

The Regan lab uses ecological modeling, decision support frameworks, and interdisciplinary collaboration to address the impacts of global change on biodiversity, focusing on threatened and endangered plant species of the California Floristic Province and on freshwater sustainability. In this talk, I will present a study that in some ways is the culmination of over a decade of development of an integrated ecological modeling framework applied to 6 plant species in the California Floristic Province. We ask the question: When considering population decline for plants in the California Floristic Province, does demography or geography determine climate change vulnerability? That is, does it matter what you are or where you are? We show that all species experienced substantial population decline by 2085, with total species' abundances primarily influenced by habitat loss from climate and land-use change, whereas species' demography had a larger influence on subpopulation-level dynamics, especially in areas predicted to have frequent wildfires.

This work was a product of two large grants with partner Tribal Nations in southern California. I will summarize the meaningful engagement between scientists and the Tribes that informed and extended this work for the purpose of climate change adaptation.

Finally, I will present two large and ongoing service activities I've engaged in that have been informed by the science and meaningful engagement with Tribal Nations established in my research program.