



SAFE - NORTH AMERICAN SONGBIRD Bird Collision Tool Box

What are Bird Collisions?

Humans understand the concept of glass as a reflective or transparent solid barrier, but birds do not and as a result often collide with glass injuring or killing themselves. According to a 2014 study, it is estimated that in the United States alone, hundreds of millions of birds are killed each year, up to 1 billion, “Bird-Building Collisions in the United States: Estimates of Annual Mortality and Species Vulnerability,” authored by Scott R. Loss, Sara S. Loss, Peter P. Marra, and Tom Will. In Canada, the estimate is 25 million birds per year according to this study: <http://www.ace-eco.org/vol8/iss2/art6/> “A First Estimate for Canada of the Number of Birds Killed by Colliding with Building Windows”.

In a recent 2019 study, it was determined that 1 in 4 birds have disappeared since the 1970s. This loss totals 3 billion birds that have been lost due to threats such as climate change, outdoor cats, collisions, habitat loss, and more. One of the seven simple action plans of the [campaign to bring birds back](#) is to make windows and glass safe for birds.

NAS SAFE Bird Collision Team

- Please contact any of the committee members with questions you may have about bird collisions.
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Organizations may participate in a variety of ways:

- Make your backyards and organizations safe for birds
- Participate in your local “Lights Out” program
- Create a Bird Collision Monitoring Program
- Education and Outreach (the most important 2 x 4 rule)
- Build Bird-Friendly Buildings (birdsmartglass.org)
- Remediate existing buildings, four stories and below (hot zones)

How to Make Glass Visible

Since birds often fly through small spaces, creating a visual barrier spaced every 2 inches horizontally and 4 inches vertically can help birds see glass as an object that they cannot fly to or through. [Studies](#) have shown that this spacing is effective.

Large black raptor silhouettes thought to be perceived by birds as predators do not create avoidance and if these pre-fabricated silhouettes are applied incorrectly (don’t follow the spacing requirements) they are not effective.

Refer to the Solutions section below for more information.

Mitigation Solutions to Existing Glass

To adopt bird-friendly glass practices, most birds need a visual barrier every 2 inches horizontal and 4 inches vertically. If you have bird collision data before installing the temporary or permanent solution to existing glass, remember to continue to monitor after the installation for post-remediation results. This information is excellent for collision studies conducted by your facility and for other collision researchers, organizations, and bird-safe product manufacturers.

Temporary Solutions

These solutions can be installed seasonally during migration months or year around. The solutions can be decorative by creating designs or patterns, simple dots, or lines. The sky’s the limit. These solutions should be installed on the exterior surface, however, use your discretion with exhibits for guest, staff, and animal safety.

You can make any of the following temporary or permanent solutions an educational activity for outreach and guest installation projects.

- Chalk markers or Tempera paint
- Insect screening on the outside of the window
- Soapy water or soap to create streaks
- Tarps (simply place a tarp over exhibit glass at night and remove before opening to reduce nighttime and early morning bird collisions)



Permanent Solutions

One common permanent solution is bird-safe film. Most of the films can be purchased in full sheets, display custom images, cut out into custom designs, or in simple shapes like dots and stripes. They are long-lasting with 10+ year warranties.

- [CollidEscape](#)
- [Feather Friendly® commercial](#)
- [Solyx®](#)
- [ABC BirdTape](#)
- [Acopian BirdSavers](#) - great for keeper only areas and zoo office windows

Another permanent solution is to incorporate bird-safe glass. Bird-safe glass can be produced with an ultraviolet striping inside a three-panel piece of glass or manufactured with an acid etching to create visual barriers that birds need to see glass.

- [Walker Glass Aviprotek®](#)
- [McGrory](#)
- [Ornilux](#)
- [GuardianBird1st](#)
- [Viracon](#)

For more solutions and details on the products tested and rated for efficiency please visit [American Bird Conservancy](#).

Education and Outreach

Once your facility adopts bird-safe glass, either from retrofitting existing glass or incorporating bird-safe glass into new construction, the vital component is educating the public with signage. Explaining what collisions are and how this installation is saving birds can inspire guests to do the same at their own home. You can go a step further by adding samples of homeowner products or selling the products in your gift shop, as well as displaying collision flyers made by your facility or use one of the flyers listed below:

- American Bird Conservancy [flyer](#)
- Audubon Pennsylvania BirdSafe Homes [flyer](#)
- [U.S. Fish and Wildlife Service](#)

Your education department can also create an activity for guests or summer camp students to create decals for their own home, or retrofit existing glass at your facility. This kind of activity is great for days of action like World Migratory Bird Day, Earth Day and National Bird Day, people love being involved in hands-on projects.

How can I start a Bird Collision Monitoring Program at my organization?

1. Determine a protocol for your facility that best fits your needs, staff, and resources.
See Appendix A for details.
2. Are you interested in using an Online Tracking Program?
See Appendix B for details.
3. If you find an injured bird.
See Appendix C. for details



Photo credit: North Carolina Zoo



Photo credit: Columbus Zoo



Photo credit: Detroit Zoo Gift Shop



Appendix A. Creating a Bird Collision Monitoring Program

1. Decide whether you will monitor during core migration months or year round. Set-up daily times to monitor buildings using facilities staff, volunteers and keeper staff. At a minimum do a daily morning and afternoon survey during April, May, September, October (core migration months). Fall migration can start as early as mid-August and last until mid-November depending on geographic location and weather patterns. When monitoring within your organization make sure your facility has the proper permits to collect dead birds and treat collision birds, it is required that injured birds are transferred to a licensed wildlife facility within 24 hours.
2. If you plan to monitor and partner with a local licensed songbird and raptor wildlife rehabilitator outside of your organization, you can find one at [National Wildlife Rehabilitators Association](#), [Animal Help Now](#), or your state's wildlife response website. Injured collision birds need to be treated under a licensed wildlife center in your state. Head trauma can take over 24 hours to appear in collision birds, so partnering and transporting to a nearby facility is the best welfare practice. In the United States the law states that wildlife must be turned over to a licensed wildlife facility within 24 hours.
3. Determine depository location (nature museum, university, college, research facility) for deceased migratory birds. In the United States, your facility will need a [Federal Salvage](#) permit to collect dead birds. In Canada, permit information can be found here: <https://www.canada.ca/en/environment-climate-change/services/migratory-bird-permits/application-forms.html>. Many states also require a state permit along with your federal permit, so make sure to research your state's requirements. If your facility does not collect the deceased birds, then a permit is not required.
4. If collecting deceased migratory birds, use plastic freezer bags to seal the deceased bird. Lay the deceased bird on its back on the bottom of the freezer bag, place 'Bird Label' with the bird for data collection purposes. See Data Collection below
5. Begin saving birds!
6. Evaluate your monitoring program yearly to identify "hot spots" areas that had the highest number of bird collisions. Working within your budget determine the best course of action to mitigate those spots, taking into consideration safety for guests, staff, and animals in the habitats. Please note weather patterns are one of the factors that can influence the number of collisions from year to year.



Data Collection

Dead and injured birds are collected and recorded with the following information. This information can be printed on a 'Bird Label' and kept with the deceased or injured bird. You can place this completed label clipped on the outside of the paper bag/box of the injured collision bird, which includes information needed for wildlife rehabilitation centers. The information on the Bird Label needs to be recorded onto a Microsoft Excel spreadsheet, R-programming, or software/database of choice for your facility to track bird collisions. This information will help determine high strike locations for future mitigation. **Example label below.**

- Date
- Species
- Direction of impaction/exact location of building
- Weather
- Collector's Name
- Time of day

Date _____ 2021 Time: _____
Species _____
Collector Name _____
Building/Exhibit/Direction _____

Weather _____
Permit # (include federal salvage number)
Baltimore, MD 21202 window strike kill/injury



Appendix B. Online Tracking

There are several apps and websites you can use to track bird collisions, which easily geolocate the location, identifies the bird species, and contributes to global community science on collisions.

1. [D-Bird](#): Project led by New York City Audubon
2. [FLAP Mapper](#): A global bird collision tracking program
3. [iNaturalist](#): You can create your own project on the site or use an existing bird-window collision project.

Appendix C. If You Find an Injured Bird

Below are following guidelines to catch the injured bird.

Blood and lethargy are an immediate sign that the bird needs to go to a wildlife rehabilitator as soon as possible. A common misconception is that birds break their wings after colliding with glass, because the bird will be found with the wings spread out. Instead a stunned bird uses its wings for balance. Most injured collision birds suffer from head trauma, neurological disorders, eye injuries, temporary blindness, and air sac punctures, which can be treated at a licensed wildlife rehabilitation center. These symptoms can take over 24 hours to appear, so taking the birds to a licensed wildlife center as soon as possible increases the bird's survival rate. If staff veterinarians triage the bird, it is best to do so once the stress level of the bird has been minimalized instead of immediately treating following the collision. Containing the bird quickly and allowing time to pass will increase the bird's survival rate.

4. Approach the bird from behind
5. Use a net, towel, or your hands to gently pick up the bird
6. Place the bird in an unwaxed paper bag (lunch bags are great) with the bottom of the bag lined with a folded paper towel or paper napkin.
7. Boxes should be used to properly contain raptors, waterfowl, and other large sized birds. Do not use boxes for American Woodcocks – they have a tendency to reinjure their heads in boxes.
8. Clip the paper bag closed with a binder clip or clothespin. The paper bag is a breathable material and does not need holes punched in it.
9. Place the bag in a safe location until the bird can be transported to the licensed wildlife rehabilitator.
10. Licensed rehabilitators can be found at [National Wildlife Rehabilitators Association](#), National Wildlife Rehabilitators Association, [Animal Help Now](#), or your state's website for wildlife response.