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Why Yale's Evans Hall is a Death Trap for Birds and What Can Be Done About It

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About This Report

With the dual aims of inspiring mitigation action on Yale University’s campus and contributing data to the growing scientific understanding of bird-window collisions, we monitored bird-window collisions at the Yale School of Management’s Edward P. Evans Hall. Designed by Foster + Partners, Evans Hall (165 Whitney Avenue, New Haven, CT) is a 225,000-square-foot building, featuring 130,000 square feet of transparent and highly reflective glass.

From April 2018 to mid-October 2020, 262 birds of at least 47 species were found dead, stunned, or injured by the building due to window strikes, according to data from carcass surveys and citizen science observations. This report shares that data with researchers, facilities managers, and other interested parties; identifies an effective solution for retrofitting Evans Hall to prevent or reduce future bird deaths; and urges the school to implement that solution.

This report also presents Evans Hall, a LEED Gold Building, as a case study in how “sustainable design” is not necessarily sustainable for local wildlife under current certification standards. Evans Hall offers a cautionary tale to institutions and architects about the ecological and animal welfare consequences of failing to consider how architectural design impacts animals. The building also serves as an example of why retrofitting long-lived buildings that kill large numbers of birds remains important, even when institutional and local building requirements are updated to require newly constructed buildings to meet bird-friendly design standards.

The Problem: Edward P. Evans Hall is a Bird Deathtrap.

In January 2014, the Yale School of Management celebrated the opening of its new home: a gleaming 242,000-square-foot edifice that, *The New Haven Independent* noted at the unveiling, “at times seems to be made almost entirely of glass.”¹ “As transparent as an Absolut bottle,” wrote the university’s alumni magazine.² “The theme of the building is transparency,” one professor said at its launch. “No matter where you are, you can see what’s going on somewhere else. We want the world to see what we’re doing.”³

One thing the building is doing is killing a lot of birds.

From April 2018 to October 2020, 262 birds of at least 47 species were found stunned, injured, or dead due to window strikes at Evans Hall, including at least 18 birds of conservation concern. This data was gathered through a combination of informal carcass surveys and citizen science data, described in this report. Assuming that bird-window collisions remain steady from year to year, it is conservative to estimate that Evans Hall has killed over 700 birds since it opened in January 2014. Given that well-maintained commercial buildings stand for an average of 70 years, Evans Hall could easily kill many thousands of birds over the course of its lifetime if no action is taken.

This is happening in a time of crisis for birds across America and around the world. In fall 2019, a group of the world’s leading ornithologists reported that nearly one out of every three birds in the United States and Canada has vanished since 1970 – a staggering loss of nearly 3 billion birds.⁴ Much of the loss is among common New Haven species that we think of as safe and abundant: robins, sparrows, swifts, doves, thrushes, jays, mourning doves. These birds can no longer be taken for granted.

Window collisions are one of the major causes of this bird mortality.⁵ Birds cannot detect glass surfaces, and are especially likely to fly into buildings when any one of three designs are present: (1) highly reflective glass that mirrors surrounding vegetation or landscape, (2) transparent glass that allows birds to see green habitat inside buildings, such as courtyards, and (3) see-through glass passageways or glass corners that allow birds to see habitat on the other side of a building, luring the birds to believe they can fly through.⁶ All three of these elements feature prominently in the design of Evans Hall. The main cause of death of strike victims is head trauma, intracranial pressure, and bleeding in the brain.⁷ Sometimes the birds’ beaks are broken.

These bird deaths are preventable.

There are proven effective, affordable, and attractive retrofitting solutions that could be implemented at Evans Hall immediately. In this report, we propose that the school install bird-friendly exterior window films at scale to reduce future bird deaths. Bird-friendly window films are available in dot, line, and customized patterns from multiple commercial distributors and have been installed successfully and at large scale by many of Yale’s peer institutions, including by Northwestern University’s Kellogg School of Management, the University of Pennsylvania, and Duke University. This solution, along with others, has been presented to the building’s facilities managers and administrators multiple times over the past several years. What is needed now is for a solution to be implemented. Every week that a solution is delayed, more birds die unnecessarily.



Birds killed by the Yale School of Management's Evans Hall collected at the Peabody Museum.



Three of the eight birds found dead outside Evans Hall on the morning of November 3, 2019.

The Data: Bird-Window Collisions at Evans Hall, 2018-2020.

How was this data collected?

In response to growing alarm from students, faculty, staff and visitors, the Yale SOM Facilities Department and the Yale Peabody Museum of Natural History began collaborating in spring 2018 to gather data on the bird deaths caused by Evans Hall. The facilities staff said it would be helpful to understand where specifically birds were hitting the building and how many birds were being killed in order to justify the potential cost of installing a solution.

Starting in April 2018, facilities staff members who found dead birds at SOM placed the birds in plastic bags, marked the date and carcass location on a notecard-sized building map, and carried the birds to the museum across the street, where ornithologists and students identified the species, recorded the collision on a spreadsheet, and preserved some of the skeletons and skins for the museum's collection.⁸

This set-up continued until March 2020, when the COVID-19 pandemic reduced SOM facilities staff and made it impossible to continue. No data was recorded in April 2020. In May 2020, we began collecting data on the free, crowd-sourced, citizen science app [iNaturalist](#), which allows citizens to upload geotagged and time-stamped observations and photos of plants and animals. These iNaturalist bird-window collision observations were added to the iNaturalist project, "[Yale & New Haven Bird-Window Collisions.](#)"

We then analyzed the combined April 2018 – March 2020 data from the Peabody spreadsheet and May 2020 – October 2020 data from iNaturalist. Evidence of bird strikes in which live birds or carcasses were not present, such as feather piles and bird-shaped markings on the glass, were not recorded or included.

The results are sobering.

How many birds are being killed and injured by Evans Hall?

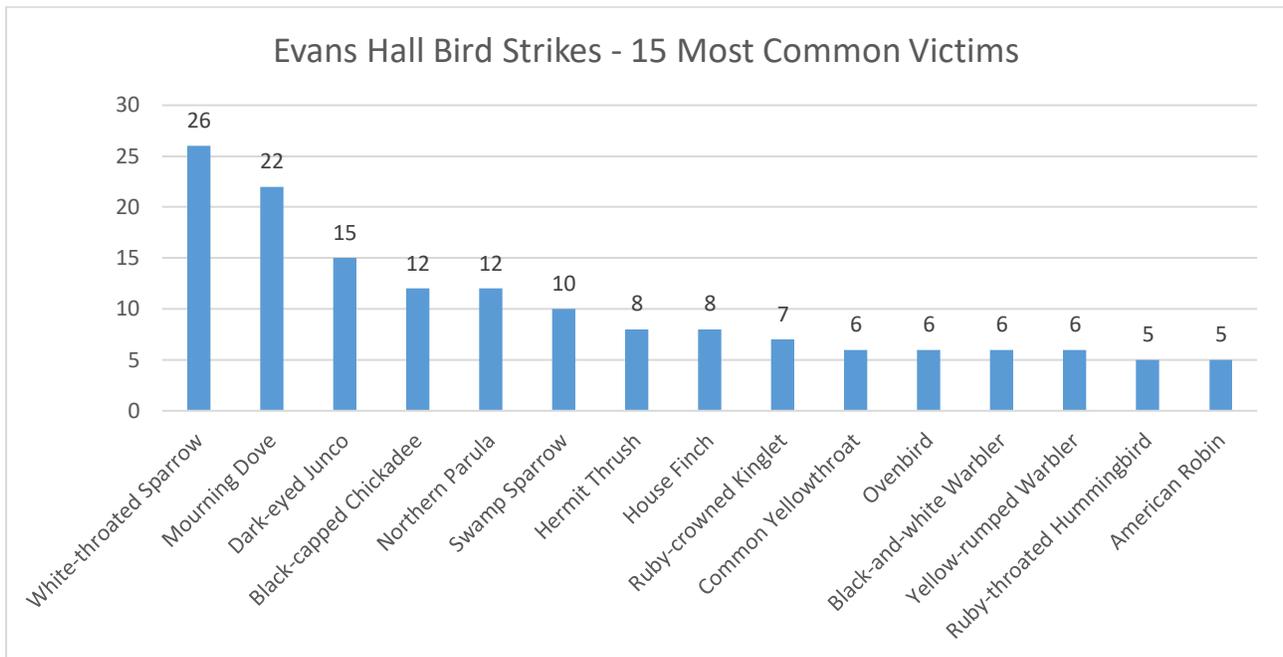
262 birds of at least 47 species were documented killed, injured, or stunned by SOM's windows from April 2018 to mid-October 2020, according to the informal custodial staff surveys and citizen science data described in the previous section.

This is likely a significant undercount for several reasons: Dead or stunned birds are often picked up by scavengers. Some birds that strike windows are injured, but not immediately killed upon impact and fly off and die elsewhere from the injuries sustained. Other birds were thrown away by custodians or community members unaware of our survey, which was conducted informally. Previous studies using more rigorous bird-window collision survey methods have estimated that up to 5 birds were missed for each bird found.⁹ Given this, it is conservative to estimate that the building has killed over 700 birds since it opened in January 2014 and will kill thousands – quite possibly tens of thousands – over the course of the building's lifetime if nothing is done.

Which species of birds are being killed and injured by Evans Hall?

Of the 47 recorded species, the vast majority were migratory songbirds. A full list and count of species by location is attached.

White-throated Sparrows (26 birds), Mourning Doves (22), and Dark-eyed Juncos (15) were the most frequent victims. From 1970 to 2017, the populations of these species in North America are estimated to have declined by 93 million, 22 million, and 168 million respectively.



(as of October 22, 2020)

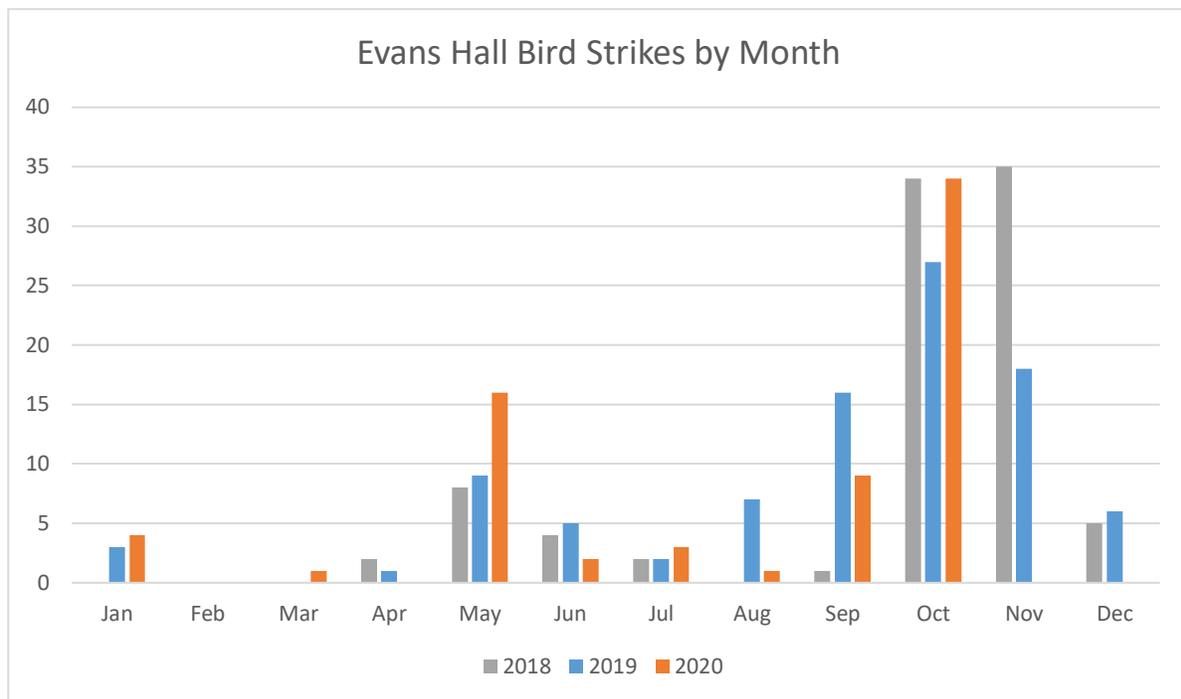
At least 17 birds were species of conservation concern. For example, the building killed 12 Northern Parulas – a species of special concern under Connecticut’s Endangered Species Act. Northern Parulas are considered critically imperiled in Connecticut by NatureServe, meaning the species is at risk of local extinction.

A rare Bicknell’s Thrush, a species IUCN-listed as “vulnerable” and of highest conservation priority, was also killed. It was the first Bicknell’s Thrush added to the Peabody’s collection since 1975. Another casualty, an American Kestrel, is listed as a species of special concern in the Connecticut Endangered Species Act. Its population in this area has declined by 93% in the last 50 years.¹⁰ Other killed species of immediate conservation concern included the Common Grackle, Blackpoll Warbler, and Wood Thrush.

In the decades to come, many species killed by the building that are not currently considered threatened are expected to become so. Of the 47 killed bird species, 18 species are expected to be highly vulnerable or moderately vulnerable for local extinction by 2050 due to climate change, according to Audubon.¹¹

During what time of year do bird strikes occur at Evans Hall?

Consistent with past studies, higher strike rates were documented at Evans Hall during the spring and fall migration periods.



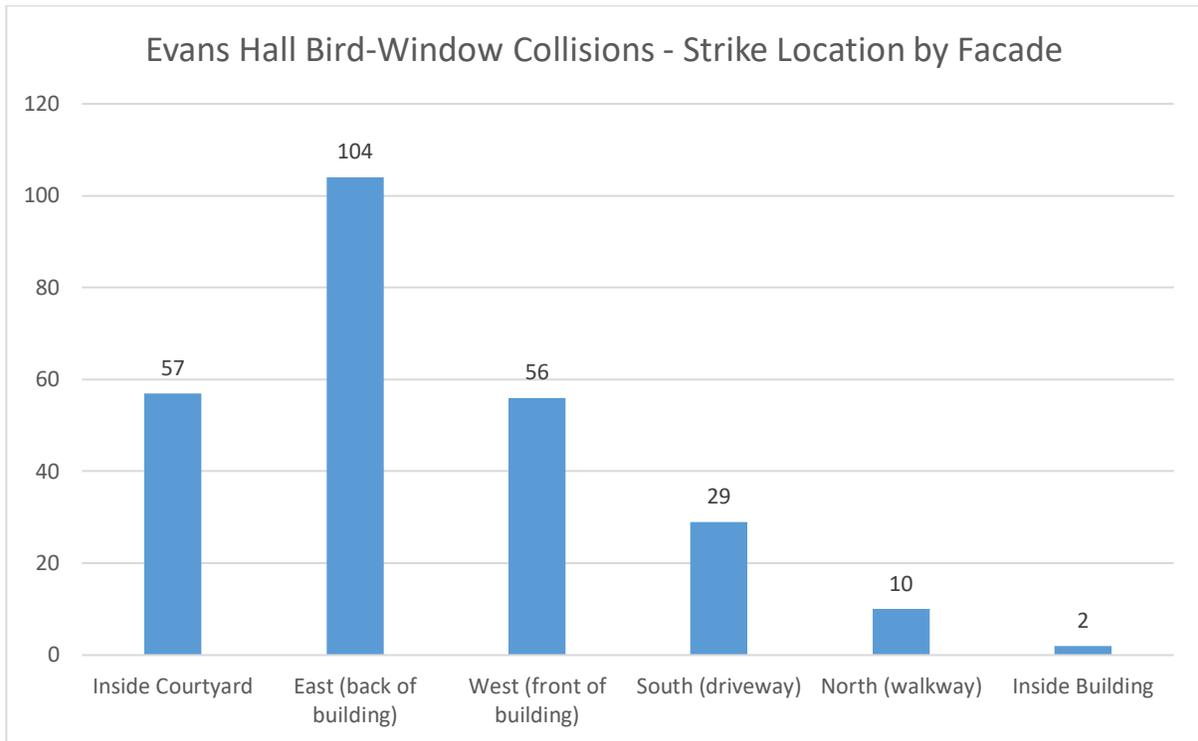
(as of October 22, 2020)

Which areas of the buildings are hit most frequently?

Evans Hall hosts 130,000 square feet of transparent and highly reflective glass, encircling a central, open-air courtyard with trees. It features see-through hallways on the front and back sides and sits on a 4.25 acre plot that with landscaped gardens in the back that provide rich bird habitat.

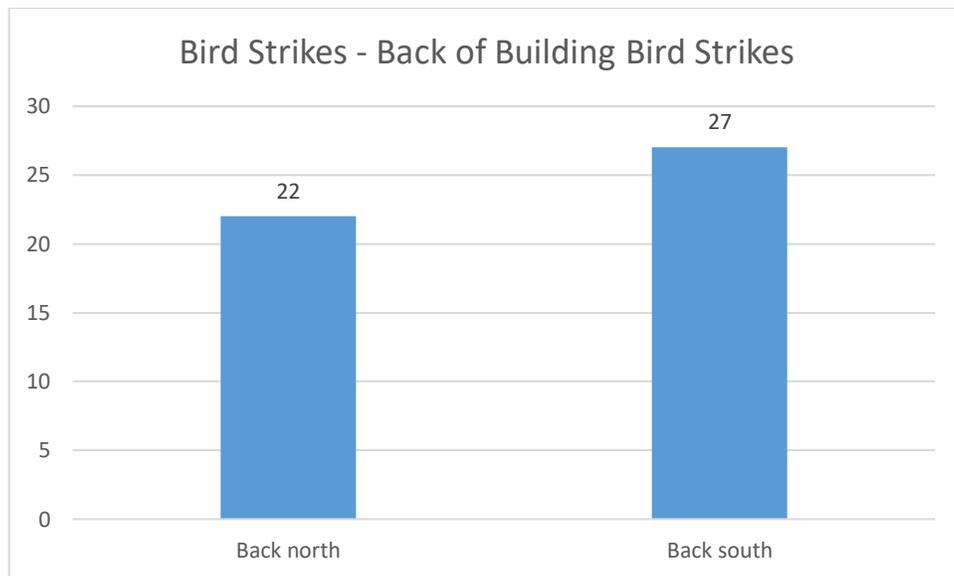
Birds are especially likely to hit glass when any one of three conditions is present: (1) reflections of nearby vegetation, (2) “see-through” glass passageways or corners that allow birds to see through to greenery on the other side of the building, or (3) green vegetation or landscape inside the buildings, such as courtyards.¹² All three of these elements feature prominently in the design of Evans Hall.

As expected, the highest bird mortality occurred in areas where these conditions were present. 104 killed or injured birds were found at the back of Evans Hall, 56 killed or injured birds were found at the front of the building, and 54 killed or injured birds were found in the interior courtyard. Birds were also recorded hitting the south side of the building with alarming frequency.



(as of October 22, 2020)

Of the 104 birds that hit the back of the building, location data specifying whether the bird hit the back south portion of the building or the back north portion of the building (separated by the protruding Beinecke plaza) was recorded in 49 cases:



(as of October 22, 2020)



The front of Evans Hall, as seen from outside the front entrance (left) and from inside the courtyard (right).



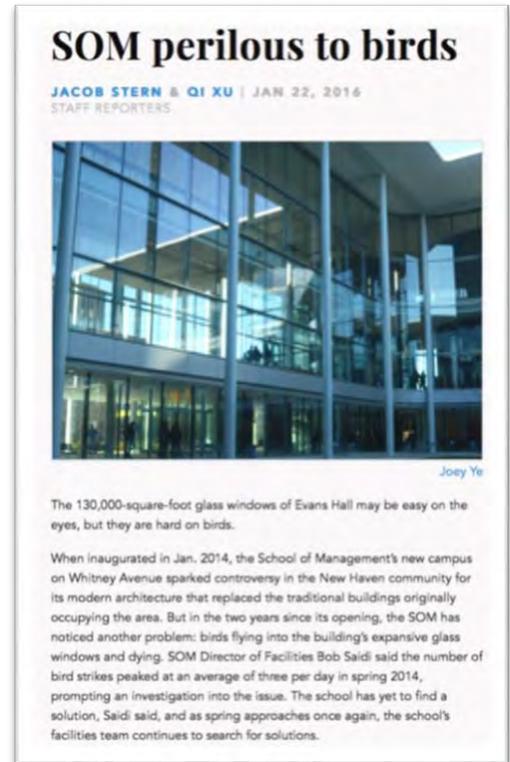
SOM's windows reflect the landscape and Peabody Museum across the street, even when the inside blinds are drawn (left). Horizontal lines already feature prominently in SOM's exterior design, as seen on the building's north side (right). This pattern could be extended over the windows to protect birds. However, the semi-transparent nature of the existing lines and the low contrast between the existing lines and the highly reflective glass makes them insufficient at preventing bird strikes, as evidenced by the high number of bird strikes on the north and south sides of the buildings. If this pattern is extended, high-contrast, solid-colored lines should be prioritized.

The Process: It's time to take action.

This bird-window problem has been a source of worry and active discussion for at least four years.¹³ During these four years, there have been many meetings and discussions with the SOM Facilities Department and with concerned students, staff, and faculty about the severity and nature of the problem and potential solutions. It is now time for the work to progress beyond the level of discussion.

In order to ensure a thoughtful decision-making process, the Facilities Department decided to collect at least one year's worth of data to measure the frequency and locations of bird strikes. We now have that data. Simultaneously, the Facilities Department – in collaboration with concerned community members – thoroughly explored and evaluated a wide suite of possible solutions. This process involved extensive research on the effectiveness of collision deterrents conducted by the American Bird Conservancy, Duke University, Muhlenberg College, and others. It also involved consultation with one of the country's leading experts on addressing bird-window collisions, Dr. Christine Sheppard, Bird Collisions Director for the American Bird Conservancy. Dr. Sheppard visited Evans Hall in person to study the problem, to meet with the facilities managers, and to offer expertise on effective solutions to address it. In addition to identifying and documenting the bird strikes, Yale ornithologist Dr. Kristof Zyskowski offered guidance and expertise throughout the process. This process also involved studying how Yale's peer institutions addressed their own glass buildings with high bird mortality signatures. This work resulted in a clear understanding of the bird-strike problem at Evans Hall and a clear understanding of how the problem can be fixed.

Now it is time to act and implement a solution.

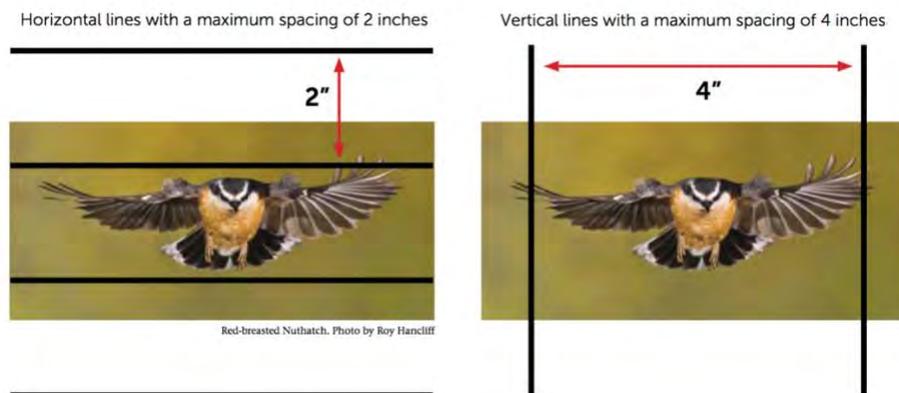


*A 2016 clipping from
The Yale Daily News.*

Proposed Solution: Bird-safe window films are affordable, attractive, and effective.

Happily, there is a proven effective, affordable, and aesthetically attractive solution that is available to be implemented at Evans Hall immediately to significantly reduce further bird deaths: applying bird-safe window films or bird-safe vinyl window markers to the exterior of the building's most problematic areas.

Bird-safe window films work by making glass visible to birds via patterns that follow the “two-by-four rule.” Research on songbirds – the most common window victims nationally and at Evans Hall – has shown that horizontal or vertical lines or other patterns must be two inches or four inches apart, respectively, to deter most birds.



The “two-by-four rule.” (Diagram by the American Bird Conservancy.)

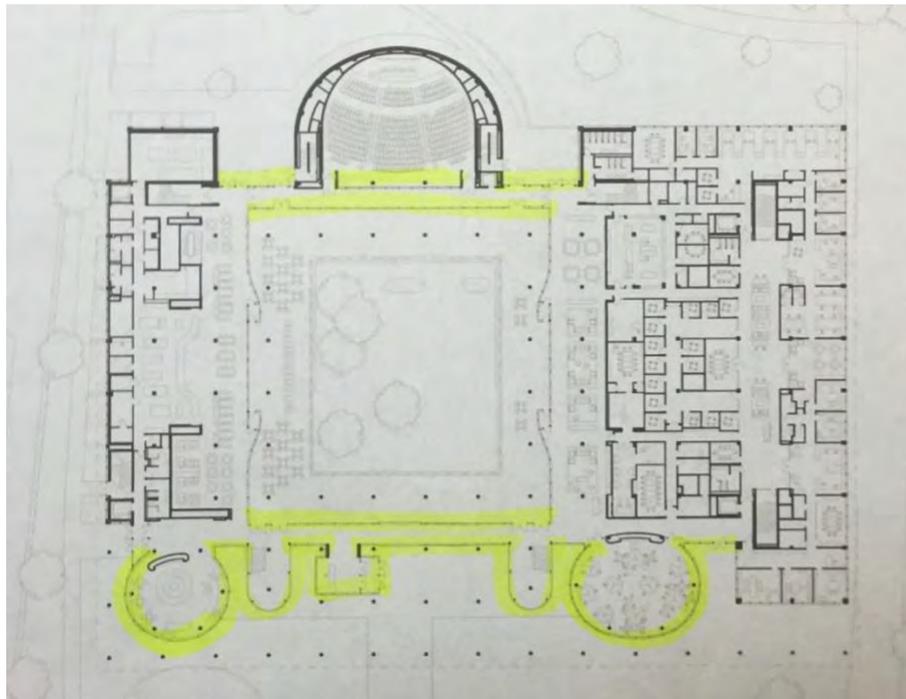
These films are available at commercial scale from multiple major companies, such as Solyx, and their effectiveness has been demonstrated repeatedly, both in experimental tunnel studies and on real-world, large-scale buildings. These bird-safe window film designs are based on decades of research by ornithologists such as Dr. Daniel Klem, Dr. Martin Rossler, and Dr. Christine Sheppard to identify ways to make glass visible to birds. Once the films are installed, few people notice them but birds benefit tremendously.¹⁴ Another visually similar option is to apply vinyl markers. Vinyl markers are similar to window films, but with the transparent backing removed. Convenience Group's [Feather Friendly vinyl markers](#) are an example.

To be effective, these patterned films or markers must be applied to the exterior of the glass. Applying the patterns to the interior of the glass does not effectively reduce the windows' reflections. Reflections can make patterns applied to the inside of glass invisible to the birds. For the same reason, lowering interior shades may help reduce, but will not eliminate, collisions because high reflectivity can make these shades imperceptible.¹⁵

Ideally, such films and markers would be applied to all of the building's windows. If this is cost-prohibitive, the building's most problematic areas – the see-through portions of the front and back of the building, and the see-through portions of the front and back of the inner courtyard – should be prioritized.



The see-through passageways on the back of Evans Hall that most need window films are highlighted in yellow. The Beinecke Room's windows are not see-through, and so are not a top priority for window films.



A top-down view of Evans Hall's layout. See-through areas with frequent bird hits that need window films are highlighted in yellow.

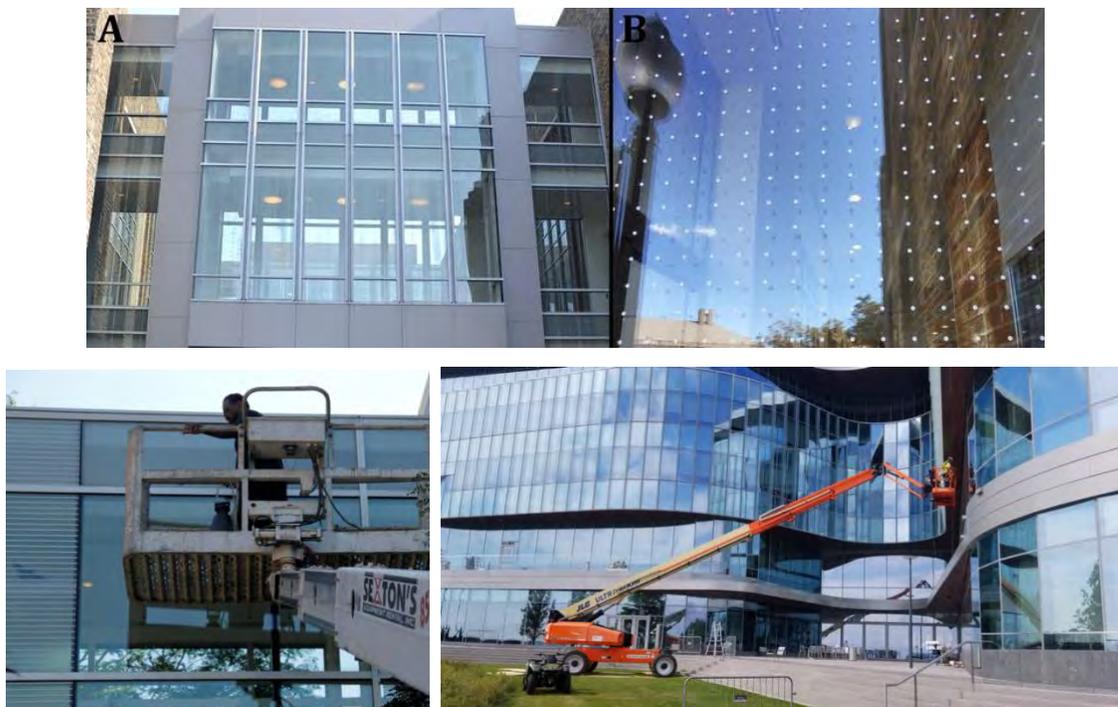
Lower floors should also be prioritized. The majority of bird-window collisions are thought to occur on lower floors due to greater bird activity, but bird strikes have been observed regularly on every floor of Evans Hall.

There is [one Operations + Maintenance LEED point](#) available for complying with bird-friendly lighting, monitoring bird strikes, and taking corrective action as needed. SOM would be eligible to receive this point if corrective action is implemented.

In December 2019, the Evans Hall facilities department said they were granted permission to proceed with applying bird-friendly window film to a “sample area” at the back of the building on the second floor (near the Beinecke Terrace and classroom 2430) and planned to monitor the results. Unfortunately, according to multiple experts consulted, the proposed sample area would not be large enough to serve

as a meaningful test of the window film's effectiveness at deterring bird strikes and is unlikely to save many birds. It would only be a test of how the window film looks. When only a small portion of a large glass surface is covered, there is evidence that birds will fly around the film-covered area and hit the glass areas above, below, or to the sides of the film-covered area at a higher rate. Dr. Christine Sheppard of the American Bird Conservancy said it would likely be near impossible to determine how well a film is working based on a piece that size, with regular glass above and below.

Many of Yale's peer institutions, as well as the owners of large commercial buildings, have paid to install window patterns or paid to install new bird-friendly glass (a much more expensive option) at large scale to prevent bird hits. Examples of these institutions include: Northwestern University's Kellogg School of Management; University of Pennsylvania; Duke University; Stony Brook University; University of British Columbia; York University; the Javitz Convention Center in New York; Walter E. Washington Convention Center in Washington, D.C.; the FBI Building in Chicago; the National Renewable Energy Laboratory in Golden, Colorado; the Philadelphia Zoo; the Albuquerque Botanic Garden; the Bronx Zoo; the Toronto Pan Am Aquatic Center; the headquarters of Birkenstock USA; and Key West Airport. The Yale School of Medicine in 2015 replaced some originally single-paned glass panels with double-paned, fritted glass to reduce avian mortality.¹⁶ In 2019, Yale also updated its building requirements for all new buildings to require that new facades be designed from the start to reduce bird collisions.¹⁷ The Yale School of Management is currently behind its peers in this regard.



Bird-safe window patterns applied at Duke University (top; photo by [Ocampo-Peñuela et al.](#)), the University of Pennsylvania (bottom left; photo by [Joe Durrance](#)); and Northwestern's Kellogg School of Management (bottom right; photo by [Clear View Solutions West](#)).

Examples of bird-friendly window products:

Decorative Films LLC Solyx Bird Safety Films

- 5-year Solyx product warranty; life expectancy of 7 years
- Durable and scratch-resistant polyester film applied to the exterior surface of glass
- Available in vertical, horizontal, and custom patterns
- Effectiveness tested by the American Bird Conservancy
- Installed by the Kellogg School of Management at Northwestern University



Installed Solyx patterns. (Photos from Solyx website.)

Convenience Group Inc. Feather Friendly Technologies Commercial Bird Deterrent

- 6-year 3M product warranty; life expectancy of 8 to 15 years
- Durable adhesive markers applied at consistent intervals to the exterior surface of glass
- Available in multiple dot patterns
- Effectiveness tested by the American Bird Conservancy
- Installed by Duke University, University of Pennsylvania, and University of British Columbia



Installed Feather Friendly patterns. (Photos from 3M website.)

Other solutions considered:

The American Bird Conservancy offers an [excellent and comprehensive guide](#) that reviews the science behind available bird-friendly building solutions and provides many visual examples of how those solutions can be implemented at both new and existing buildings. The guide identifies seven retrofit options: seasonal temporary solutions (such as painting patterns on glass), netting, window films and vinyl markers, screens, shutters, grilles, and replacing the glass with bird-friendly alternatives (such as fritted glass). Screens, shutters, glass replacement, netting, and grilles were ruled out as aesthetically unacceptable or financially prohibitive.

Experiments have shown that placing owl or predator decoys on or near windows is ineffective at preventing bird strikes.¹⁸ There is also little evidence to support the effectiveness of sound deterrents. One recent study indicated that sound deterrents may prompt some birds to slow down, but do not prevent window strikes. Sound is not recommended as an effective deterrent at this time.¹⁹ Reducing light pollution at night does help reduce bird collisions. However, this solution is already in place at Evans Hall, where motion-sensors control most lighting after dark, and is insufficient in itself.

COMPARISON OF RETROFIT OPTIONS						
Material	Effectiveness	Cost	Application	Appearance	Longevity	Upkeep
Seasonal, temporary solutions	*****	\$	*	*	na	na
Netting	*****	\$\$	**	***	****	***
Window film	*****	\$\$\$	****	*****	***	****
Screens	*****	\$\$	***	****	*****	****
Shutters	*****	\$\$\$	***	****	*****	****
Grilles	*****	\$\$\$	****	*****	*****	****
Replace glass	*****	\$\$\$\$\$	*****	*****	*****	****
5 stars/dollars =	highly effective	expensive	easy	attractive	long-lasting	minimal

A comparison of retrofit options from the American Bird Conservancy's guide to [Bird Friendly Building Design](#).

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Recommended Resources:

Christine Sheppard and Glenn Phillips, "[Bird-Friendly Building Design](#)," 2nd Ed., American Bird Conservancy (2015).

American Bird Conservancy's [online list of tested products](#) for deterring bird-window collisions.

Natalia Ocampo-Peñuela, et al., "[Patterns of bird-window collisions inform mitigation on a university campus](#)," *Peer J* 4:e1652 (1 February 2016).

Contribute a bird-window collision observation to iNaturalist:

Citizen science observations are helpful in advancing understanding of bird-window collisions, identifying buildings that killing birds frequently, and advocating for solutions. That's why we're continuing to document bird strikes on Yale's campus and throughout the greater New Haven area. If you encounter a dead or stunned bird, we would be grateful if you would please photograph it and note the location and date. Through the free citizen science app [iNaturalist](#), you can upload the photos, tag the location, and add the birds directly to our project: [Yale & New Haven Bird-Window Collisions](#). To add an observation to an iNaturalist project, you first need to "join" the project with the button in the upper right hand corner of the [project page](#).

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- ¹ MacMillan, T. [And The Lord Said: You'll Learn To Love It](#). *The New Haven Independent* (2014).
- ² Branch, M. A. [SOM's sleek new home: a report and slide show](#). *Yale Alumni Magazine* (2014).
- ³ Shelton, J. [Here's a sneak peek at Yale's newest building](#). *The New Haven Register* (2014).
- ⁴ Rosenberg, K. V. et al. [Decline of the North American avifauna](#). *Science* 366, 120–124 (2019).
- ⁵ U.S. Fish & Wildlife Service. [Migratory Bird Program - Buildings and Glass](#) (2018).
- ⁶ Sheppard. C. and Phillips, G. [Bird-Friendly Building Design](#). 2nd Ed. American Bird Conservancy (2015).
- ⁷ Klem Jr, D. [Glass: a deadly conservation issue for birds](#). *Bird Observer* 34(2), 73-81 (2006).
- ⁸ This is a simplified and modified version of the survey method proposed by Stephen Hager and Bradley Cosentino in their article: Hager, S.B., and Cosentino, B.J. [Surveying for bird carcasses resulting from window collisions: a standardized protocol](#). No. e406v1. PeerJ PrePrints (2014).
- ⁹ Estimating the number of birds removed by scavengers can vary significantly among sites. See: Kummer, J. A. et al. [Use of bird carcass removals by urban scavengers to adjust bird-window collision estimates](#). *ACE* 11(2), 12 (2016).
- ¹⁰ The Peregrine Fund. [American Kestrels in decline](#). *Peregrine Fund*.
- ¹¹ This assumes +2 degrees C warming, which could happen by 2050. See: Audubon. [Vulnerable Birds in New Haven County](#).
- ¹² Sheppard. C. and Phillips, G. [Bird-Friendly Building Design](#). 2nd Ed. American Bird Conservancy (2015).
- ¹³ *The Yale Daily News* first reported on the problem in 2016. See: Stern, J. & Xu, Q. [SOM perilous to birds](#). *The Yale Daily News* (2016).
- ¹⁴ People may benefit too! In a conversation in 2017, Bob Saidi noted that when Evans Hall first opened, the building's small glass-enclosed conference rooms lacked the opaque square markers now present at eye-level on the glass between the conference rooms and the inner hallway. At a fête celebrating the opening of Evans Hall, he said a donor ran head-on in to the glass. Shortly after, the square films were installed.
- ¹⁵ Sheppard. C. and Phillips, G. [Bird-Friendly Building Design](#). 2nd Ed. American Bird Conservancy (2015).
- ¹⁶ Yale Sustainability. [Purpose in pattern: fritted glass at YSM decreases bird collisions](#) (2015).
- ¹⁷ Yale Office of Facilities. [Requirements for Facility Shell Performance](#) (2019).
- ¹⁸ Klem Jr, Daniel. [Collisions between birds and windows: mortality and prevention](#). *Journal of Field Ornithology* 61(1), 120-128 (1990).
- ¹⁹ Swaddle, J.P., and Ingrassia, N.M. [Using a Sound Field to Reduce the Risks of Bird-Strike: An Experimental Approach](#), *Integrative and Comparative Biology* 57(1), 81-89 (2017).

Exhibit 1: Photos of birds killed by colliding with Evans Hall



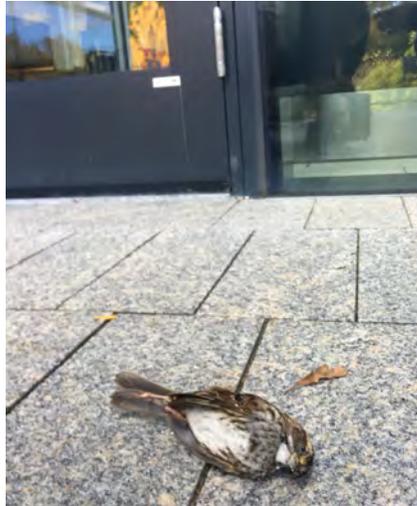
*Birds killed by Evans Hall in fall 2019 photographed at the Peabody Museum on October 28, 2019.
Photo by Seth Inman.*



A Black-throated Blue Warbler killed in the SOM courtyard and a white-throated Sparrow on SOM's back patio.



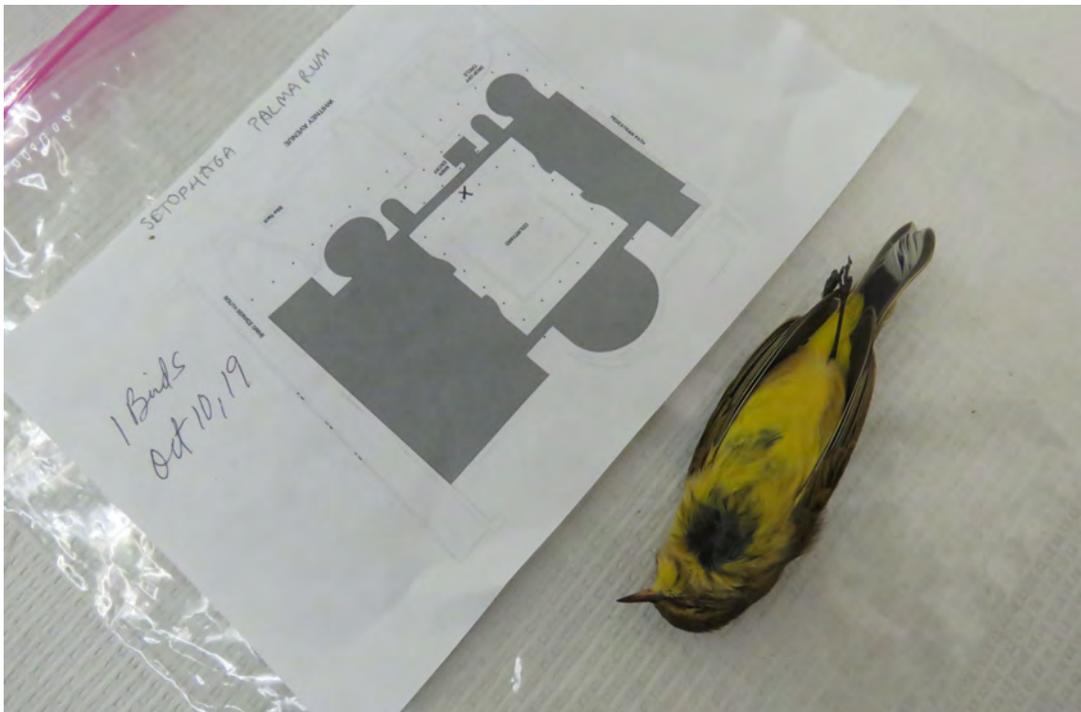
Three different birds decomposing on the roof of the Beinecke Terrace, as photographed from the fourth floor hallway of Evans Hall.



Migratory song birds found dead outside Evans Hall.



An American Kestrel, a type of falcon, killed near the back of the SOM courtyard on October 10, 2019. The American Kestrel is listed as a species of special concern in the Connecticut Endangered Species Act. Its population has declined by 93% in the last 50 years, according to The Peregrine Fund. Photo by Seth Inman.



A Palm Warbler killed at the front of the SOM courtyard on October 10, 2019. Photo by Seth Inman.



Two young American Robins killed together on June 4, 2019, at the back of Evans Hall. Based on their coloring, these two robins just recently left the nest before their deaths. Photo by Seth Inman.



A Ruby-throated Hummingbird killed on September 11, 2019, at back of the building between Zhang Auditorium and Charley's Place. Photo by Seth Inman.



An Ovenbird found at SOM on October 2, 2019. The collision broke and deformed the bird's beak. Photo by Seth Inman.



A Northern Flicker, a type of woodpecker, found by the windows on the west side of the SOM courtyard on August 21, 2019. Photo by Seth Inman.



A Northern Parula found behind the SOM auditorium in May 2019. The Northern Parula is listed as a species of “Special Concern” in the Connecticut Endangered Species Act. Photo by Seth Inman.



Birds killed by Evans Hall prepared as skins for the Peabody’s vertebrate collection. The birds’ tags read “Yale School of Management.” Photo by Seth Inman.



A Mourning Dove killed October 6, 2019, in the inner west side of the SOM courtyard. Photo by Seth Inman.



The wing and skeleton of an immature female Bicknell's Thrush salvaged from Evans Hall on October 13, 2018. The Bicknell's Thrush is IUCN-listed as "vulnerable." This was the first specimen of the species to be added to the museum's collection since 1975.

Exhibit 2: Photos of SOM's highly reflective glass facades and transparent passageways



SOM's front entrance is both see-through and highly reflective of vegetation. This type of design is a death trap for birds.



See-through walkways at the front of the SOM building, as seen from the courtyard.



SOM's windows reflect the landscaping and Peabody Museum across the street, even when the inside blinds are drawn.



SOM's glass windows mirror the Peabody Museum and the Kline Biology Tower across the street.



Two bird-imprints on Evans Hall windows above the southside driveway in November 2019.



29 birds, including multiple critically imperiled Northern Parulas, were recorded injured or killed by colliding with the southside of Evans Hall. If new thermal window films are installed on this side of the building, bird-friendly patterns should be selected.

Yale School of Management Evans Hall Bird Collision Data, April 2018 – October 22, 2020:

Common Name	Family	Total # Strikes:	Evans Hall Location						
			West (front)	East (back)	Inside courtyard	Inside building	South (driveway)	North (walkway)	Location not recorded
American Goldfinch*	Fringillidae	1	1						
American Kestrel ^{c,d}	Falconidae	1			1				
American Redstart	Parulidae	2	1					1	
American Robin*	Turdidae	5		2	1			2	
Baltimore Oriole ^c	Icteridae	1		1					
Bicknell's Thrush ^a	Turdidae	1		1					
Black-and-white Warbler ^c	Parulidae	6	1	3			1		1
Black-capped Chickadee	Paridae	12		8	2			2	
Black-throated Blue Warbler ^{c,*}	Parulidae	1	1						
Black-throated Green Warbler*	Parulidae	3	1	1			1		
Blackpoll Warbler ^b	Parulidae	4		2			2		
Blue Jay	Corvidae	1			1				
Blue-headed Vireo*	Vireonidae	1		1					
Cape May Warbler	Parulidae	1	1						
Common Grackle ^b	Icteridae	1		1					
Common Yellowthroat	Parulidae	6	4		1		1		
Cooper's Hawk	Accipitridae	1	1						
Dark-eyed Junco*	Passerellidae	15	1	10	4				
Golden-crowned Kinglet	Regulidae	3	1	2					
Gray Catbird	Mimidae	1		1					
Hermit Thrush*	Turdidae	8	3	5					
House Finch	Fringillidae	8	1		6				1
House Wren*	Troglodytidae	1		1					
Magnolia Warbler*	Parulidae	2	1				1		
Mourning Dove	Columbidae	22	6	13	2			1	
Northern Cardinal	Cardinalidae	1	1						
Northern Flicker	Picidae	2	1		1				
Northern Parula ^{c,d,*}	Parulidae	12		5			7		
Northern Waterthrush	Parulidae	2	1	1					
Ovenbird ^{c,*}	Parulidae	6	2		1		2		1
Palm Warbler	Parulidae	5	1		2		1	1	
Pine Warbler*	Parulidae	2		1	1			1	
Rock Pigeon	Columbidae	1			1				
Ruby-crowned Kinglet	Regulidae	7	2	1	4				
Ruby-throated Hummingbird	Trochilidae	5	3	2					
Song Sparrow*	Passerellidae	4	1		3				
Swainson's Thrush	Turdidae	2		1	1				
Swamp Sparrow*	Passerellidae	10	2	4	4				
Tennessee Warbler	Parulidae	3			1		1	1	

Tufted Titmouse	Paridae	4	3	1					
Unidentified - hawk	Accipitridae	1		1					
Unidentified - no species info	n/a	46	7	16	13	1	9		
Unidentified - tyrant flycatcher	Tyrannidae	1							1
Unidentified - warbler	n/a	1	1						
White-breasted Nuthatch	Sittidae	2	1	1					
White-throated Sparrow*	Passerellidae	26	4	15	6			1	
Winter Wren*	Troglodytidae	1						1	
Wood Thrush ^{b,c,*}	Turdidae	1				1			
Yellow Warbler*	Parulidae	2	1						1
Yellow-bellied Sapsucker	Picidae	1			1				
Yellow-rumped Warbler*	Parulidae	6	1	3				1	1
Total:		262	53	92	57	2	25	6	5

Total number of species: 47

^a IUCN Vulnerable Species

^b IUCN Near Threatened Species

^c Audubon Connecticut Priority Bird Species

^d Species of "Special Concern" in the Connecticut Endangered Species Act (Chapter 495, General Statutes of Connecticut).

* Expected to be moderately or highly vulnerable in Connecticut with +2.0 C temperature increase, according to Audubon. On our current trajectory, +2.0 C could happen by 2050.

** Individuals of some species can be either migrants or residents of Connecticut. Categorizations are from Cornell's All About Birds fact sheets.