AVIAN MORTALITIES DUE TO WINDOW COLLISIONS DURING SPRING AND FALL MIGRATION AT THE UNIVERSITY OF CINCINNATI

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Introduction

- Up to one billion birds die from window and building collisions each year in North America (Loss, et al. 2014).
- Birds may collide into glass windows and buildings for a few different reasons: (1) Reflective glass mirrors the sky and the landscape around it. Birds are not able to differentiate between the two. (2) Birds see vegetation on the other side of clear glass and attempt to fly through it (Klem, 2009).
- During the daytime, migratory birds, many of which migrate at night, fallout into greenspaces to rest and refuel. If a fallout occurs near an unfamiliar city, birds are likely to have a higher risk of colliding into glass windows and buildings (Klem, et al. 2009).
- Our hypothesis: As the number of glass buildings increase, so will the number of avian mortalities, especially among our neotropical migratory bird populations.

Figure 1: Scioto Hall is an example of a "L-shaped" building with a reflective glass design.

Figure 2: Turner Hall is an example of a "U-shaped" building with a clear glass design.

Methods

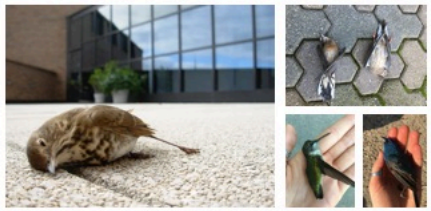
- We searched for birds from April 5th to May 30th, 2018 (spring migration) and July 23rd to December 12th, 2018 (fall migration).
- There was a total of 16 buildings monitored. This included buildings on UC's Uptown West Campus, UC's Medical Campus, and UC-owned/rented buildings off campus.
- Each building was monitored 30 minutes after dawn for 5-7 days a week during spring and fall migration of 2018. During peak migration, searches were also done at noon and before dusk.
- Announcements were posted on campus asking students, faculty, and staff to contact us if a dead bird was found.
- Volunteers were recruited to help search for birds during fall migration of 2018.
- Each bird was photographed, bagged, and labeled. Information would be entered into a data sheet and the bird would be placed into a designated freezer until it could be processed. Stunned birds had a slightly different procedure.
- All birds were handled/collected under appropriate state and federal permits issued to R. Canterbury. Federal permit #22576.

Figure 3: Buildings monitored on UC's Uptown West Campus.

Figure 4: Buildings monitored on UC's Medical Campus.

Our Question

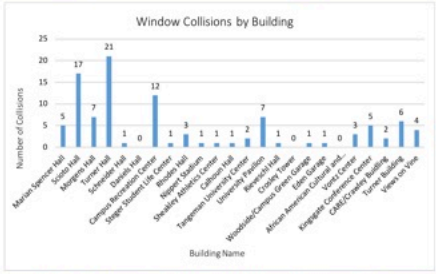
How many birds are colliding into glass windows and buildings on our college campus during spring and fall migration?



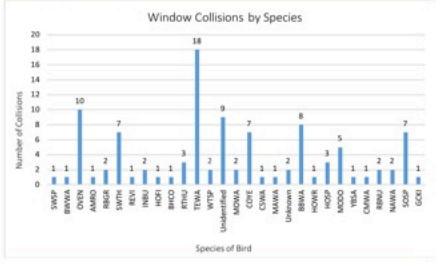
Figures 5-8: (5) A Swainson's Thrush- this image was found on Google. (6) Two juvenile Mourning Doves found in front of University Pavilion. (7) A female Ruby-throated Hummingbird found on the side of Turner Hall. (8) A male Indigo Bunting found in front of Turner Hall.

Results

- There were 12 window collisions recorded during spring migration and 91 window collisions recorded during fall migration. Overall, there was a total of 103 collisions; 94 of those collisions resulted in mortality.
- The TEWA, OVEN, and BBWA appear to be species with the greatest number of collisions.
- The YBSA, REVI, RBNU, BWWA, and the GCKI appear to be species of concern. This is likely because of either low population numbers, conservation concern, or habitat requirements.



Graph 1: This table shows which buildings had window collisions on UC's campus during spring and fall migration of 2018.



Graph 2: This table shows which bird species were affected most by window collisions on UC's campus during spring and fall migration of 2018.

Discussion

- With over 100 avian mortalities in one migration season, a number greater than all of our previous years of data combined, we believe that the increase in glass buildings has directly affected the number of mortalities on campus. Therefore, mitigation is necessary in order to reduce window collisions.
- It is likely that avian mortalities are directly linked to the landscape and building design (especially at skywalks). However, we are still examining variables such as: (1) flight height and density and (2) how nocturnal migrants are affected by light pollution.
- Research done by the American Bird Conservancy (ABC) and other universities support evidence for the effectiveness of products like the 'Ferro Dot Pattern' and 'Feather Friendly Patterns'.
- If UC were to adopt these "bird-friendly" practices at buildings with the largest amount of window collisions, we would likely see a decrease in the number of avian mortalities on campus.
- We are currently working with UC to provide recommendations that will increase the safety and sustainability of our campus for another 200 years and beyond.

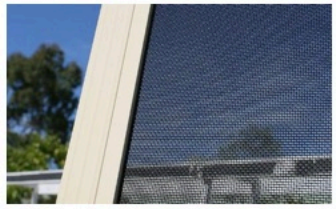


Figure 9: This is an example of a Feather Friendly Pattern. The screen creates a barrier between the bird and the glass.

Figure 10: An example of a Ferro Dot Pattern.

Literature Cited

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