Understanding How Temperature Influences European Starling's Reproductive Success

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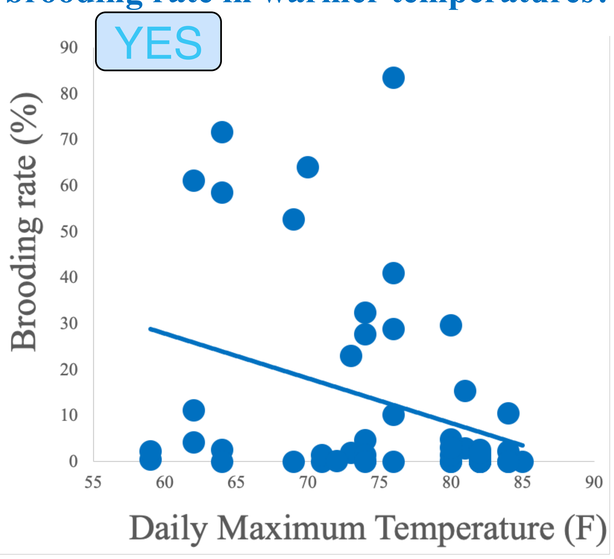
INTRODUCTION

Endothermic animals are able to thrive and adjust to the living conditions even when temperatures change over time. However, when temperatures become extreme, it can start affecting the success of these animals. We investigated how temperatures affected European Starlings *(Sturnus vulgaris)* during breeding in Georgia. We hypothesized that extreme temperatures (too warm or too cold) would result in mothers laying fewer eggs and parents having to provide more care to help their chicks survive.

RESULTS

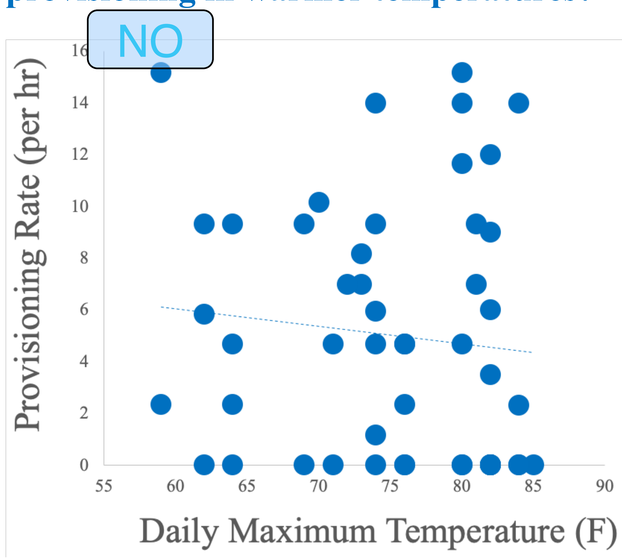
Question 1: Do starlings decrease their brooding rate in warmer temperatures?

YES



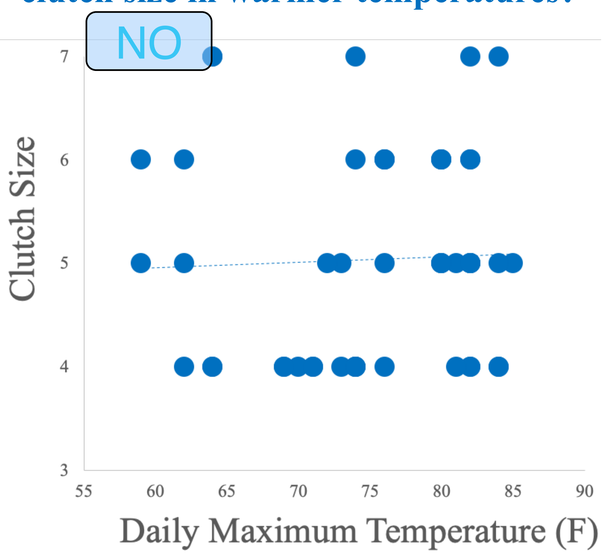
Question 2: Do starlings decrease their provisioning in warmer temperatures?

NO



Question 3: Do starlings decrease their clutch size in warmer temperatures?

NO



CONCLUSION

On hot days, parents did not have to thermoregulate for their young (brooding), perhaps because the outside temperatures were warm enough already. In contrast, provisioning rates and clutch size were not correlated to temperature. It is likely that temperatures observed in 2020 were not extreme enough to cause a negative impact on birds. Instead, starlings may be more sensitive to cold days when chicks require more brooding.

METHODS

Wild starlings laid their eggs in nest boxes, and the number of eggs they produced was counted by visiting each day. After the eggs hatched, cameras were attached to the nest box to measure parental care observations. NOAA historical weather data was used to record the temperatures, in Fahrenheit, of during the time of the video footage. We used correlations to determine the relationship between temperature and the clutch size or starlings' behaviors.