

**Centennial Honors College
Thomas E. Helm Undergraduate Research Day 2024**

ABSTRACT

Major: Biology

Poster

Faculty Mentor(s): Maggie MacPherson

Exploring the Impact of Precipitation on Avian Biodiversity

Riley Becker

The theme of my research is to assess the effect of climate change on bird populations. Changes in precipitation and temperature regimes can impact a bird's habitat and food availability. The impact of precipitation on terrestrial animal distributions is the least studied of the three dominant abiotic factors determining species occurrences (i.e., the hygric niche). My research looked at how El Niño years in Illinois affect bird populations, with a specific focus on this 2023-2024 El Niño year. I chose two locations to census bird populations across the rainfall gradient in Illinois. I conducted 7 one-hour censuses (4 at WIU's Kibbe Biological Research Station, 3 at Prairie Land Conservancy's Wigwam Hollow in Macomb). During each census, I observed, identified and counted bird species using binoculars and identified their song patterns with the help of the Merlin Bird ID app. I measured daily precipitation at both sites using rain gauges to quantify the effect of rainfall on bird species abundance. I measured several variables that could confound results: temperature data was taken from a local weather station, cloud cover was observed upon arrival, and I estimated wind intensity using the Beaufort scale. I predicted that the Kibbe site should have less rainfall than Wigwam Hollow, and my results show that cumulative precipitation has actually been higher at Kibbe (11.8 cm) than Wigwam Hollow (6.05 cm). I observed many of the same species in both areas, however, I found a higher abundance of individuals at the wetter site (Kibbe).