Sweep nets bias in

What is the richness of species of flies in the areas?

How well do bottle traps compare to sweep nets in collecting flies in eateries?

Compare the community structure of the kitchen to Palours

Compare the community structure of Taverns to Restaurants

Does the community composition of flies collect change with distance?

**RESULT**

Comparing distance with community composition, there was no significant effect (Mantel statistic r: 0.047, p=0.089), meaning that across distance, the community composition did not change significantly with increasing distance. Longitudinally, there was a non-significant negative relationship between the community similarity and longitudinal distance. Communities become more dissimilar with increasing longitudinal distance, but this was not significant according to Mantel’s test (Mantel statistic r= -0.071, p= 0.977).

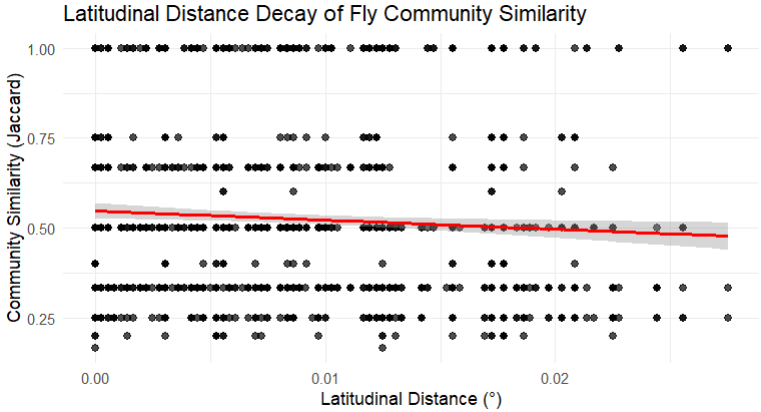
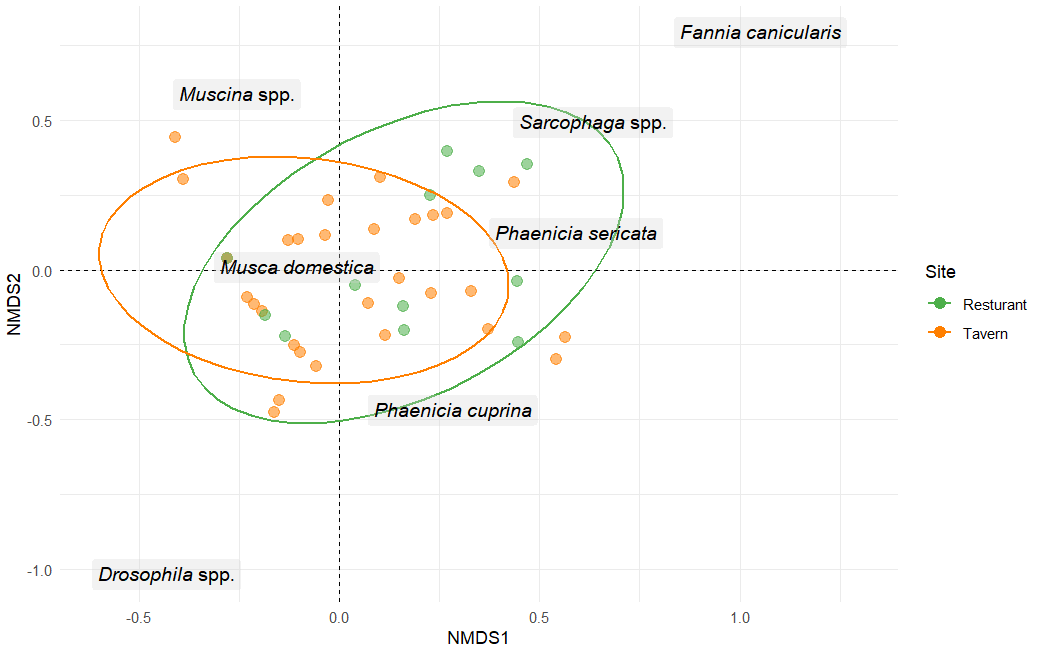


Figure 2: Latitudinal distance decay of fly community (Jaccard) similarity. The red line shows the trend line with 95% confidence intervals.



Figure\_: NMDS plot

Fly community composition differed significantly across sampling locations categorized by site (Eatery and Tavern). PERMANOVA indicated a highly significant effect (p < 0.001), with site accounting for approximately 30.5% of the total variation in community composition. The non-significant result from the test for homogeneity of group dispersions (PERMDISP; F=0.1068, p = 0.75) suggests that this difference is unlikely to be influenced by variation in within-group dispersion.

Fly community composition differed significantly between collection methods (Bottle trap vs Sweep net), as revealed by PERMANOVA (F=8.2962, p < 0.001), with method accounting for approximately 14.2% of the variation in community structure. The test for homogeneity of multivariate dispersions (PERMDISP) was not significant (F= 0.006, p = 0.94), indicating that this result is not confounded by differences in within-group variability.

Fly community composition did not differ significantly among sampling sites (Eatery, Kitchen, and Parlor) based on Jaccard dissimilarity (PERMANOVA: F = 1.50, p = 0.192), with site explaining approximately 5.8% of the total variation. The assumption of homogeneity of multivariate dispersions was met (PERMDISP: p = 0.678), indicating that within-group variation was comparable across sites. Pairwise comparisons revealed a marginally significant difference in community composition between Eatery and Kitchen (p = 0.049), though this was not significant after adjusting for multiple testing with Bonferroni correction (p.adj = 0.146). No significant differences (p> 0.05) were detected between other site pairs.

