviorally-linked phenotypes associated with...

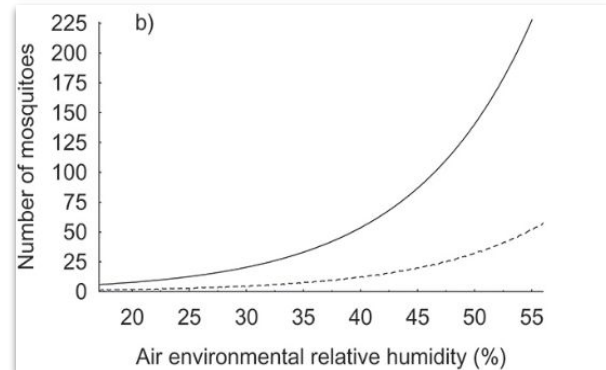
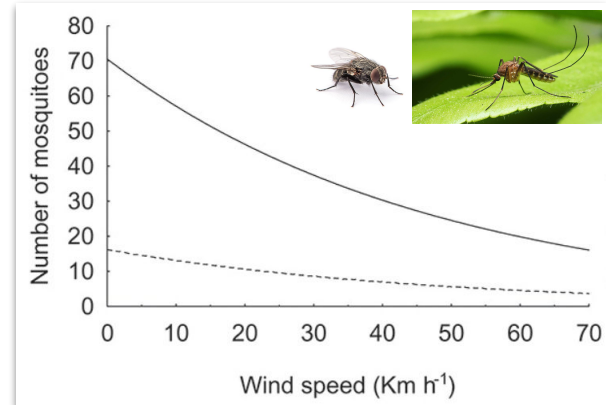




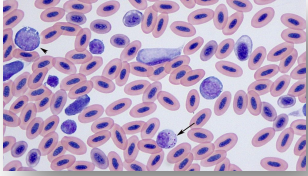
Infection & parasitism varies across space in song sparrows



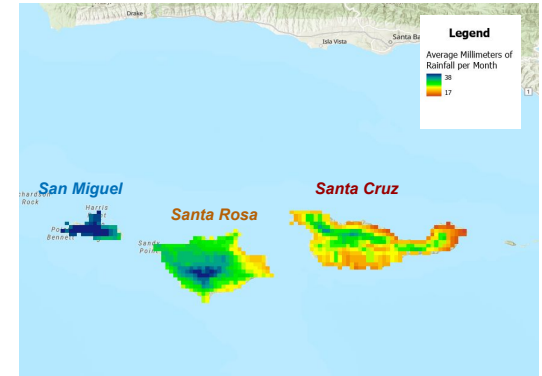
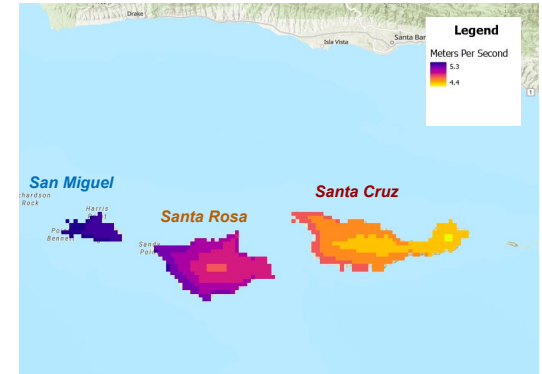
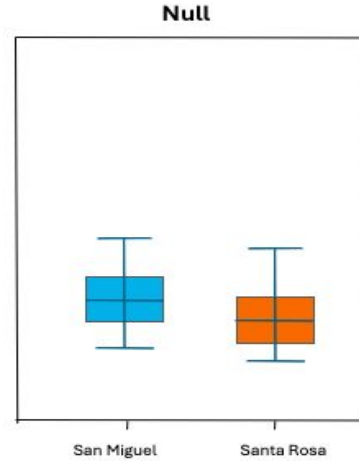
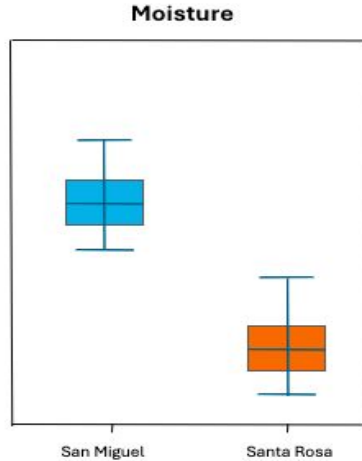
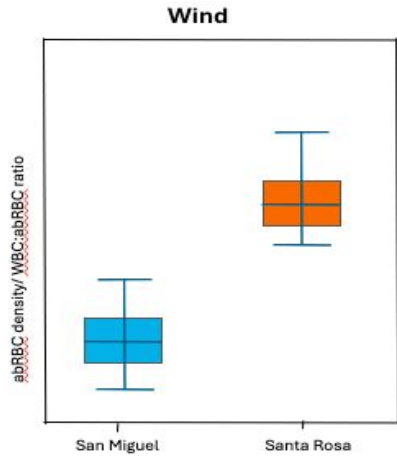
Current Biology



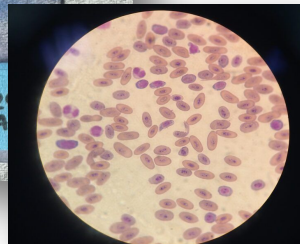
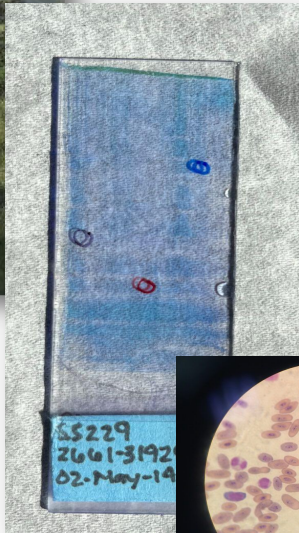
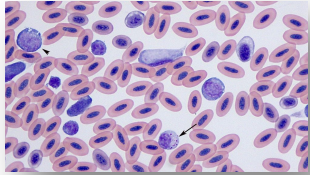
Freire et al. (2016), Delhay (2017)

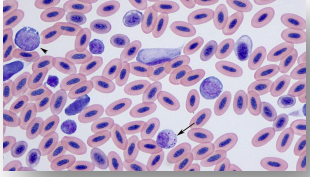


Climate *may* drive variation in parasite infection rates



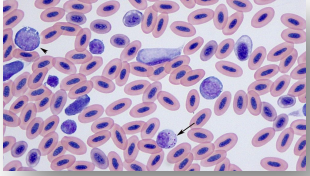
Blood cell counts as a proxy for infection rate



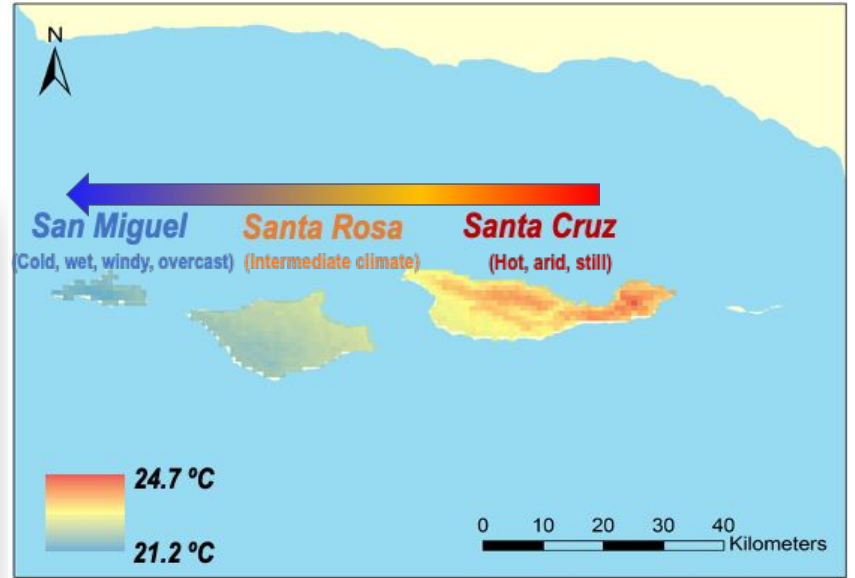
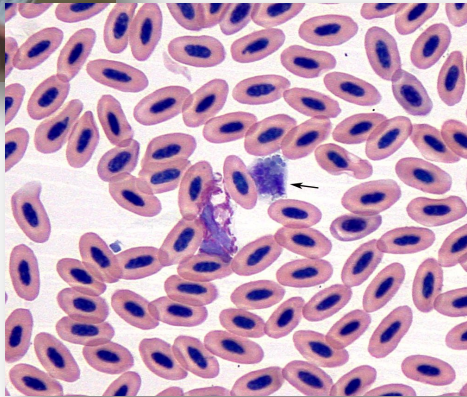


No significant difference in between islands in active infection rates





Lack of variation in this study may not necessarily represent system-wide patterns

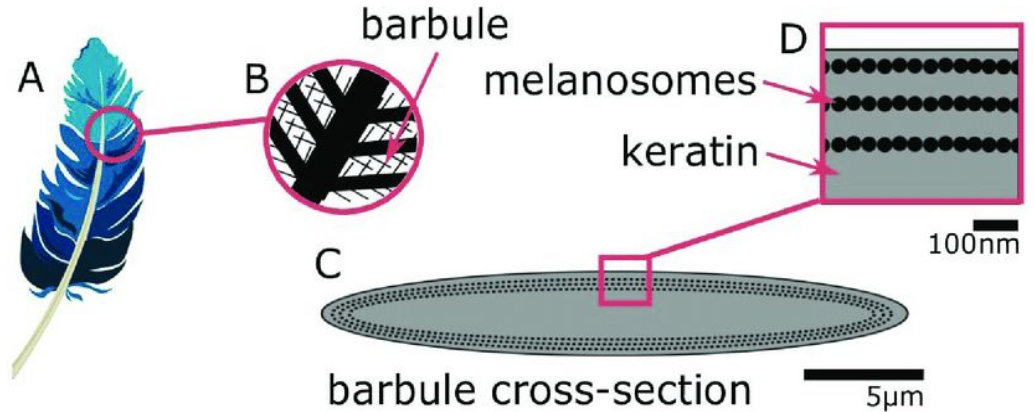




Our study suggests uniquely variable behavioral patterns across a small spatial scale



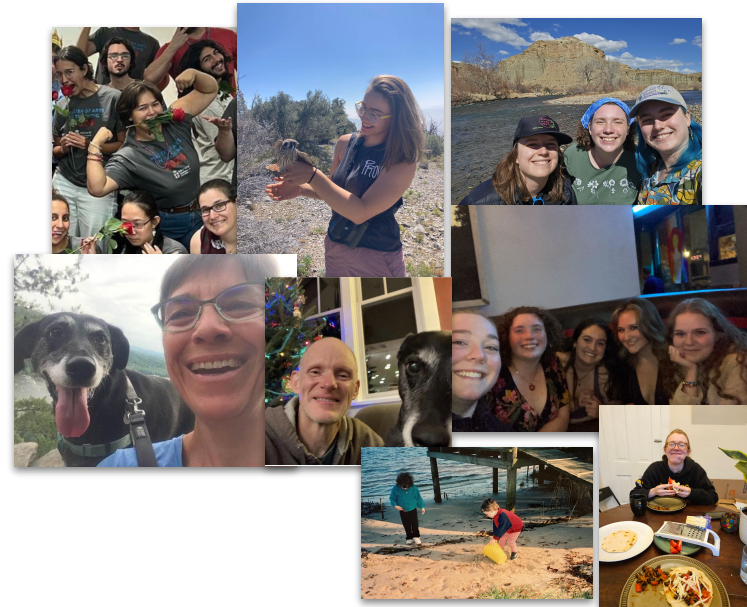
Expanding our study to better understand details of variation



Acknowledgements

I acknowledge, honor, and respect the people of the **Chumash Nation**, the original stewards of coastal southern California and the Northern California Channel Islands [San Miguel (**Tuḡan**), Santa Rosa (**Wi'ma**), Santa Cruz (**Limuw**), and Anacapa Islands (**Anyapakh**)].

Funding and Support:



Questions?

