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Around the Bay in 80 Days: Investigating the Relationship between Bird Diversity and Plants

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Around the Bay in 80 Days: Investigating the Relationship between Bird Diversity and Plants

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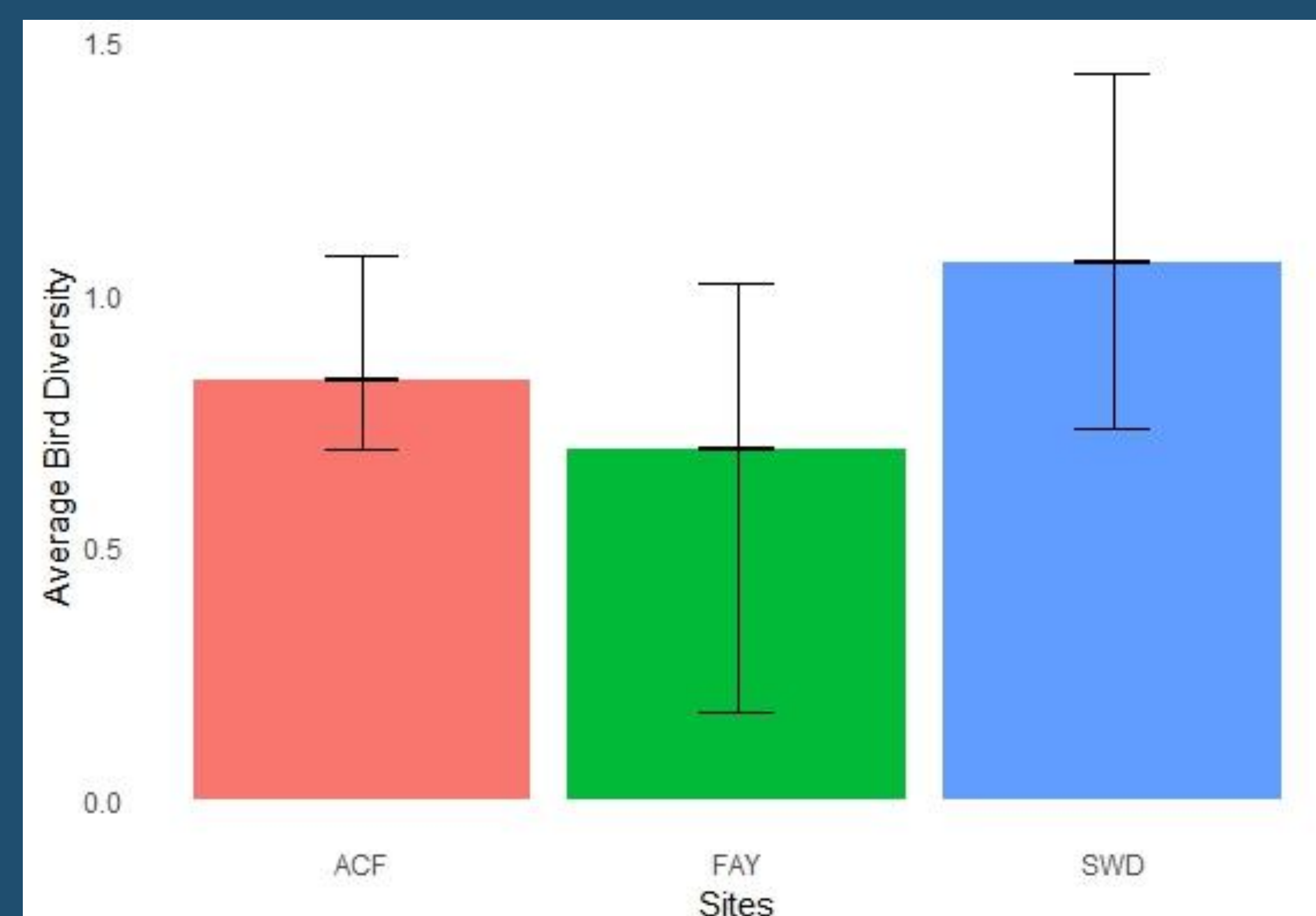
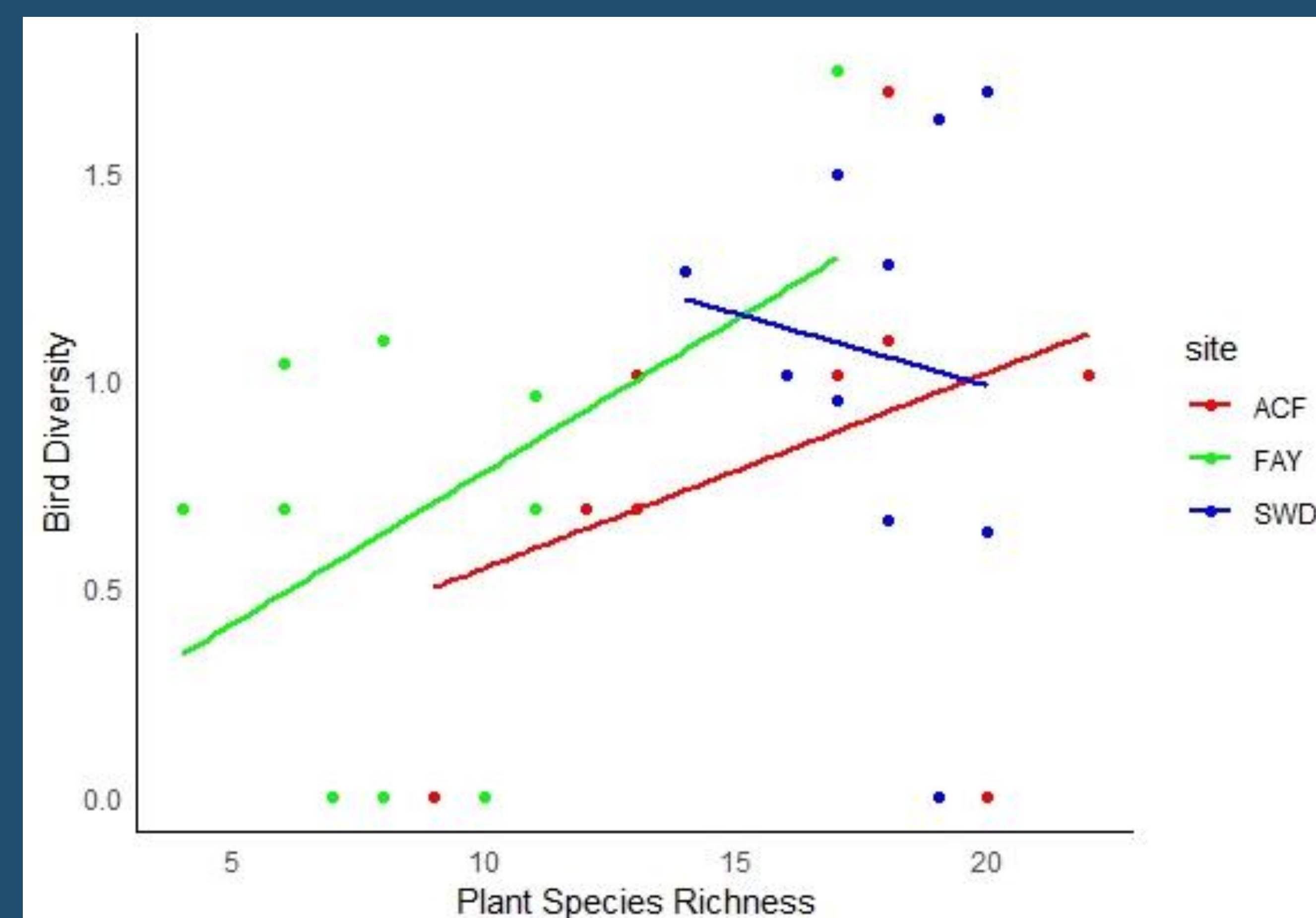
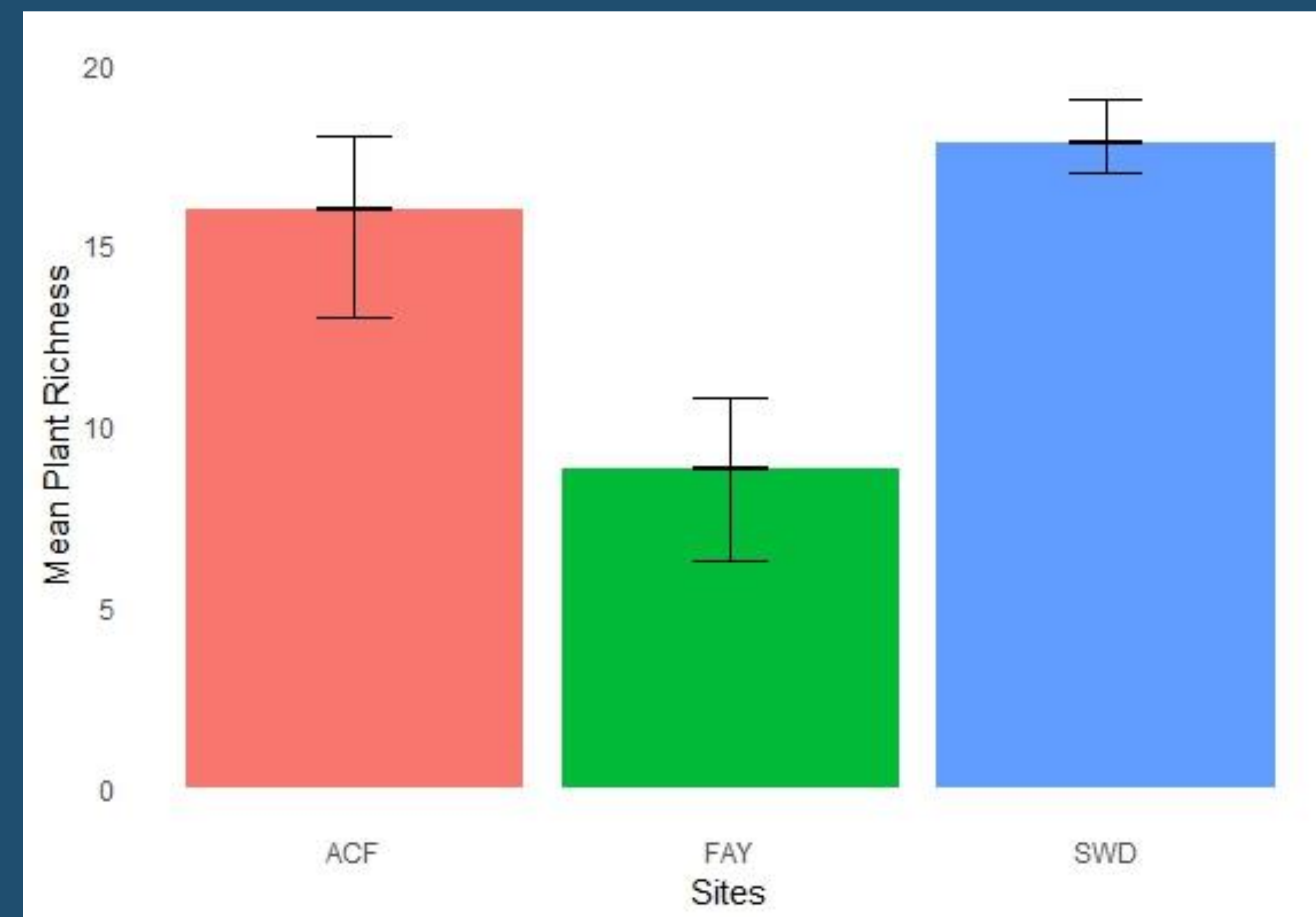
Background

- **Plant species richness** and **density** has been found to alter **bird diversity** across the globe.
- The Acrata Community Forest (ACF), Samoa Wetlands and Dunes (SWD), along with Fay Slough Wildlife Area (FAY) each respectively represent **redwood forests, dune forests, and wetlands** surrounding Humboldt Bay.
- Each habitat seems to have different observations of **plant species richness** and **bird diversity**.
- **Hypothesis:** All 3 habitats will have different levels of plant richness and density and that as plant richness and density increase bird diversity will increase.
- **Predictions:**
ACF ↓ Plant Richness = ↓ Diversity
SWD ↑ Plant Richness = ↑ Diversity
Sites w/ ↑ Richness & Density = ↑ Diversity



Study Area

- ACF is a municipal redwood forest approximately 790 acres.
- SWD is an area composed predominantly of dune forest, dunes, and riparian/wetland areas composed of 357 acres.
- FAY is prominently wetlands with seasonal cattle pastures composed of 500 acres.



Results

- There was no evidence to suggest plant richness and a difference in site predicted bird diversity ($p = 0.18$, Figure 2).
- There was no significant difference of bird diversity between each site ($p = 0.32$, Figure 3).
- There was a significant difference in plant richness between sites ($p = 4.11e-06$, $F = 20.33$ on 2 df). FAY had a significantly lower mean richness than SWD and ACF ($p < 0.001$). No difference between SWD and ACF (Figure 1).



Discussion

- There seems to be no effect of plant richness on diversity when site is a covariate of richness.
- Since sites and richness had no affect on diversity this suggests that other variables need to be examined to detect driver of diversity.
- There was no difference in richness between ACF and SWD as predicted.
- There is a similar amount of bird diversity between sites but a noticeable difference in bird assemblages and communities. A study on species composition would provide more insight.
- Future research: Vegetation structure and bird diversity, and bird species assemblages' differences and plant richness/ecotype.

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