

ECOL 592: Spatial Correlation

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Assignment

For homework practice, please use the Bombus dataset (provided) to:

- 1) analyze spatial autocorrelation in abundances of one of the species (other than the one we used as an example) from one or more studies,
- 2) produce a spline correlogram with a confidence interval, and
- 3) interpret the correlogram to make conclusions about sample independence. How would you recommend dealing with non-spatially independent samples post-hoc?

Responses

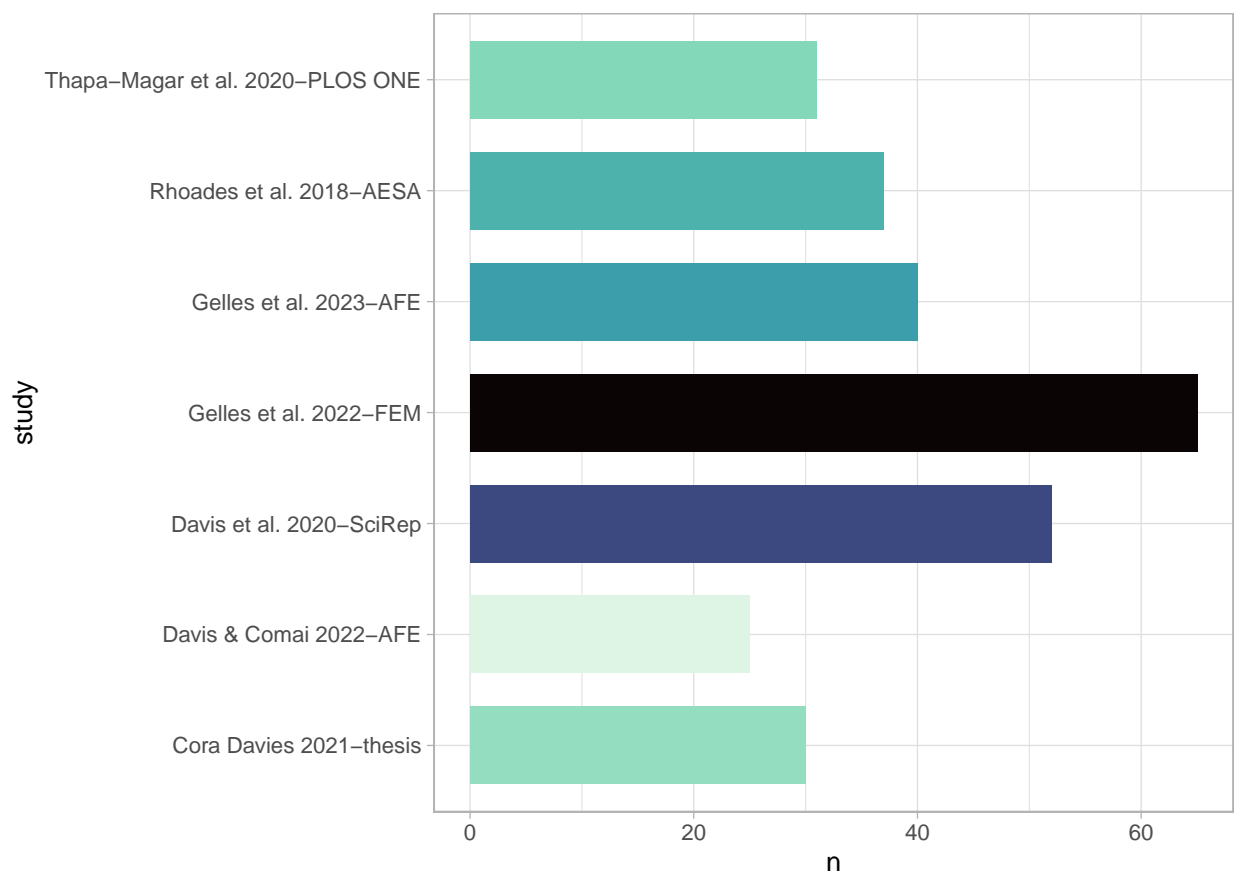
Load Data

```
bombus <- read.csv("DAVIS_Bombus_dataset_reduced.csv", head=T) %>%
  dplyr::rename_with(tolower)
bombus %>% dplyr::glimpse()
# which study was used for in-class presentation?
bombus[244:280,] %>%
  dplyr::count(study)
```

Question 1

analyze spatial autocorrelation in abundances of one of the species (other than the one we used as an example) from one or more studies

```
# other studies
bombus %>%
  dplyr::count(study) %>%
  ggplot(mapping = aes(y = study, x = n, fill = n)) +
    geom_col(width = 0.7) +
    scale_fill_viridis_c(option = "mako", direction = -1) +
    theme_light() +
    theme(legend.position = "none")
```



Interpretation of these plots should be based on the goodness test.

Question 2

produce a spline correlogram with a confidence interval

Question 3

interpret the correlogram to make conclusions about sample independence. How would you recommend dealing with non-spatially independent samples post-hoc?

Interpretation of these plots should be based on the goodness test.