



Influence of Urban Land Use on Avian Diversity in Eureka, California

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INTRODUCTION

- Urbanization is the leading cause of loss of endemic diversity, ground nesting species, habitat specialists, and wide-ranging species (Chace and Walsh 2006, Evans et al. 2008)
- Strong positive correlation with vegetation structure and avian diversity (Chace and Walsh 2006)
- If avian diversity is dependent on heterogeneous natural landscapes, then species richness should be greater in green areas with more vegetation

STUDY AREA

- 15 nature parks or preserved green patches in Eureka, CA
- Each of the 15 green sites were assigned to a paired site 300m away to see how diversity compared surrounding the parks

METHODS

- Visited all 30 sites once at random and recorded all birds seen or heard for 15 mins excluding high flyovers
- 30m transect to classify plant species present at green sites
- Shannon Diversity Index (H') cumulative probability of seeing each species given the abundance of total individuals

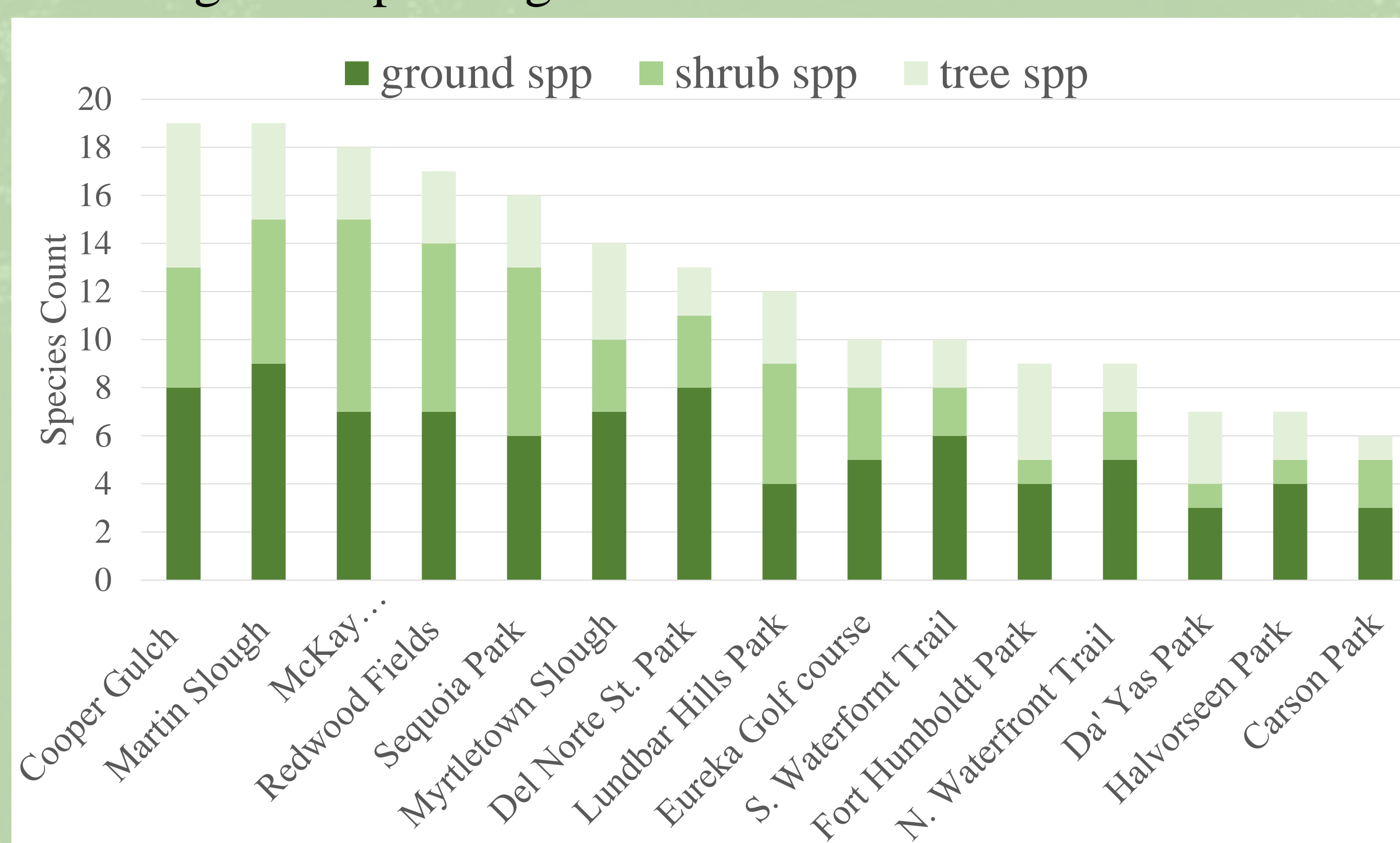


Figure 1. Levels of vegetation including herbaceous plants, shrubs, and trees, at 15 green sites in Eureka, CA

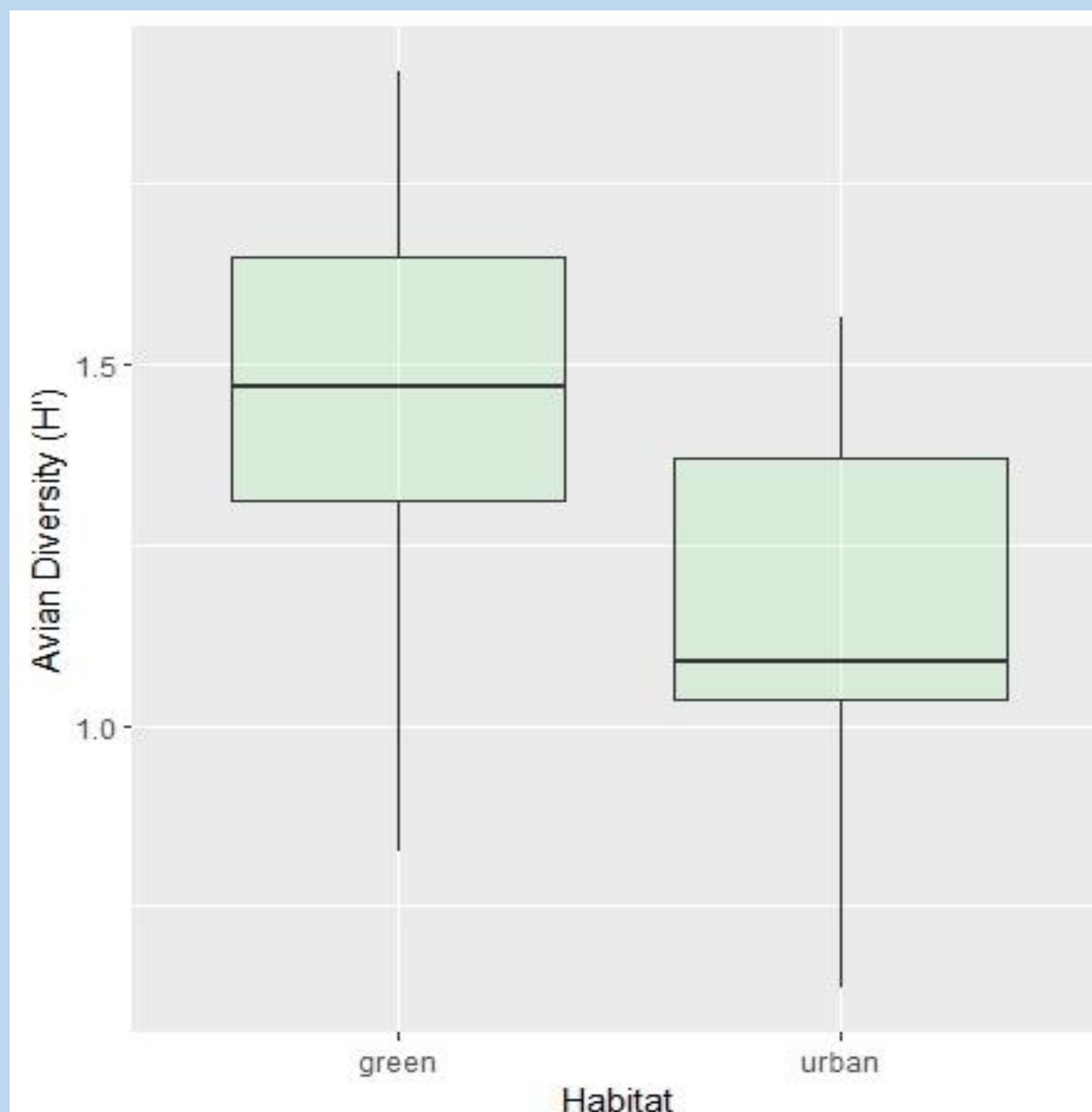


Figure 2. Avian diversity given the Shannon Diversity Index (H') at green and urban sites ($p=0.007$)

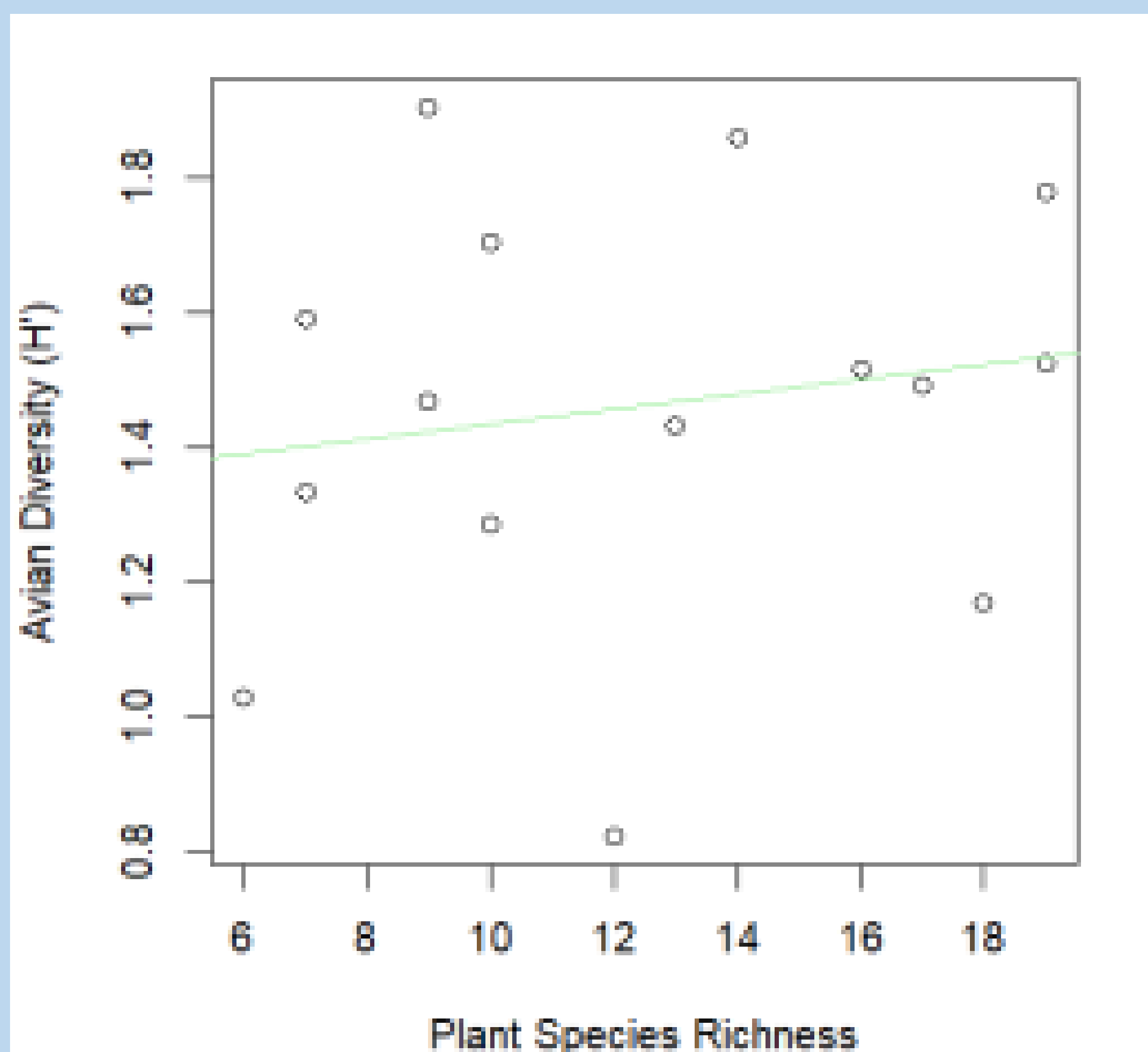


Figure 3. Shannon Diversity Index compared with plant species richness (Pearson's Correlation test, $p=0.556$)

RESULTS

Table 1. Green vs Urban Site t-tests

Factor	P-value
Cumulative Species	0.004
Cumulative Individuals	0.024
Shannon Diversity Index	0.007

Table 1. Results from Welch's t-test comparing 15 green and 15 urban sites

- Significantly more species at green areas in Eureka, CA than surrounding urban areas
- Sites with more plant species typically had higher avian diversity

DISCUSSION

- Green areas in urban landscapes are bird diversity hotspots due to habitat heterogeneity (Callaghan et al. 2019)
- Percent ground and canopy cover could expand this research
- Observability differed among urban sites because of more obstructions of view
- Important research for planning urban landscape use to best fit conservation of biodiversity

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LITERATURE CITED

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