WHEN BIRDS AND GLASS DON'T MIX

(and what you can do about it!)

By Dr. Christine Sheppard

Photos provided by author, unless otherwise noted.

Not long ago, I was invited to address the "second-grade ornithologists" at an elementary school in Ardsley, NY. They were intensively studying birds: their biology, ecology, life histories, even some bird jokes, and I was there to tell them about bird collisions with glass and how to stop them. When I asked how many students had seen or heard a bird hit a window, almost all raised their hands.

While most people have experienced a bird hitting a window, they tend to think that this is unusual; they don't understand just how common it is. In fact, hundreds of millions of birds die from glass collisions each year in the United States alone. Almost every home kills a few birds every year, and because there are so many homes, this accounts for almost half of the total bird deaths caused by collisions with glass. Adding collisions on low-rise and high-rise commercial buildings brings the total to more than 300 million, and possibly as many as a billion birds killed every year!

Most of the second-grade ornithologists had run into a glass door or wall themselves. In spite of the frequency with which people collide with glass, most people are sure that they can actually see it. In fact, glass is invisible to both birds and people: you can see the dirt on dirty glass, but not the glass itself. But people learn, from a very young age, to recognize cues—such as window frames and door hardware—that tell them glass is there. Even so, in public spaces, glass doors and walls often have a row or two of decals or etching at eye level as a warning.

Unfortunately, birds can't learn the cues that warn people, but birds can learn about particular pieces of glass. When I worked in the Bird Department at the Bronx Zoo, we would smear glass exhibit-fronts with a soap paste before introducing new birds. When we removed the soap after a few days, the birds still knew that a barrier was there. However, birds can't learn about glass in general and their first encounters are often fatal. Birds take what they see literally, so a reflection is as much a destination as what

Highly reflective glass is deadly to birds, especially near vegetation.

is being reflected, and plants seen through glass appear accessible. This is why glass kills birds.

While collisions can happen at any time of year, peak numbers occur in spring and fall, when many songbirds migrate to and from their breeding grounds, and some of them for the first time. But many other kinds of birds also hit windows; the largest numbers occur in late spring when chicks first leave the nest, and also in winter as resident birds seek food.

Many birds migrate at night; building lights often confuse them. To reduce sources of light pollution during critical migration periods, Governor Andrew Cuomo initiated "Lights Out New York" in April 2015, whereby state-owned buildings will turn off non-essential outdoor lighting during peak bird migration periods.

Homeowners can use decals and other items on their windows to make them more bird friendly.

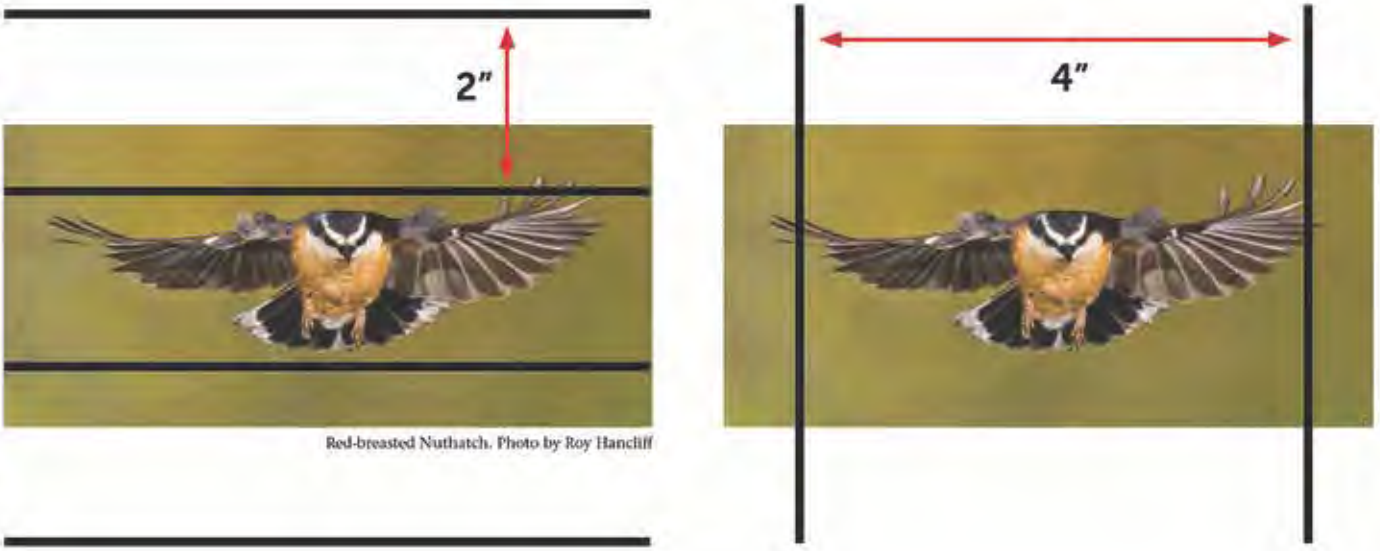
So what can we do about this problem? First, it may help to understand some basic bird biology. Birds and people don't "see" things the same way. We have eyes in the front of our heads; we tend to see the world as something in front of us, and we have good depth perception. Many birds, on the other hand, have eyes on the sides of their heads. As a result, they don't have much 3D vision. But their eye placement rewards them in other ways: they have a field of view that extends to the side and sometimes behind them; this can be very helpful to make sure predators can't sneak up on them. On the other hand, birds aren't necessarily always looking where they're going.

Birds see many more colors than we can, including ultraviolet light. But we can distinguish objects from farther away than can many birds. This means that in most cases, if people can't see something, birds can't see it either. So signals warning birds away from glass may need to be fairly obvious to people as well. So much for the invisible (to people, anyway) bird warning system!

What about the role of light in collisions? Birds are attracted to light. If a bird gets into your office or house, you should darken the room but leave one bright window open—the bird will usually fly right out. We don't really know why this is; maybe going towards light gives a bird the best chance of finding its way out of various predicaments. But birds did not evolve with humanity's artificial night lighting, many times brighter than moon or stars, and it causes them real problems. While some negative effects have been shown for resident birds, night migrating songbirds face the most serious impacts. In some cases, particularly where a bright light is surrounded by darkness (as with some cell towers), impacts are direct. Once attracted to the light, birds are apparently unable to break away and may fly in endless circles or collide with guy wires and other structures.

The effects may be less direct in the giant pools of light that are our cities at night; light brings birds into the built environment as they finish a flight stage and return to earth. But

Birds won't usually fly between horizontal lines 2" apart or vertical lines 4" apart



Red-breasted Nuthatch. Photo by Roy Hancliff

when the sun comes up, the birds start flying around, looking for food to replenish their energy supplies, and this is when most collisions with glass on buildings takes place. Attracted to vegetation, where insects and berries are likely to be found, birds fly towards reflections as well as plants, with tragic results.

Back at home, windows near bird feeders are the most likely to kill birds, so those windows should always be made bird-friendly. Luckily, there are many different ways to make windows safe for birds. One of the simplest and most effective means is something many homes already have: a screen on the outside of the window. Screens can virtually eliminate reflections, and as long as they are an inch or two from the glass, will cushion the impact if a bird does happen to fly into it. For picture windows and other areas where the view is important, there are many different kinds of motorized external shades and screens, some even using solar power. Using a remote, the shade can be lifted when the room is in use, and closed when the room is empty. This can also enhance security.

Besides using real barriers, we can reduce collisions by making birds believe that a barrier exists. Tests have shown that most songbirds won't try to fly between parallel vertical lines that are 4" apart, or between horizontal lines that are 2" apart. This makes sense, based on the body size of many birds. It also makes sense that the bigger a window pane is, the more likely it is to kill birds. Colonial style windows, divided into several small panes by mullions, are safer, although not as safe as the 2" or 4" spacing.

But there are many other ways, ranging from cheap, quick and simple to expensive, sophisticated and long-lasting. What about

External screens or closely placed rods help keep birds from flying into glass.

Vertical line spacing on these windows reduces the likelihood of bird strikes.

putting something on the inside of your window? There's a very easy way to tell whether or not this will work. Put a post it, or a piece of tape or paper on the inside of your window. Then, every hour or two, starting at sun up, go out and see if you can see it. If you can, birds can, too.

However, reflections exist on the outside surface of a piece of glass and can hide what's inside, so the most effective solutions are put on the outside of a window. One quick, easy and cost-effective way to put a pattern on your window is using tempera paint. The paint is inexpensive, non-toxic, can be removed with water and a sponge, and lasts outside for a surprisingly long period of time. You can use a brush or a sponge and apply a design free hand, or use a stencil, taped to the inside of the window, to guide your brush on the outside. You can even change your design to recognize changing seasons or holidays!

Do decals work? The idea of putting decals on windows goes back a long way, to an animal behavior study that involved dragging a + shaped silhouette back and forth above a pen of geese. The geese acted scared when the shape moved from left to right, but not when it moved from right to left, and the scientists decided that meant that the birds recognized and would avoid birds of prey in flight. This turned into the idea that a decal shaped like the silhouette of a diving raptor–a falcon attacking a smaller bird, for example—would make birds avoid windows. Unluckily, birds don't recognize silhouettes; they treat a single decal as something to fly around. Decals will work, however, if you use that 2"or 4" spacing. You can find lots of different types of decals, and you can also use tape, stickers, gel clings; whatever your imagination dreams up, as long as birds can see it.

Whether at a winter feeder in January, with their dawn chorus in May, or in a dooryard nest box in June, birds bring a lot of joy to our lives. With a little effort on our part, we can give back to them while we enjoy their presence.

Dr. Christine Sheppard is bird collisions campaign manager for American Bird Conservancy.

How You Can Help—American Bird Conservancy (ABC) is committed to achieving conservation results for native birds and their habitats throughout the Americas by tackling the toughest problems facing birds today. For more information on what you can do to help prevent bird collisions at your home, visit ABC's website at **abcbirds.org**, and search bird collisions. ABC also publishes *Bird-friendly Building Design*, the definitive guide to designing buildings to reduce bird collisions. You can download it or buy a copy at: **https://birds.ultracartstore.com//**