



For the Birds: Glass, Silent and Deadly

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Quietly, unobtrusively with no more than a gentle thud, millions of birds fall to the ground from the impact of flying into windows. Many die instantly from head trauma while others, dazed from the impact, are susceptible to predators or may be too injured to continue a strenuous migration.

Dead and dying birds usually only make the headlines of newscasts during oil spills when dramatic and disturbing photos are taken of oil laden birds. But the silent deaths of millions of birds every migration season, not caught by cameras and replayed endlessly on television, do not generate an equal measure of public alarm.

And yet, according to Dr. Daniel Klem, professor at the Acopian Center for Ornithology, Muhlenberg College, who has devoted his career to studying the phenomenon of the fatal collisions of birds slamming into windows, each year's death count is the equivalent of 333 Exxon Valdez oil spills in a one year period. (The official estimates of bird deaths from the BP/Deepwater Horizon disaster are not yet available.) He believes that his estimate of 100 million bird deaths from window collisions every year in the U.S. is "very conservative; it's probably much higher."

Some experts believe that up to a billion birds die from this passive and unintended danger every year. The losses certainly outstrip the deaths from habitat destruction, feral and stray cat predation, cell phone towers, power lines, windmills and oil spills combined.

Birds, with many species known for their sharp vision, just do not see anything but open space when confronted with a plate glass or plastic window. They see the reflections of trees, sky, clouds...and therein lies the fatal attraction. Compounding the problem is the proliferation of all-glass towering office buildings that are in vogue in this country and around the world. Most homeowners are aware that every season at least one or two birds meet their deaths right outside our windows. Multiply those deaths by all the houses in this country and all the strikes that go unnoticed and suddenly the very high estimates of death by migration make sense.

Although Dr. Klem has meticulously tested various approaches to "making windows visible to birds," he is frustrated that glass manufacturers, architects, builders and even his fellow ornithologists have not made prevention of these staggering numbers of deaths a higher priority in retrofitting existing buildings and using innovative products in new construction of office buildings and homes. He says that his refrain to one and all in the last three decades since he began his research is, "Ignoring this problem won't make it go away."

Even the LEED certification system (Leadership in Energy and Environment Design) of ranking "green" components of a building does not yet take into account the installation of bird friendly windows. Dr. Klem says, "I don't consider any building really 'green' if it doesn't address the problem...and there are preventive products and techniques that work to significantly cut down on bird strikes." LEED currently gives one point under the category of "innovation" for bird friendly windows, but LEED standards are ever growing and evolving and the U.S. Green Building Council may in the future strengthen their emphasis on designs that protect birds. They are certainly being educated and lobbied by a number of bird advocacy organizations to do so.

Awareness of the Problem Is Growing

The good news is that public consciousness of the problem is on the ascendency thanks to steadfast pioneers like Dr. Klem, leadership from major bird conservation organizations and innovative products entering the marketplace.

Dr. Christine Sheppard, who was the head of the Ornithology Department at the Wildlife Conservation Society's Bronx Zoo, is now affiliated with the American Bird Conservancy and is leading a national campaign to address the problem of bird collisions into windows. Dr. Sheppard told the Record, "People may get the impression that a bird friendly building is a bunker with no windows, but architects can incorporate safe windows and beautiful designs into great buildings." She is compiling photographs of bird friendly buildings for a website to document that aesthetic desires and bird safe designs can be successfully intermingled.

“You know, people don’t actually see glass either,” says Dr. Sheppard, “Plenty of people can get confused and walk into glass, but usually we see the context of glass and know to avoid it.” She went on to explain that resident birds in an area and their offspring learn to avoid certain buildings, but migrating birds are like tourists without guidebooks. Migrating birds fly at night and descend into an area at daybreak to feed and bulk up for a few days before continuing their epic journeys. These feeding breaks are very vulnerable times for them in unfamiliar settings. Dr. Sheppard adds that the fall migration is deadlier because the spring crop of bird youngsters are making their first migration and are less experienced in confronting and avoiding perils along the way.

The Future of New Construction

In addition to mounting a public awareness campaign, the Conservancy has also been instrumental in developing federal legislation (HR 4797) introduced by Congressman Mike Quigley of Illinois that would require bird-safe construction for new federal buildings and mitigation on existing buildings where practicable. (New York State Assemblyman Steve Englebright [D-Setauket] is planning to sponsor legislation next year in Albany which is modeled after the proposed federal legislation.)

Further, Dr. Sheppard has been developing updated guidelines for bird friendly buildings taking into account recent research and product development; the guidelines are currently under peer review. These guidelines are expected to be finalized in 2011 and made available to the public and to professionals in the construction field.

One of the most promising and innovative new architectural products was derived from taking a cue from Mother Nature herself. Scientists had noted that certain species of spiders spin strands of silk into their webs that have an ultraviolet (UV) reflective property. It turns out that birds see a much greater UV spectrum than humans see; hence, birds can see those webs and avoid flying into them. A German-based company, Arnold Glas, has developed an insulated glass product which has an ultraviolet-reflective coating that is patterned so that birds can see it. To the human eye, it is as clear as untreated glass. The glass, Ornilux, has been tested both in Europe and here in the U.S. and has been shown to be between 75 to 80 percent effective in eliminating bird hits.

Ornilux has recently been introduced to the North American market and is being distributed by Roeder Windows and Doors in Venture, California. According to sales and marketing spokesperson Lisa Welch, Ornilux is multi-functional since it is energy efficient as well as bird friendly. Yes, it is currently more expensive than conventional glass.

The Center for Global Conservation at the Bronx Zoo has incorporated Ornilux into the building design for its conference room windows. Dr. Sheppard notes that due to the expense of Ornilux, it may be feasible to intersperse it with fritted glass in an overall building design.

Fritted glass refers to a glass that has a pattern tempered into it, greatly minimizing its reflective quality. Swathmore College, near Philadelphia, constructed a science center and used fritted glass in an attempt to reduce avian mortality. They also installed video sensors called “thumpers” to record bird hits. They have recorded a greatly reduced mortality in bird strikes.

Fritted glass, patterned to look like etched stack of books, was created for the Minneapolis Central Library. Artistic patterns in such applications appear to be limited only by the imagination of the designer.

The Challenges of Making Existing Buildings Safer

The National Audubon Society has also provided leadership in addressing another factor that plays into bird collisions...light pollution. Audubon has called for a Lights Off! program during migration season. The New York City Audubon Society’s Lights Out New York has gained more and more support in this endeavor with more skyscrapers participating every year.

Although it is not fully understood, birds appear to be attracted to lighted areas and under certain conditions can become “trapped” in lighted zones and continue to circle until they drop from exhaustion. During this year’s 9-11 memorial of light depicting the twin towers, thousands of migrating birds circled the light. The organizers turned off the lights for 20 minutes at a time to allow the birds to escape.

Dr. Susan Elbin, director of Conservation and Science at the New York City Audubon Society adds, “People think that

the tall buildings are the big problem, but actually short buildings have many collisions too.” She said that research has shown that the ground floor and lower windows of buildings are actually the most hazardous for birds.

Dr. Elbin consults with building managers, who are often quite dismayed at the casualties outside their buildings, to first assess where most strikes are occurring and then to develop measures they can take to decrease the carnage.

Other features taken into account in analyzing a particular building is its proximity to natural feeding grounds and habitat, especially those near bodies of water. Local meteorological conditions play a role as well. Areas that are often foggy or hazy and that are very illuminated become lures to birds and if windows are part of the equation, more bird strikes can be predicted.

Strategies for existing buildings may include installing transparent or patterned, non-reflective window films, the installation of louvers, awnings, sunshades or blinds. Landscaping strategies include planting trees and shrubs close to a building so that if a bird lands in the greenery, it will not have enough distance to gather speed if it flies toward the glass.

The Town of Brookhaven’s council members became concerned about the number of fatal bird strikes at their town hall. In fact, one of the council members was showing a group of school children around the building when a bird crashed and died before their eyes. According to John Turner, Director of Environmental Protection, the town consulted with Dr. Klem and investigated various approaches. CollideEscape, a film that can be applied to windows and has an opaque appearance, was deemed too expensive and not too esthetically pleasing. The town council settled on applying Window Alert decal panels on the three-story building’s windows. Ledges around each floor made the installation easier than in buildings that have sheer surfaces. The total cost including staff time spent applying them was \$700. Although they now occasionally have a bird strike, the drop in bird mortality has been significant. Mr. Turner, a birder, carefully monitors the strikes and the species of birds that die.

The Take Away

The story of birds and windows cannot be fully covered without mentioning FLAP. The Fatal Light Awareness Program, FLAP, is based in Toronto, Canada and since 1993 has been training and guiding volunteers to monitor buildings for injured birds, transport the surviving birds to wildlife rehab and rescue centers and advocating for the city of Toronto to take steps to cut down on light pollution and to require that new construction take bird safety into account. The organization is quite busy dealing with their local issues, but they do offer recommendations for citizens of other towns and cities to begin a local program to make communities safer for birds. (www.flap.org)

We are in the waning weeks of the fall migration. Spring migration begins in the month of March and winds up in April and May. There is time for people, concerned about the problem, to look to make their own home windows safer and for building owners and managers to consult with professionals to set into motion ways to make their buildings’ windows more visible to birds.

Now that you know that the thud at your window most likely means the death of one bird and is one of millions and millions of deathly thuds across the country, it is hard to hear that sound without wanting to do something to prevent it