EEB313 Group Project Proposal
Fall 2023
Student names: Yunhua Ren, Samina Hess, Leslie Gao, Chunnan Yue

Hypothesis

The intensity of artificial light at night affects the frequency of bird-building collisions among passerine birds during nocturnal migration.

Predictions

1. The frequency of bird-building collisions increases with the intensity of artificial light.
    a. The frequency of bird-building collisions varies among **genus**.
    b. The frequency of bird-building collisions varies among **species**.
    c. The frequency of bird-building collisions varies among species with particular **traits or characteristics**.

Data set

Bird-building collisions were monitored in Chicago, Illinois and Cleveland, Ohio, USA. Chicago bird-building collision data for 1978 to 2016 was collected by Winger and colleagues. Collisions were counted daily at two sites during migration periods in autumn and spring. Cleveland bird-building collision data for autumn 2017 to spring 2018 was provided by a local volunteer organization, but we will not be using this data because there are no measurements of light intensity associated with it and the method of data collection is not specified.

The dataset comprises three distinct data frames: Chicago_collision_data, Cleveland_collision_data, and light_levels_Dryad. We will use the columns 'Genus', 'species' and 'date' from Chicago_collision_data. We will also use the columns 'light_score' and ‘date’ from light_levels_Dryad, which quantifies the light intensity by date at one of the Chicago sites.

Data source

Original publication

Winger BM, Weeks BC, Farnsworth A, Jones AW, Hennen M, Willard DE (2019) Nocturnal flight-calling behaviour predicts vulnerability to artificial light in migratory birds. Proceedings of the Royal Society B 286(1900): 20190364. https://doi.org/10.1098/rspb.2019.0364

Dryad data package

Winger BM, Weeks BC, Farnsworth A, Jones AW, Hennen M, Willard DE (2019) Data from: Nocturnal flight-calling behaviour predicts vulnerability to artificial light in migratory birds. Dryad Digital Repository. https://doi.org/10.5061/dryad.8rr0498