The relationship between invasive plant richness and pollinator richness in coastal dune habitats

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Introduction

- Insect pollinators are essential components of global biodiversity.
- The California Floristic Province harbors 30% of the known insect species north of Mexico.
- Global trends show that insect pollinators are in decline.
- The introduction of invasive plant species into habitats can have varying impacts on pollinators.
- H1: If invasive plant richness has increased over time, then pollinator richness will decrease.

Methods

- Resurveyed four field sites in Santa Cruz County that were surveyed by naturalist Randall Morgan in the 1990s.
- Collected bees and flies in coastal and dune habitats at each field site.
- Recorded plant associated with the insect collected.
- Pinned and identified all insects collected.
- Used Poisson regression and likelihood ratio tests (LRT) to test hypotheses.
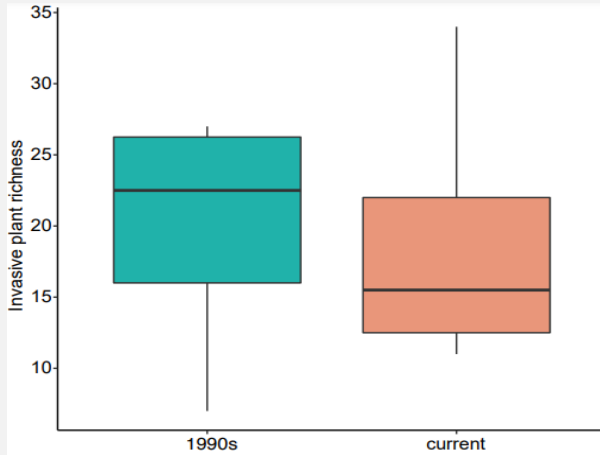
Results

Figure 1. Invasive plant richness for the 1990s and current time period. Model showed **no significant difference** in invasive species richness between the 1990s and current time period (LRT: $\chi2 = 0.47$, $p = 0.49$).
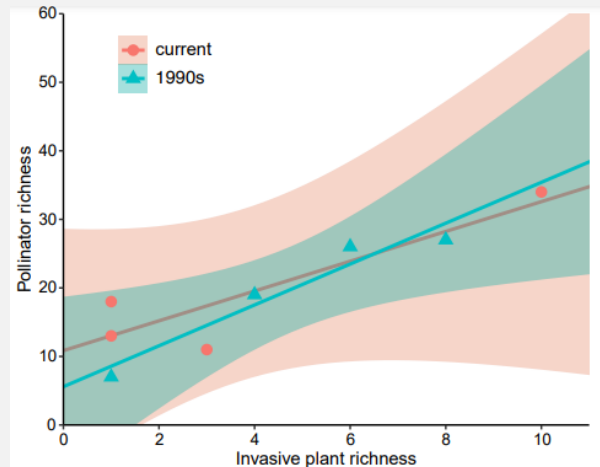

Figure 2. Pollinator richness by richness of invasive plants used by pollinators for the 1990s and current time period. Model showed higher richness of invasive plant species **significantly increased** pollinator richness ($\chi2 = 23.54$, **$p < 0.001$**).

Discussion

- No significant difference between invasive plant species richness between the 1990s and today.
- This suggests that the introduction of new invasive species between the 1990s and today has been limited.
- As invasive plant species richness increases, pollinator richness increases. This is found in both the current and 1990 data sets.
- Invasive plant species that do not dominate the plant community may increase floral resources available to pollinators.

Acknowledgments