HARVARD LAW SCHOOL
ANIMAL LAW & POLICY CLINIC

KATHERINE A. MEYER
Clinic Director

RACHEL MATHEWS
Clinical Instructor

REBECCA GARVERMAN
Clinical Fellow

CARNEY ANNE NASSER
Clinic Research Fellow

June 14, 2023

Heather Henriksen, Chief Sustainability Officer
Harvard Office for Sustainability
sustainability@harvard.edu

Dear Ms. Henriksen,

We write on behalf of the Harvard Law School Animal Law & Policy Clinic; Jeremiah Scanlan, a rising third-year student at Harvard Law School; Dr. Scott V. Edwards, Alexander Agassiz Professor of Zoology and Curator of Ornithology in the Museum of Comparative Zoology at Harvard University; Nina-Marie Lister, Visiting Professor of Landscape Architecture at Harvard University's Graduate School of Design; and the American Bird Conservancy to draw the Office for Sustainability's attention to a major ecological issue that Harvard University can and should take steps to address as soon as possible. Every year, as many as 1 billion birds die in North America from collisions with glass windows on buildings, including migrating songbirds and other species that are already imperiled by human-caused threats. These deaths are predictable and preventable: experts have identified particularly deadly design features that need to be targeted, and developed a range of feasible solutions, shown to reduce bird collisions by as much as 94%.

Recognizing the significance of the problem and availability of proven solutions, other Universities, including Yale,[1] Princeton,[2] Cornell,[3] Duke,[4] Northwestern,[5] the University of Pennsylvania,[6] and the University of British Columbia,[7] have already undertaken efforts to make their buildings bird-safe. Unfortunately, by contrast, Harvard University currently has no mandatory policy in place to ensure that its campus is less deadly to birds. However, as explained below, such a policy would promote consistency with the University's own principles under its 2023 Sustainability Action Plan, as well as the conservation objectives of the Migratory Bird Treaty Act. Therefore, we respectfully urge Harvard to act immediately to incorporate bird-safe measures into its Sustainable Building Standards and to commit to formal monitoring of existing bird hazards on campus, for the safety of the birds and the sustainability of our campus.

I. Signatories

The Harvard Animal Law and Policy Clinic was launched in 2019 to provide students with direct, hands-on training in legal advocacy on behalf of animals. Since its founding, the Clinic has litigated a number of successful cases, filed amicus briefs at both the Supreme Court and Circuit Court levels, and engaged in a variety of policy and administrative advocacy. Jeremiah Scanlan is a Harvard Law student and former clinician with the Animal Law Clinic who initially brought this matter to the attention of our Clinic.

Dr. Scott V. Edwards is the Chair of the Department of Organismic and Evolutionary Biology, a Professor of Organismic and Evolutionary Biology, and the Alexander Agassiz Professor of Zoology and Curator of Ornithology in the Museum of Comparative Zoology at

---

[1] *See Our Work*, YALE BIRD-FRIENDLY BLDG INITIATIVE, https://bird-friendly.yale.edu/our-work (last visited May 17, 2023); YALE UNIV., YALE OFF. OF FACILITIES PROC. MANUAL: YALE DESIGN STANDARD (2019) (available at https://facilities.yale.edu/sites/default/files/files/Design%20Standards/Updated%20Design%20Standards/01%20General%20Requirements/01%2083%2000%20Facility%20Shell%20Performance%20(Birds)%2019_0715.pdf).

[2] *See Council on Science and Technology: Bird-Friendly Campus Project UAF*, PRINCETON UNIV., https://gradfutures.princeton.edu/council-science-and-technology-bird-friendly-campus-project-uaf (last visited May 17, 2023).

[3] *See* Ellie VanHouten, *Advances in Window Safety Come to the Cornell Lab And Cornell Campus*, ALL ABOUT BIRDS (Sept. 23, 2022) https://www.allaboutbirds.org/news/advances-in-window-safety-come-to-the-cornell-lab-and-cornell-campus/#.

[4] *See Bird-Window Collision Project at Duke*, DUKE.EDU, https://sites.duke.edu/birdcollisions/window-strike-project-at-duke/ (last visited May 17, 2023).

[5] *See* Libby Hill, *Northwestern Develops New Bird-Friendly Program*, EVANSTON ROUND TABLE (FEB. 7, 2018) https://evanstonroundtable.com/2018/02/07/northwestern-develops-new-bird-friendly-program/

[6] *See Bird-Friendly Penn*, UNIV. OF PA. SUSTAINABILITY, https://sustainability.upenn.edu/initiatives/designing-green/bird-friendly-penn (last visited May 17, 2023).

[7] *See Bird Friendly Design*, THE UNIV. OF B.C., https://sustain.ubc.ca/bird-friendly-design#:~:text=Each%20year%2C%20about%2010%2C000%20birds,control%2C%20pollination%20and%20seed%20dispersal (last visited May 17, 2023).

Harvard University. His research focuses on diverse aspects of avian biology, including evolutionary history and biogeography, disease ecology, population genetics and comparative genomics. Dr. Edwards has served on National Geographic's Committee for Research and Exploration and on the Advisory Boards of the National Museum of Natural History at the Smithsonian and the Cornell Lab of Ornithology. He is also a member of the American Academy of Arts and Sciences (2009), a Fellow of the American Association of the Advancement of Science (2009), and a member of the National Academy of Sciences (2015).

Nina-Marie Lister is a Visiting Professor of Landscape Architecture at Harvard University's Graduate School of Design and Professor in the School of Urban & Regional Planning at Toronto Metropolitan University (TMU). A Registered Professional Planner (MCIP, RPP) trained in systems ecology, environmental science and landscape planning, Professor Lister focuses on the relationship between landscape infrastructure, biodiversity and ecological processes. She founded and directs the TMU Ecological Design Lab, where she advised the City of Toronto on its Bird Safe Guidelines. Among other honors, Professor Lister has received the Margolese Design for Living Prize and Honorary Membership in the American Society of Landscape Architects.

American Bird Conservancy (ABC) is a non-profit organization dedicated to conserving wild birds and their habitats throughout the Americas. Founded in 1994, ABC has long been a leader in Partners in Flight and the North American Bird Conservation Initiative, and is the only U.S.-based group dedicated solely to overcoming the greatest threats facing native birds in the Western Hemisphere. ABC is also the leading force in ongoing efforts to protect birds from collisions.

II. Bird-Safe Design Can Save Hundreds of Millions of Birds Each Year in a Time of Crisis for North American Avifauna.

In the past several decades, North America has experienced a staggering net loss of almost 3 billion birds.[8] According to the U.S. Fish and Wildlife Service (FWS), "[m]ost bird families across the continent are declining, and many species are at risk of disappearing entirely."[9] Indeed, of the 1,093 species protected under the Migratory Bird Treaty Act, 90 are listed under the

[8] Kenneth V. Rosenberg et al., *Decline of the North American avifauna*, 366 SCIENCE 120, 120 (2019).
[9] *Bring Birds Back*, U.S. FISH & WILDLIFE SERV., https://www.fws.gov/program/bring-birds-back (last visited May 17, 2023).

Endangered Species Act, and well over 300 are listed by the FWS as Birds of Conservation Concern.[10] In total, nearly 40% of the bird species protected under the Migratory Bird Treaty Act have been federally identified as priorities for conservation action.[11]

The crisis is one not only of biodiversity, but also of bioabundance—nearly one-third of individual birds have disappeared from populations across North America, including those of once-common species, since 1970.[12] In a 2019 publication, *Decline of the North American avifauna*, researchers affiliated with the Cornell Lab of Ornithology, the American Bird Conservancy, the Migratory Bird Center of the Smithsonian Conservation Biology Institute, and other prestigious institutions examined 48 years' worth of data and uncovered "the cumulative loss of nearly 3 billion birds across the avifauna."[13] This loss spanned "almost all biomes" and "include[ed] once-common species[.]"[14] In comparison to 1970 levels of bird abundance, the reduction amounts to a loss of nearly one in every three birds.[15] Such devastating reductions "can degrade ecosystem integrity, reducing vital ecological, evolutionary, economic, and social services that organisms provide to their environment."[16] Declines in bioabundance also impact biodiversity: "extinction begins with loss in abundance of individuals that can result in compositional and functional changes of ecosystems."[17] Heralded by the FWS as "a wake-up call for the bird conservation community[,]" the report has underscored the need for "*immediate and significant actions* to reverse these *devastating, steep, and quick declines*."[18]

Bird collisions with glass windows loom large as both a significant contributor to the problem and a target for easily adopted solutions. Every year, building collisions kill as many as 1

---

[10] *Threats to Birds*, U.S. FISH & WILDLIFE SERV., https://www.fws.gov/library/collections/threats-birds (last visited May 17, 2023). "Birds of Conservation Concern" denotes migratory birds identified by the U.S. FWS as "likely to become candidates for listing under the Endangered Species Act" without further conservation measures. U.S. FISH & WILDLIFE SERV., BIRDS OF CONSERVATION CONCERN 2021 4 (2021).
[11] *See Threats to Birds*, U.S. FISH & WILDLIFE SERV., https://www.fws.gov/library/collections/threats-birds (last visited May 17, 2023).
[12] *See* Rosenberg et al., *supra* note 8, at 120.
[13] *Id.*
[14] *Id.*
[15] *Id.*
[16] *Id.*
[17] *Id.*
[18] *Bring Birds Back*, U.S. FISH & WILDLIFE SERV., https://www.fws.gov/program/bring-birds-back (last visited May 17, 2023) (emphasis added).

billion birds.[19] Though the precise figure is difficult to discern,[20] a 2014 systematic analysis, conducted by experts from the Migratory Bird Center of the Smithsonian Conservation Biology Institute and the FWS, and compiled from multiple data sources, estimated annual bird deaths from building collisions to be between 365 and 988 million, and possibly as high as 1.3 billion.[21] The majority of these collisions occurred at low-rises—i.e., buildings from 4 to 11 stories high—and "the vast majority of highly vulnerable species were long-distance migrants[,]" including multiple species nationally identified as Birds of Conservation Concern.[22] Based on this analysis, the FWS has identified bird collisions with buildings as ***one of the top threats to birds, second only to domesticated cats as the highest source of direct human-caused bird deaths in the country***.[23]

Fortunately, researchers have identified core factors contributing to this problem and developed effective solutions. Glass presents three major challenges for birds: (1) reflection, which leads birds to perceive glass as attractive vegetation or ordinary sky; (2) transparency, which encourages birds to try to fly through solid glass to access habitat on the other side; and (3) the "passage" effect, in which birds perceive dark glass as an unobstructed cavity they can fly through.[24] Across these three issues, major predictors of bird-building collisions include "[t]he amount of glass in a building"[25] and whether the glass reflects vegetation.[26] Particular design features can also create bird hazards. For example, glass balcony railings and glass

Dangerously Transparent Glass Walkway Between Pierce Hall and Maxwell Dworkin Laboratory. Photo by Rachel Landry.

[19] Scott R. Loss et al., *Bird–building collisions in the United States: Estimates of annual mortality and species vulnerability*, 116 CONDOR 8, 8 (2014).
[20] Even with formal monitoring, the number of bird collisions is inevitably undercounted due to such factors as scavengers that prey on dead birds before observers can find and record them and birds that are wounded in collisions and manage to fly away from the building before dying of their injuries. *See* Justine A. Kummer et al., *Use of bird carcass removals by urban scavengers to adjust bird-window collision estimates*, AVIAN CONSERVATION & ECOLOGY, 2016, at 1 (finding removal of 67.5% of the carcasses of avian collision victims by scavengers); VIVECA MORRIS, WHY YALE'S EVANS HALL IS A DEATH TRAP FOR BIRDS AND WHAT CAN BE DONE ABOUT IT 4 (2020).
[21] Loss et al., *supra* note 19, at 18.
[22] *Id.* at 8, 9, 19.
[23] *See Threats to Birds*, U.S. FISH & WILDLIFE SERV., https://www.fws.gov/library/collections/threats-birds (last visited May 17, 2023).
[24] AM. BIRD CONSERVANCY & NEW YORK CITY AUDUBON, BIRD-FRIENDLY BUILDING DESIGN 13 (2015); CITY OF TORONTO, BIRD-FRIENDLY BEST PRACTICES 18 (2016).
[25] CITY OF TORONTO, *supra* note 24, at 15.
[26] AM. BIRD CONSERVANCY & NEW YORK CITY AUDUBON, *supra* note 24, at 16.

walkways between buildings are dangerous because they appear to birds as open passages.[27] Additionally, glass-walled open-air atria, glass-windowed courtyards, and glass windows next to green roofs create significant risks because birds are attracted to the vegetation but cannot distinguish its reflection, and fly straight into reflective glass in search of food, habitat, or an exit route.[28] Finally, it is also "generally accepted that the lower stories of buildings are the most dangerous because they are at the same level as trees and other landscape features that attract birds."[29]

Ground Floor Windows Reflecting Vegetation and Creating Significant Danger for Birds. Photo by Christine Sheppard, in Christine Sheppard and Bryan Lenz, *Birds Flying Into Windows? Truths About Birds & Glass Collisions from ABC Experts*, AM. BIRD CONSERVANCY (Mar. 6, 2019), https://abcbirds.org/blog/truth-about-birds-and-glass-collisions/.

Critically, these well-studied risks mean that the problem of bird-building collisions is one we *know* how to solve. Researchers have developed an array of options that can be used to minimize collisions with glass windows.[30] Additionally, knowledge of design traps allows architects, developers, and building managers to either avoid these features in the first instance, or identify specific areas that require bird-safe glass.[31] Indeed, while buildings that pose the aforementioned hazards cause hundreds of bird deaths each year,[32] employed mitigation measures

[27] AM. BIRD CONSERVANCY & NEW YORK CITY AUDUBON, *supra* note 24, at 13.
[28] *See* CITY OF TORONTO, *supra* note 24, at 19-20.
[29] CITY OF TORONTO, *supra* note 24, at 19.
[30] *See id.* at 25-26; AM. BIRD CONSERVANCY & NEW YORK CITY AUDUBON, BIRD-FRIENDLY BUILDING DESIGN 19-24 (2015); U.S. FISH & WILDLIFE SERV., REDUCING BIRD COLLISIONS WITH BUILDINGS AND BUILDING GLASS BEST PRACTICES 5-7 (2016).
[31] *See* CITY OF TORONTO, BIRD-FRIENDLY BEST PRACTICES 24 (2016); AM. BIRD CONSERVANCY & NEW YORK CITY AUDUBON, *supra* note 30, at 19.
[32] *See, e.g.*, VIVECA MORRIS, WHY YALE'S EVANS HALL IS A DEATH TRAP FOR BIRDS AND WHAT CAN BE DONE ABOUT IT 1 (2020); Scott R. Loss et al., *Bird–building collisions in the United States: Estimates of annual mortality and species vulnerability*, 116 CONDOR 8, 21 (2014).

have reduced bird deaths by as much as 94%.[33] ***Therefore, if adopted broadly, bird-safe design has the potential to save hundreds of millions of birds each year.***

III. In Accordance With Its Own Sustainability Action Plan, Harvard University Should Adopt Bird-Safe Measures to Address This Ecological Crisis.

North American birds have experienced a drastic decline of almost 3 billion and continue to die in massive numbers from preventable collisions with buildings. To help stem this crisis, it is imperative that Harvard University adopt a bird-safe building policy to satisfy its moral and ecological responsibilities to this wildlife, to uphold the principles of its Sustainability Action Plan, and to better integrate environmental impact with aesthetics and costs in the campus development process.

A. Harvard University should take reasonable steps to minimize its contribution to the avian biodiversity and bioabundance crisis and help avert ecological disaster.

The staggering decline in North American bird populations represents a major environmental crisis that society cannot afford to ignore. Bird collisions with buildings are one of the top two direct human causes of bird deaths every year, despite the fact that effective design solutions are available. As a leader in sustainability, Harvard University should adopt measures to make its campus bird-safe and minimize its contribution to this ecological catastrophe.

As detailed above, North American birds are facing a crisis of both biodiversity and bioabundance: close to 40% of the bird species protected by the Migratory Bird Treaty Act are listed as priorities for conservation action, and bird populations have been reduced over the past several decades by almost 3 billion.[34] This crisis comes at a time when wildlife and the ecosystems that depend on them are more imperiled than ever before in human history: research shows that "our global society has started to destroy species of other organisms at an accelerating rate, initiating a mass extinction episode unparalleled for 65 million years."[35] As experts have repeatedly urged, these overlapping ecological threats demand immediate action: "Averting a dramatic decay of biodiversity and the subsequent loss of ecosystem services [—i.e., the benefits

[33] FLAP CANADA, AN ANALYSIS OF COLLISION MITIGATION EFFECTIVENESS 29 (2018).
[34] *See Threats to Birds*, U.S. FISH & WILDLIFE SERV., https://www.fws.gov/library/collections/threats-birds (last visited May 17, 2023); Kenneth V. Rosenberg et al., *Decline of the North American avifauna*, 366 SCIENCE 120, 120 (2019).
[35] Gerardo Ceballos et al., *Accelerated modern human-induced species losses: Entering the sixth mass extinction*, SCIENCE ADVANCES, June 19, 2015, at 4.

human society receives from healthy ecosystems—] is still possible through intensified conservation efforts, but that window of opportunity is rapidly closing."[36]

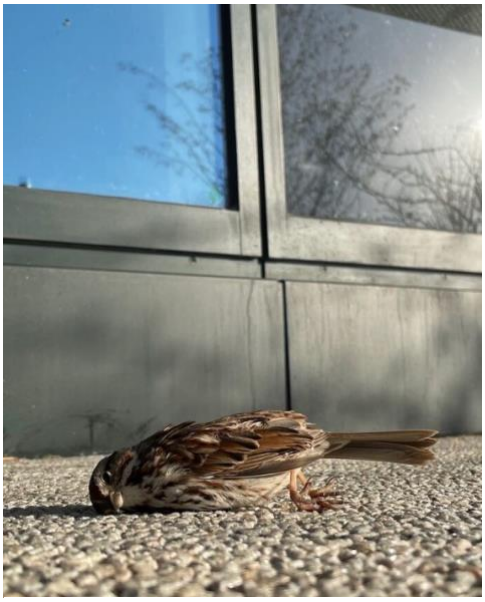
Conserving birds is critical not only for the sake of these incredible creatures and their extraordinary aesthetic value to humanity, but also for the ecosystems and communities that rely on them. Among many valuable behaviors, birds help protect crops and forests from damage by "consum[ing] vast quantities of insects and control[ling] rodent populations[.]"[37] Their control of insect and rodent populations also helps limit disease transmission, safeguarding communities from such serious diseases as malaria, West Nile virus, and dengue fever.[38] Additionally, "their foraging, seed dispersal, and pollination activities help maintain ecosystems[.]"[39] Moreover, while conservation often focuses on threatened species, the drastic reduction in bird populations is vital in part precisely because it encompasses traditionally "common" species: such species "may be disproportionately influential components of food webs and ecosystem function" and even their mere reduction may be acutely felt.[40] Economically, birds support a multi-billion-dollar birdwatching industry: according to the FWS, birders number over 45 million, and their $39 billion in trip and equipment expenditures in 2016 alone "generated approximately $96 billion in total industry output across the United States" and "created 782,000 jobs[.]"[41] In light of these significant benefits, the FWS has emphasized that ***"[b]ird population declines can harm ecosystem integrity and reduce economic and ecological services," and the effort to halt their dramatic decline is therefore of the utmost urgency and importance***.[42]

Experts have highlighted the need "to minimiz[e] avoidable anthropogenic mortality year-round[,]"[43] and bird-safe design presents a perfect opportunity: it matches a devastating problem

---

[36] Ceballos et al., *supra* note 35, at 1; *see also* Kenneth V. Rosenberg et al., *supra* note 34, at 120 ("This loss of bird abundance signals an urgent need to address threats to avert future avifaunal collapse and associated loss of ecosystem integrity, function, and services."); *Bring Birds Back*, U.S. FISH & WILDLIFE SERVICE, https://www.fws.gov/program/bring-birds-back (last visited May 17, 2023). *See generally Ecosystem Services & Biodiversity*, FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS, https://www.fao.org/ecosystem-services-biodiversity/en/ (last visited May 27, 2023) ("Ecosystem services are the multitude of benefits that nature provides to society.").
[37] AM. BIRD CONSERVANCY & NEW YORK CITY AUDUBON, BIRD-FRIENDLY BUILDING DESIGN 7 (2015).
[38] *Id.*
[39] Christopher J. Whelan et al., *Ecosystem Services Provided by Birds*, 1134 ANNALS OF THE NEW YORK ACAD. OF SCI. 25, 26 (2008).
[40] Kenneth V. Rosenberg et al., *Decline of the North American avifauna*, 366 SCIENCE 120, 120 (2019).
[41] U.S. FISH & WILDLIFE SERV., BIRDING IN THE UNITED STATES: A DEMOGRAPHIC AND ECONOMIC ANALYSIS 12 (2016).
[42] U.S. FISH & WILDLIFE SERV., REDUCING BIRD COLLISIONS WITH BUILDINGS AND BUILDING GLASS BEST PRACTICES 2 (2016).
[43] Kenneth V. Rosenberg et al., *Decline of the North American avifauna*, 366 SCIENCE 120, 122 (2019).

with a demonstrated solution. Glass windows rank among the top two direct anthropogenic causes of bird deaths.[44] Studies have shown that specific species, including national Birds of Conservation Concern, are particularly vulnerable to collisions, making corresponding population declines even more likely.[45] At the same time, experts have consistently identified the same core features, such as extensive glass surfaces and surrounding vegetation, and major design traps, such as glass walkways, railings, and atria, as substantial threats to birds.[46] As a result, experts have been able to devise detailed recommendations and standards to reduce bird collisions,[47] and bird-safe design strategies have been shown to reduce collisions by as much as 94%.[48] ***Applying this figure to the broader scope of the problem, bird-safe design has the potential to save hundreds of millions of birds per year***. Therefore, with North American bird populations experiencing a dramatic decline of nearly 3 billion, bird-safe design is no longer an eco-friendly option but rather an ecological imperative.


Recent Victim of a Building Collision on Harvard's Campus. Photo by Richard Pollack.

Harvard University has a key role to play to address this crisis as both a powerful real estate owner and developer along the Atlantic Flyway and a prominent academic institution known for sustainability leadership. Though collisions with Harvard's existing buildings have yet to be formally monitored, we know from anecdotal evidence that bird collisions occur each year, particularly during migratory seasons. It is also well documented that the numbers of deaths and injuries from bird collisions with glass are sorely

[44] *Threats to Birds*, U.S. FISH & WILDLIFE SERV., https://www.fws.gov/library/collections/threats-birds (last visited May 17, 2023).
[45] *See* Scott R. Loss et al., *Bird–building collisions in the United States: Estimates of annual mortality and species vulnerability*, 116 CONDOR 8, 16, 21 (2014) ("the several bird species that are disproportionately vulnerable to building collisions may be experiencing significant population impacts from this anthropogenic threat").
[46] *See* AM. BIRD CONSERVANCY & NEW YORK CITY AUDUBON, BIRD-FRIENDLY BUILDING DESIGN 13-14, 16, 39-40 (2015); CITY OF TORONTO, BIRD-FRIENDLY BEST PRACTICES 19-20 (2016); U.S. FISH & WILDLIFE SERV., REDUCING BIRD COLLISIONS WITH BUILDINGS AND BUILDING GLASS BEST PRACTICES 2 (2016); *see generally* AM. BIRD CONSERVANCY, BIRD COLLISIONS WITH GLASS: AN ANNOTATED BIBLIOGRAPHY (2008) (last updated Nov. 2022).
[47] *See, e.g.*, AM. BIRD CONSERVANCY & NEW YORK CITY AUDUBON, *supra* note 46; CITY OF TORONTO, *supra* note 46; NYC BUILDINGS, BIRD FRIENDLY BUILDING DESIGN & CONSTRUCTION REQUIREMENTS GUIDANCE DOCUMENT (2020).
[48] *See* FLAP CANADA, AN ANALYSIS OF COLLISION MITIGATION EFFECTIVENESS 29 (2018).

undercounted.[49] Further, the current lack of a mandatory bird-safe design policy for *new* construction leaves the University susceptible to dramatically escalating the numbers of bird deaths caused by its campus. [50]

In many ways, the creation of high-collision buildings stems from two key criteria: location and design.[51] Harvard clearly satisfies the former: it is located along the Atlantic Flyway,[52] making it a common destination for migratory birds that frequently fall prey to building collisions.[53] The second criterion is a matter of individual building design, dependent on the extent to which glass, vegetation, and known hazards feature in the construction of the building and its specific environs:[54] it is a criterion entirely within Harvard's ability to control, yet currently not subject to any mandatory safeguards.

In this respect, the experiences of other institutions provide a crucial cautionary tale: in the absence of bird-safe design standards, individual buildings have been known to kill "[h]undreds to greater than one thousand birds per year."[55] In an illustrative example from one of Harvard's

---

[49] The number of bird collisions is inevitably undercounted due to such factors as scavengers that prey on dead birds before observers can find and record them, birds that are wounded in collisions and manage to fly away from the building before dying of their injuries, and the imperfection of human detection methods. *See* Justine A. Kummer et al., *Use of bird carcass removals by urban scavengers to adjust bird-window collision estimates*, AVIAN CONSERVATION & ECOLOGY, 2016, at 1 (finding removal of 67.5% of the carcasses of avian collision victims by scavengers); Corey S. Riding & Scott R. Loss, *Factors influencing experimental estimation of scavenger removal and observer detection in bird-window collision surveys*, 28 ECOLOGICAL APPLICATIONS 2119, 2119-20 (2018) (noting the "significant under-detection bias" in studies of bird-window collision mortality and citing the removal of carcasses by scavengers and imperfect detection by human monitors as two major contributors to undercounts); VIVECA MORRIS, WHY YALE'S EVANS HALL IS A DEATH TRAP FOR BIRDS AND WHAT CAN BE DONE ABOUT IT 4 (2020) (discussing reasons for undercounts in a Yale University building-monitoring effort). Here, the likelihood of undercounts among our anecdotal evidence is even higher, since we have yet to develop a regular team of monitors and have therefore relied on informal observations from staff, as well as concerned birders.

[50] We recognize and greatly appreciate the tremendous work done by the Harvard University Environmental Health and Safety Office in identifying and advising the University of tensions between proposed building designs and surrounding wildlife. Nevertheless, until there is a *mandatory* policy in place, this critical input remains a recommendation, at risk of being cast aside in the face of cost or aesthetic concerns.

[51] *See* CITY OF TORONTO, *supra* note 46, at 8 (citing Toronto's location at the intersection of major migratory bird routes as a key contributing factor to its high rates of bird-building collisions); VIVECA MORRIS, WHY YALE'S EVANS HALL IS A DEATH TRAP FOR BIRDS AND WHAT CAN BE DONE ABOUT IT 1 (2020) (detailing how combining multiple bird hazards can lead to especially high rates of collisions for a single building).

[52] *See Atlantic Flyway*, AUDUBON SOCIETY, https://www.audubon.org/atlantic-flyway (last visited May 17, 2023).

[53] *See* Scott R. Loss et al., *Bird–building collisions in the United States: Estimates of annual mortality and species vulnerability*, 116 CONDOR 8, 19 (2014) ("the vast majority of highly vulnerable species were long-distance migrants").

[54] *See* VIVECA MORRIS, WHY YALE'S EVANS HALL IS A DEATH TRAP FOR BIRDS AND WHAT CAN BE DONE ABOUT IT 2 (2020) (detailing how combining multiple bird hazards can lead to especially high rates of collisions for a single building); *see also* AM. BIRD CONSERVANCY & NEW YORK CITY AUDUBON, BIRD-FRIENDLY BUILDING DESIGN 13-14, 16 (2015) (describing designs known to be particularly deadly for birds); CITY OF TORONTO, BIRD-FRIENDLY BEST PRACTICES 19-20 (2016) (same).

[55] Loss et al., *supra* note 53, at 21.

peers, Yale University constructed its School of Management without regard for bird safety,[56] despite also being located along the Atlantic Flyway.[57] The result was a building that prominently combines the dangerous design elements detailed above in a façade predominantly made of glass.[58] Unsurprisingly, the building has killed hundreds of birds and generated significant controversy, a predictable catastrophe that would have been avoided if a strong bird-safe design policy had been in place at that time.[59] Similar to the Yale School of Management, Toronto's Consilium Towers "once killed thousands of birds each year."[60] These examples illustrate how *a single building can kill scores of birds each year*, if it simply combines the wrong location with the wrong design features. Accordingly, as a major real estate developer along the Atlantic Flyway, Harvard University should adopt a mandatory bird-safe design policy to safeguard against such fatal combinations.

Although a single institution's impact may seem small in the context of the broader avian crisis, its effect on local conservation priorities may be significant. In this respect, Harvard University should heed bird-safe design guidelines because of its proximity to species that are both highly vulnerable to building collisions and federally identified as Birds of Conservation Concern. Specifically, experts have identified the Wood Thrush and the Canada Warbler as "highly vulnerable to building collisions[,]" meaning that they experience greater risks of collisions compared to average species and are more likely to experience corresponding population

Wood Thrush. Still Image from Video by Jim Zipp, in Am. Bird Conservancy, *Listen to the song of the Wood Thrush*, YOUTUBE (APR. 11, 2019), https://www.youtube.com/watch?v=g7TXeou9XQk.

Canada Warbler. Photo by Agami Photo Agency/Shutterstock, in *Canada Warbler*, AM. BIRD CONSERVANCY, https://abcbirds.org/bird/canada-warbler/#:~:text=Canada%20Warbler%20pairs%20are%20seasonally,on%20or%20near%20the%20ground. (last visited May 27, 2023).

[56] *See* MORRIS, *supra* note 54, at 1.
[57] *See Atlantic Flyway*, AUDUBON SOCIETY, https://www.audubon.org/atlantic-flyway (last visited May 17, 2023).
[58] *See* MORRIS, *supra* note 54, at 2.
[59] *Id.*
[60] AM. BIRD CONSERVANCY & NEW YORK CITY AUDUBON, BIRD-FRIENDLY BUILDING DESIGN 29 (2015).

impacts.[61] Both of these species are listed as Birds of Conservation Concern[62] as well as Massachusetts Species of Greatest Need.[63] The Wood Thrush commonly breeds throughout Massachusetts, including Middlesex County and even at times in suburban patches of shrubby vegetation,[64] and, though Canada Warblers are comparatively sparse in eastern Massachusetts, they have been known to breed in portions of Middlesex County.[65]

Harvard's status as a prominent leader in sustainability means that the impact of its bird-safe design policies, or lack thereof, extends beyond its own campus. Harvard has a proud history of sustainability leadership and strives "to offer effective models for institutional operations that can be adopted by others."[66] Regarding the environmental issue in question, both the problem and the solution are well-known; all that remains necessary for change is a commitment to address them. By adopting a bird-safe design policy, Harvard University would send a powerful message that birds matter, for their own sake, for the sake of humans who derive much pleasure from observing them, and for their vital ecological roles—and that their staggering decline should no longer be tolerated.

B. The adoption of a bird-safe policy aligns with Harvard University's Sustainability Action Plan.

In the new Harvard University Sustainability Action Plan, President Lawrence Bacow emphasized the University's "responsibility to act – and to do so with urgency" to "[e]nsure a sustainable planet and protect[] it for future generations[.]"[67] The devastating decimation of North American birds aligns perfectly with this mission: halting the crisis is vital to "[e]nsuring a sustainable planet" in which the incredible array of avifauna that currently abound are maintained

---

[61] Scott R. Loss et al., *Bird–building collisions in the United States: Estimates of annual mortality and species vulnerability*, 116 CONDOR 8, 16, 21 (2014)
[62] U.S. FISH & WILDLIFE SERV., BIRDS OF CONSERVATION CONCERN 202122- 23 (2021).
[63] *Massachusetts Species of Greatest Conservation Need (SGCN)*, MASS.GOV, https://www.mass.gov/info-details/massachusetts-species-of-greatest-conservation-need-sgcn#birds (last visited May 17, 2023).
[64] *Wood Thrush*, MASS AUDUBON, https://www.massaudubon.org/our-conservation-work/wildlife-research-conservation/bird-conservation-monitoring/breeding-bird-atlases/bba1/find-a-bird/(id)/133 (last visited May 17, 2023).
[65] *Canada Warbler*, MASS AUDUBON, https://www.massaudubon.org/our-conservation-work/wildlife-research-conservation/bird-conservation-monitoring/breeding-bird-atlases/bba2/find-a-bird/(id)/5328#:~:text=The%20Canada%20Warbler%20is%20a,of%20the%20twenty%2Dfirst%20century (last visited May 17, 2023).
[66] HARVARD UNIVERSITY, HARVARD UNIVERSITY SUSTAINABILITY PLAN 2 (2023).
[67] *Id.*

for future generations. And, in light of the scale of the crisis and availability of mitigation measures, the University indeed has an urgent "responsibility to act."[68]

Harvard University's vision of sustainability necessarily encompasses adopting reasonable measures to protect birds and other wildlife. The Sustainability Action Plan defines sustainability as "[m]eeting the needs and aspirations of the present without compromising the ability of future generations to meet their own needs."[69] Adopting bird-safe design policies would do just that: it would ensure that present needs of safe, cost-effective, and aesthetically pleasing buildings are met without compromising the interests of future generations in enjoying and receiving the many ecological benefits from the extraordinary avifauna that currently inhabit our campus.

Moreover, the Message from the Presidential Committee on Sustainability directly acknowledges the urgency of the broader biodiversity crisis: **"*We must now consider the multiple overlapping and interconnected crises we all face – from intensifying climate change to significant biodiversity loss*[.]"**[70] Although the Sustainability Action Plan focuses on "climate, equity, and health," there is no question that these priorities are inextricably intertwined with the contemporary crisis of biodiversity loss. We therefore urge the University to seize the opportunity to mitigate the biodiversity crisis.

Bird-safe design also reinforces the Sustainability Action Plan's energy efficiency objectives. Among its goals, Harvard has committed to "build[ing] sustainably[,]" "provid[ing] capital for energy efficiency[,]" and "improv[ing] building energy efficiency[.]"[71]As the FWS has emphasized, bird-safe design measures "not only provide protection to birds but also provide energy and cost savings to building owners."[72] In particular, "[e]liminating or reducing unnecessary lighting can save energy and reduce costs to building owners while simultaneously reducing bird collisions with glass[,]"[73] and limiting the extent of glass surfaces on building façades can help limit energy use for heating and cooling.[74] Similarly, the U.S. Green Building Council, the organization behind the LEED standards currently employed by Harvard's Sustainable Building Standards, has specifically highlighted how its Bird Collision Deterrence

[68] *Id.*
[69] *Id.* at 12.
[70] *Id.* at 4 (emphasis added).
[71] *Id.* at 40-41.
[72] U.S. FISH & WILDLIFE SERV., REDUCING BIRD COLLISIONS WITH BUILDINGS AND BUILDING GLASS BEST PRACTICES 2 (2016).
[73] *Id.* at 9.
[74] AM. BIRD CONSERVANCY & NEW YORK CITY AUDUBON, BIRD-FRIENDLY BUILDING DESIGN 5 (2015).

Credit "proves that animal conservation and energy efficiency can go hand in hand": bird-safe design "can save on operating and energy costs, especially when these types of strategies are incorporated into the initial design phase rather than after the fact."[75] Critically, "*there is no incidental operating cost to making a building bird-friendly*."[76] In this respect, bird-safe design standards would simply require the University to be mindful of ways in which its existing goals can be carried out in a manner that simultaneously safeguards this important wildlife.

Finally, while the Sustainability Action Plan envisions Harvard as a leader in environmental sustainability, bird-safe design is an area in which the University is quickly falling behind. As President Bacow stated, Harvard University has "a proud legacy of taking institutional action to advance sustainability" and strives to "offer effective models for institutional operations that can be adopted by others."[77] However, the University has yet to adopt such leadership on the issue of bird-safe design. Its failure to address this issue unfortunately stands in stark contrast to the universities that have embraced bird-safe design as a vital sustainability measure. As mentioned above, many peer institutions have undertaken bird-safe campus efforts, including Yale,[78] Princeton,[79] Cornell,[80] Duke,[81] the University of British Columbia,[82] Northwestern,[83] and the University of Pennsylvania.[84] Likewise, more than twenty cities and counties across the United States and Canada, including New York, NY; Washington, D.C.; and San Francisco, CA, have all

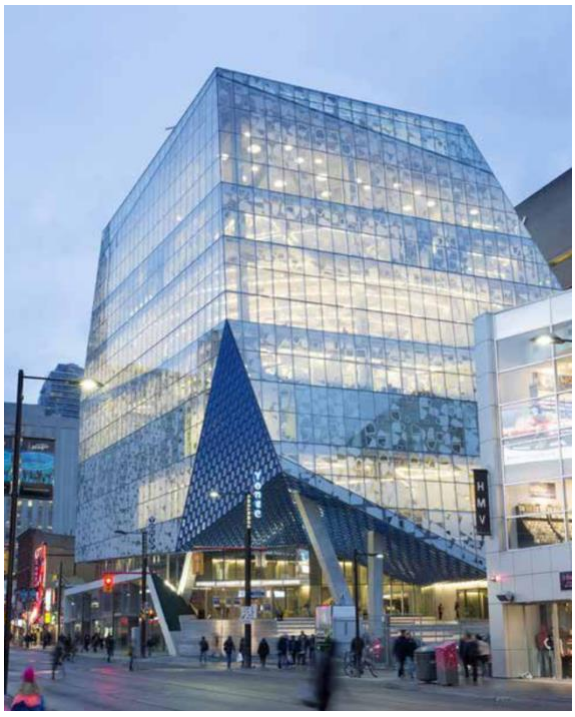
---

[75] Karema Seliem, *LEED projects save energy by saving birds*, U.S. GREEN BUILDING COUNCIL (Apr. 20, 2020) https://www.usgbc.org/articles/leed-projects-save-energy-saving-birds.
[76] *Id,*
[77] HARVARD UNIVERSITY, HARVARD UNIVERSITY SUSTAINABILITY PLAN 2 (2023).
[78] *See Our Work*, YALE BIRD-FRIENDLY BLDG INITIATIVE, https://bird-friendly.yale.edu/our-work (last visited May 17, 2023); YALE UNIV., YALE OFF. OF FACILITIES PROC. MANUAL: YALE DESIGN STANDARD (2019) (available at https://facilities.yale.edu/sites/default/files/files/Design%20Standards/Updated%20Design%20Standards/01%20General%20Requirements/01%2083%2000%20Facility%20Shell%20Performance%20(Birds)%2019_0715.pdf).
[79] *See Council on Science and Technology: Bird-Friendly Campus Project UAF*, PRINCETON UNIV., https://gradfutures.princeton.edu/council-science-and-technology-bird-friendly-campus-project-uaf (last visited May 17, 2023).
[80] *See* Ellie VanHouten, *Advances in Window Safety Come to the Cornell Lab And Cornell Campus*, ALL ABOUT BIRDS (Sept. 23, 2022) https://www.allaboutbirds.org/news/advances-in-window-safety-come-to-the-cornell-lab-and-cornell-campus/#.
[81] *See Bird-Window Collision Project at Duke*, DUKE.EDU, https://sites.duke.edu/birdcollisions/window-strike-project-at-duke/ (last visited May 17, 2023).
[82] *See Bird Friendly Design*, THE UNIV. OF B.C., https://sustain.ubc.ca/bird-friendly-design#:~:text=Each%20year%2C%20about%2010%2C000%20birds,control%2C%20pollination%20and%20seed%20dispersal (last visited May 17, 2023).
[83] *See* Libby Hill, *Northwestern Develops New Bird-Friendly Program*, EVANSTON ROUND TABLE (FEB. 7, 2018) https://evanstonroundtable.com/2018/02/07/northwestern-develops-new-bird-friendly-program/
[84] *See Bird-Friendly Penn*, UNIV. OF PA. SUSTAINABILITY, https://sustainability.upenn.edu/initiatives/designing-green/bird-friendly-penn (last visited May 17, 2023).

adopted bird-safe design standards.[85] Indeed, Congress is also considering measures to make its buildings bird-safe.[86] In keeping with its status as a leader in sustainability, Harvard should therefore join the many universities and governments that have recognized bird-safe design as an integral part of sustainable building.

C. Bird-safe design standards will allow the University to protect local wildlife while ensuring that its buildings remain cost-effective and aesthetically pleasing.

Significant advances in bird-safe design have allowed architects and developers to protect birds without adding exorbitant costs or sacrificing aesthetics. The plethora of attractive, cost-effective bird-safe design options means that Harvard University can and should adopt standards that minimize its contribution to the avian crisis at little cost to other development priorities.



Student Learning Center at Toronto Metropolitan University. Photo by Lorne Birdgman, in CITY OF TORONTO, BIRD-FRIENDLY BEST PRACTICES 5 (2016).

Numerous examples of contemporary architecture demonstrate that buildings can be both beautiful and bird-safe. As a result of extensive research on the bird-building collision issue, architects now have a diverse array of options for incorporating bird-safe concepts into their designs, ranging from decorative grilles to netting to fritted glass, and they can also strategically design their buildings to avoid incidental bird hazards.[87] This abundance of bird-safe design features and strategies has led to the creation of gorgeous works of bird-safe architecture, such as the Brooklyn Botanic Gardens Visitors Center, the Frank Gehry-designed IAC Building, and the Snøhetta-designed Student Learning Center at Toronto Metropolitan University.[88] ***Indeed, Jeanne Gang, world-renowned architect and the Harvard***

[85] *Existing Bird-Friendly Legislation and Ordinances*, AM. BIRD CONSERVANCY, https://abcbirds.org/glass-collisions/existing-ordinances/ (last visited May 17, 2023).
[86] Jordan Rutter & Christine Sheppard, *Legislation to Reduce Bird Collisions Passes the U.S. House of Representatives*, AMERICAN BIRD CONSERVANCY, https://abcbirds.org/news/bird-safe-buildings-act-passes-us-house-of-representatives/ (last visited May 17, 2023).
[87] *See* AM. BIRD CONSERVANCY & NEW YORK CITY AUDUBON, BIRD-FRIENDLY BUILDING DESIGN 19-24 (2015).
[88] *See id.* at 19, 22, 40; *see also* Elizabeth Stamp, *Why Fritted Glass Makes Buildings Even Better*, ARCHITECTURAL DIG. (Aug. 4, 2016) https://www.architecturaldigest.com/gallery/why-fritted-glass-makes-buildings-even-better.

Graduate School of Design's own Professor in Practice, and her design practice Studio Gang have designed many stunning bird-safe structures, such as the famous Aqua Tower (Chicago, IL), the American Museum of Natural History's Richard Gilder Center (New York, NY), the University of Chicago Campus North Residential Commons (Chicago, IL), the Bengt Sjostrom Starlight Theatre (Rockford, IL), the Ford Calumet Environmental Center (Chicago, IL), the Writers Theatre (Glencoe, IL), and Arbor (San Jose, CA).[89] These examples prove that reducing bird-building collisions need not come at a cost to aesthetics.

University of Chicago Campus North Residential Commons. Image in *University of Chicago Campus North Residential Commons*, STUDIO GANG, https://studiogang.com/project/university-of-chicago-campus-north-residential-commons (last visited May 27, 2023).

Aqua Tower. Photo by Steve Hall © Hedrich Blessing, in *Aqua Tower*, STUDIO GANG, https://studiogang.com/project/aqua-tower (last visited May 27, 2023).

Likewise, bird-safe design can be carried out cost-effectively. As the American Bird Conservancy has explained, by avoiding unnecessary hazards, "[n]ew construction can incorporate from the beginning bird-friendly design strategies that are cost neutral."[90] In fact, bird-safe design can actually *reduce costs* because less glass on a façade corresponds to lower heating and cooling costs.[91] Thus, by accounting for bird collisions at the design phase, Harvard can construct bird-

[89] *See Projects Tagged Bird-Safe*, STUDIO GANG, https://studiogang.com/projects/all/tag-birdsafe (last visited May 17, 2023); *Richard Gilder Center for Science, Education, and Innovation at the American Museum of Natural History*, STUDIO GANG, https://studiogang.com/project/gilder-center (last visited May 29, 2023).
[90] *See* AM. BIRD CONSERVANCY & NEW YORK CITY AUDUBON, *supra* note 87, at 5.
[91] *Id.* Furthermore, even if considering bird-safe measures incurs costs in the design phase, accounting for bird collisions at the outset is likely more cost-effective than retrofitting later: in comparison to retrofits, for which even the best bird-friendly films need to be replaced every few years, new construction can avoid the cost of bird hazards entirely or use fritted glass, which has a longer lifespan. *See id.*; CITY OF TORONTO, BIRD-FRIENDLY BEST PRACTICES 27 (2016).

safe buildings in a way that does not incur substantial costs in the short-term and even reduces them in the long-term.

IV. Using Bird Safe Windows Would Be Consistent with the Migratory Bird Treaty Act.

The Migratory Bird Treaty Act makes it unlawful to "take" any migratory bird.[92] The term "take" is defined to include "wound, kill, capture, or collect."[93] It has been held that this prohibition applies to actions that foreseeably "take" a migratory bird, regardless of whether that was the purpose of the underlying activity, *see Natural Res. Def. Council v. U.S. Dep't of Interior*, 478 F. Supp. 3d 469 (S.D. N.Y. 2020), and the Fish and Wildlife Service has now announced that this is the correct interpretation of the law. *See* 86 Fed. Reg. 54642 (Oct. 4, 2021) (Fish and Wildlife Service explaining this). While there currently is no permitting system in place for such "incidental" takes of migratory birds, the FWS is currently engaged in a rulemaking proceeding to identify certain "human caused sources" of bird mortality for which an incidental take permit would be required in the future in an effort to stem the tide of deaths of migratory birds.[94] Therefore, in addition to the ethical, moral, and conservation reasons to use bird safe windows at Harvard, doing so would also be consistent with the objectives of the MBTA.

V. Harvard University Should Adopt Bird-Safe Building Policies, Including Funding for Monitoring and Retrofitting Existing Buildings and Mandatory Standards for New Construction.

In light of the above, Harvard University must act immediately to address the problem of bird-building collisions. Specifically, the University should incorporate in its Sustainable Building Standards mandatory bird-safe design standards for new construction, as many cities and institutions have already done. In adopting such standards, the University may consider the various models and guidelines that have been developed, such as the New York Bird Friendly Building Design & Construction Requirements,[95] the Toronto Green Standard Bird Collision Deterrence

[92] 16 U.S.C. § 703.
[93] 50 C.F.R. § 10.12.
[94] *See* 86 Fed. Reg. 54667 (Oct. 4, 2021).
[95] NYC BUILDINGS, BIRD FRIENDLY BUILDING DESIGN & CONSTRUCTION REQUIREMENTS GUIDANCE DOCUMENT (2020) (available at https://www.nyc.gov/assets/buildings/bldgs_bulletins/bird_friendly_guidance_document.pdf).

Measure,[96] and the LEED Bird Collision Deterrence Credit.[97] Additionally, since the Harvard University campus currently contains several untreated bird hazards, the University should follow Yale's lead and provide funding for formal efforts to monitor problems with existing buildings and undertake retrofits as necessary.[98] Through these measures, Harvard University can begin to create a campus that protects birds and preserves ecosystems to the benefit of all Harvard community members, human and nonhuman, in the present and for the future.

For all of these reasons, we respectfully urge Harvard University to embrace its status as an institution at the forefront of sustainability and do its part to address hundreds of millions of preventable bird deaths. Our Clinic and the signatories to this request stand ready and willing to assist Harvard in this important endeavor.

Sincerely,

Katherine A. Meyer
Director
Animal Law & Policy Clinic
Harvard Law School

Allyson Gambardella
Student Clinician
Animal Law & Policy Clinic
Harvard Law School

Rachel Landry
Student Clinician
Animal Law & Policy Clinic
Harvard Law School

Jeremiah Scanlan
Student
Harvard Law School

Dr. Scott V. Edwards
Professor of Zoology and Curator of Ornithology
Museum of Comparative Zoology
Harvard University

Nina-Marie Lister
Visiting Professor of Landscape Architecture
Graduate School of Design
Harvard University

Dr. Christine Sheppard
Director
Glass Collisions Program
American Bird Conservancy

[96] *See Toronto Green Standards: Ecology & Biodiversity*, TORONTO.CA, https://www.toronto.ca/city-government/planning-development/official-plan-guidelines/toronto-green-standard/toronto-green-standard-version-4/mid-to-high-rise-residential-non-residential-version-4/ecology-biodiversity/ (last visited May 17, 2023); *see also* CITY OF TORONTO, BIRD-FRIENDLY BEST PRACTICES (2016) (available at https://www.toronto.ca/wp-content/uploads/2017/08/8d1c-Bird-Friendly-Best-Practices-Glass.pdf).

[97] *Innovation: Bird Collision Deterrence*, U.S. GREEN BUILDING COUNCIL, https://www.usgbc.org/credits/new-construction-core-and-shell-schools-new-construction-retail-new-construction-data-75 (last visited May 17, 2023).

[98] Without formal monitoring, it is impossible to know how many birds are dying each year as a result of collisions with existing buildings. Through our research, however, we have identified design features on campus, such as glass walkways between buildings, that are known to be particularly deadly for birds, and we have collected anecdotal evidence that indicates these areas are indeed killing birds. As explained above, *see supra* note 20, significant undercounts are known to occur even with rigorous formal monitoring, and the likelihood of undercounts among our anecdotal evidence is even higher, since we have yet to develop a regular team of monitors and have therefore relied on observations from staff, as well as concerned birders. Areas that warrant formal monitoring include the glass passageway between Pierce Hall and the Maxwell Dworkin Laboratory, the glass windows surrounding the second-floor courtyard of Wasserstein Hall, and the glass panels on Areeda Hall.

CC: David Havelick, Assistant Director, Office for Sustainability, Harvard University

Chris Green, Executive Director, Brooks McCormick Jr. Animal Law & Policy Program, Harvard University

Kristen Stilt, Faculty Director, Brooks McCormick Jr. Animal Law & Policy Program, Harvard University