

Centennial Honors College
Thomas E. Helm Undergraduate Research Day 2024

ABSTRACT

Major: Biology

Poster

Faculty Mentor(s): Maggie MacPherson

Assessing the Morphological Response of the Summer Tanager to Climate Change

Victoria Wing

The goal of my project was to assess the morphological responses to climate change of an Illinois songbird: the Summer Tanager (*Piranga rubra*). *P. rubra* migrate to the northern regions of North America, where rapid climate change threatens the species' suitability to their historical breeding areas. I tested whether *P. rubra* have responded to climate change by looking at morphological change from across their breeding range over time. My objective was to assess whether *P. rubra* demonstrated morphological evidence of increased dispersal capacities to match with a potential increased distance between wintering and more northerly breeding grounds. I assessed *P. rubra*'s morphological changes over time by measuring 41 museum specimens housed at The Field Museum in Chicago. These specimens were collected from 1853-2022. I found that a metric of wing pointedness (Kipp's Index) got smaller in female *P. rubra* ($p=0.016$), while no such patterns were found for other morphometrics. Previous research on the closely related Scarlet Tanager (*P. olivacea*) found similar results with smaller Kipp's Index across both sexes, in addition to shorter tail lengths. I hypothesized that if climate change is driving suitable habitat further north for *P. rubra*, selection could favor increasing wing length or pointedness to improve aerodynamics for longer migrations. However, we see the opposite trend in two Tanager species suggesting that they may actually be migrating shorter distances over time. Results from studies like mine provide support for priority-driven conservation efforts for forest-dwelling, long distance migrant birds threatened by climate change.