# Bird collisions with windows called ‘staggering’ by Western researcher

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Western University PhD student Brendon Samuels spoke about the plight of birds colliding with windows during a presentation to Lambton Wildlife on Feb. 22. He's shown in downtown London in January 2019. Mike Hensen/Postmedia Network Photo by Mike Hensen /Mike Hensen/The London Free Pres

Roughly 25 million birds die every year in Canada after colliding with windows.

Although the phenomenon is not new, the number of bird deaths has been rising as people continue to modify the landscape and build more dwellings with larger windows on territory that was once the domain of birds.

And unless governments begin to seriously address the problem, bird populations will continue to drop and our ecosystems will be severely impacted, according to a PhD student from Western University.

Brendon Samuels works at university's Advanced Facility for Avian Research. He spoke to members of Lambton Wildlife on Feb. 22.

He said reports of birds hitting windows were first published in the 1870s, but window collisions are now one of the leading causes of bird deaths.

"We've lost a disturbing number of birds over the last 50 years," Samuels said. "Cornell University published a study that revealed that one in four birds in North America has been lost over the past five decades. And we have a pretty good sense of where these birds are going. Habitat loss is a huge factor, of course, but there are other introduced threats we should be aware of."

He said on a global scale, birds are dying at increasing rates because of agricultural, logging, trapping and hunting activities. But in North American, they are mostly dying because of cats and collisions with building windows.

"Around the world, (collisions) are killing billions of birds every year," said Samuels.

In an attempt to understand and mitigate the number of birds dying this way, the PhD student is undertaking research at Western University – a London campus that features numerous glass buildings – to determine just why so many birds are perishing and how humans can respond.

"My research questions are why birds are hitting windows in the first place, how we can solve this problem by modifying window glass and human dimension of this problem and how we get people to adopt new measures," he said.

And why are birds hitting windows so frequently?

"The more I learn about this the more I realize it's quite complicated," Samuels said.

At night, light pollution is the major culprit. Lights can divert birds from their paths and cause them to strike lit structures.

"Light pollution is damaging for birds at night because it influences their ability to know where they are going," he said. "They're looking up at the sky, the stars, flying through an environment with a lot of artificial light (and) they get disoriented."

A simple solution would be to turn off the lights, he said.

But most window collisions occur during daylight hours. A big problem, said Samuels, is a bird's inability to understand a reflected image. Birds see a window reflection of foliage or trees or vegetation and they often can't discern between the reflection and the real thing.

"There are a few reasons but during the daytime the biggest one is that birds do not understand the concept of a reflection on glass. Glass doesn't exist in the natural world, it's something people created relatively recently. Most collisions that happen during the day happen at or below the height of the surrounding tree canopy, which is usually up to the fourth floor of a building."

Different types of birds also have different mortality rates when it comes to hitting windows, Samuels said.

"Birds can be grouped into two types based on how they move. Resident birds are birds who tend to stay put in the same geographic space over time, birds such as northern cardinals and morning doves," he said. "What we find with these birds is that they don't hit windows quite as much as migratory birds and their population seems to be relatively stable.

"Migratory birds depart in the fall and return to their breeding grounds in Ontario in the spring," he continued. "They tend to be at higher risk for collisions and their populations are in decline, so this gives us real cause for concern."

All manner of birds are hitting windows in Southwestern Ontario, Samuels said. In one slide, he showed scores of dead birds that were picked up around Western's campus over a 30-week period in 2019. They were all victims of collisions with windows.

It's "frankly staggering" that so many and such a diversity of birds died by colliding into windows in such a short space of time, he said.

"You have raptors, warblers, hummingbirds ... all kinds of birds fall victim to the danger of glass, including species at risk, such as barn swallows, chimney swifts, wood thrush and Canada warblers, so this is a real conservation concern."

Governments, architects, home builders and homeowners can all make a difference in helping to reduce the numbers of birds dying, Samuels said.

"We obviously are seeing more and more glass buildings in our cities and that creates a dilemma for conservation, so what do we do? At a very high level, we need to recognize that our cities share airspace with birds," he said.

"To solve these crises surrounding birds, glass and new development, several municipalities have followed the lead of Toronto in developing their own guidelines or bylaws that will require new buildings to use bird-friendly materials.

"There is also a federal standard by the Canadian Standard Association called Bird Friendly Building Design, which is free to read online. It prescribes how to make a bird-friendly building."

Samuels is hoping an online petition (https://www.change.org/p/hon-steve-clark-update-ontario-s-building-code-to-save-birds) will convince the province to update building codes to make Ontario a more feather-friendly province.

In terms of what individual homeowners can do, Samuels provided a number of examples of what works and what doesn't work. Putting up silhouettes of hawks, birds or butterflies in your window does not work. Nor do products that use ultraviolet rays. Using decoys or closing your curtains will make no difference.

"There are all these products on the market that claim they are effective but we don't really know. And it's become really confusing for consumers to have to select from all these different options," he said.

"Unfortunately with the stickers, what we see people do with these is they slap a couple of these on their window and birds will not avoid them. Birds will actually end up hitting a different part of the window that's not covered by a sticker," Samuels continued.

"And in my opinion, there is no scientific credibility that birds see these (ultraviolet products) and will avoid them in flight. Ideally what

you want to put on a window is something that really stands out and ultraviolet is too subtle for them.”

Samuels said there are four criteria necessary for an effective collision-preventing product.

“It must be on the outside of the glass, it needs to cover the entire window edge-to-edge, markers should be spaced no wider than two to four inches apart and ideally markers should provide high visual contrast with the background.”

In terms of products, Samuels mentioned Feather Friendly DIY Tape. A roll costs $16, it comes in strips and leaves a grid of dots which aren’t noticeable from the inside and provides coverage that doesn’t destroy view.

Regular tape can work as a temporary measure, he added, suspending pieces of string or cord four inches apart, writing on windows with oil based sharpies, cut-outs, painting on a window and netting can work to help birds survive the strike.

He’s even seen someone cover their windows with bubble wrap, though “I probably wouldn’t recommend that one,” he said.

“For commercial or larger buildings there are more and more products available, for example glass with patterns etched right into it,” he added. “There are all kinds of things you can do to modify your glass for bird safety – it’s starting to take off in Europe and on campuses here in North America.”

The best bet is to do your research, Samuels said, by going to websites such as Birdsafe.ca or abcbirds.org/bird-safe-glass.

Samuels said the survival rate of birds colliding with windows ranges from 20 or 30 per cent to 70 per cent.

He said wind turbines aren’t a big problem.

“The problem of birds flying into wind turbines is actually overstated,” he said. “If you look at the cumulative impacts on bird populations in terms of the number of birds killed, it’s like tiny, tiny, tiny the number of birds being killed by wind turbines compared to windows.”