

# What is Happening? Documenting a Massive Bird Kill in Center City Philadelphia

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## Prologue

October 2, 2020, will long be remembered by the Philadelphia birding community as one of the city's most horrendous bird mortality events ever recorded.

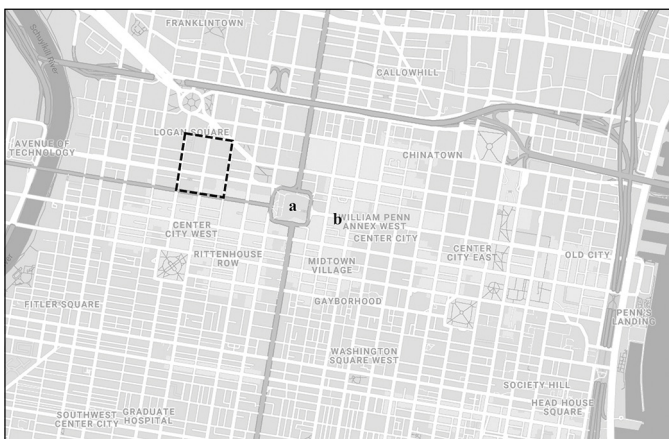
During the fall of 2020, I volunteered to monitor a section of the downtown area for dead and injured birds that had collided with buildings. I had previously monitored the same area twice a week (other volunteers covered other days) for a study of bird collisions conducted by Audubon Pennsylvania (AP, now Audubon Mid-Atlantic), the Philadelphia Zoo, and the Academy of Natural Sciences (ANS) from 2008 to 2011 (Fig. 1). During that study — which provided baseline information about bird collisions within the study area (species, numbers, locations, etc.) and whose results have not been published — I learned a lot about the problem of birds colliding with buildings. I was determined to help protect birds from this growing threat.

Despite my commitment to making a difference, monitoring bird collisions was not easy 15 years ago.

Walking the sidewalks of downtown Philadelphia during the early morning hours, looking for casualties, and taking photos several years after the 9/11 tragedy sometimes created angst. The management of some of the buildings I monitored did not care about dead or injured birds or people like me interested in saving them. On several occasions, I was threatened by building staff and once even told that I would be punched if I moved as they were calling the police. One morning, just as I was completing my daily monitoring duties, a car appeared beside my vehicle and blocked my departure. I rolled down my window. The detectives told me they had been watching me. They had a report of a terrorist casing out the Fred DiBona (FD) building. After they saw me enter my Scion xB compact car, they said, “No terrorist would drive such a car!”

After the monitoring study ended in 2011, I could devote more time to my other interests, particularly my interest in the family of plants known as *Gesneriaceae*. This led to my participation in several plant-finding expeditions in China, Vietnam, Indonesia, Cuba, and Ecuador. In 2012, I co-founded the Gesneriad Conservation Center of China in Guilin, China, the world's first center dedicated to saving these plants from extinction. My desire to make a difference for the huge numbers of birds dying from collisions with buildings never went away. So, when my best friend, Michael LoFurno, said, “What have you done lately for your first love, birds?” I made a decision.

In 2020, during the early phase of the COVID-19 pandemic, I decided to monitor the same Center City route area I had monitored from 2008 to 2011. A new building — the Comcast Technology Center (CTC) had recently been constructed within this area, and no one



**FIGURE 1.** Monitored area (dashed line) in Center City, Philadelphia. Historical mass bird collisions were documented at (a) City Hall in 1915 and (b) the Philadelphia Saving Fund Society (PSFS) building in 1948. Map data © 2024 Google

knew whether birds were colliding with it. I called Keith Russell, AP's Program Manager for Urban Conservation, who led the 2008-2011 study. After expressing some initial concerns about my safety because of COVID-19, he agreed to support my desire to monitor the old area again that fall. However, to accomplish my goal, during the pandemic, I decided to monitor the site entirely by myself, which meant monitoring seven days a week from September through the end of November. Using the same protocols and methods we had used during the initial study and a set of updated forms that Keith provided to record data, I embarked on this new monitoring journey on September 1, 2020. At first, the number of dead and injured birds found each day was small, and I sometimes wondered if fall migration was behind schedule. But in hindsight, nothing was askew. The number of birds gradually increased. And while I wanted all of this work to somehow make a difference for birds, I had no idea how that was actually about to occur.

My monitoring routine involved visiting 18 buildings located on the west side of Broad Street, mainly between 17th and 19th, Market and Cherry Streets (Table 1). But unlike most collision monitoring programs conducted in other cities, our Philadelphia protocols included several rounds of surveys each morning from 5:30 am until 8:00 am rather than a single monitoring round after sunrise. Because we started monitoring before dawn and ended after sunrise, we typically completed two to three full circuits of the monitoring area each day. This enabled us to find birds that had collided with buildings at night before they were removed by early morning maintenance crews and distinguish collisions that had occurred at night from those after sunrise.

### The Event

Friday, October 2, began like any other day. The temperature was 57°F. On my daily Field Report Form, I circled *cloudy*. It was foggy with drizzle, and the winds were WNW at 6 mph. I arrived at the monitoring area at 5:40 am, ten minutes late. Sunrise was expected at 6:58 am. The first two birds — a Black-throated Blue Warbler and an Ovenbird — were found dead on the sidewalk next to the FD building. At my next stop, the BNY Mellon Center (MC), I found a dead Wood Thrush, which I placed in a plastic Ziploc bag like all other dead birds. Information about

**Table 1. Buildings Monitored During the Autumn of 2020**

BUILDING ADDRESS	BUILDING NAME
100 N. 18th Street	Two Logan Square
130 N. 18th Street	One Logan Square
200 N. 18th Street	Sister Cities Café
1717 Arch Street	Three Logan Square
1724 Arch Street	Arch Street Presbyterian Church
1650 Arch Street	N/A
1800 Arch Street	Comcast Technology Center
1701 JFK Boulevard	Comcast Center
1800 JFK Boulevard	N/A
Commerce Street between 18th and 19th Streets	N/A
1815 JFK Boulevard	The Sterling Apartment Homes
1880 JFK Boulevard	N/A
1701 Market Street	6 Penn Center
1701-1735 Market Street	BNY Mellon Center "Atrium"
1735 Market Street	BNY Mellon Center
1801 Market Street	10 Penn Center
1818 Market Street	WSFS Bank Place
1835 Market Street	11 Penn Center
1901 Market Street	G. Fred DiBona Jr. Building

its discovery, including an identification number, the date, time, location, and the monitor's name, was written on the bag's label. This and additional information were also recorded on a Seasonal Data Sheet form. But at my next stop, the Comcast Center (CC), I quickly encountered six birds, which meant that the number of birds I had found that day had already exceeded the total number (four) from the previous day. By the time I completed my survey of the CC at 7:00 am, I had recorded 27 additional birds — primarily warblers. Many were dead. Some were injured and barely clinging to life. Vehicles had already run over others that had fallen into the street. But every bird found

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Common Yellowthroat on a handbag. © 2020 Yescenia Orozco

was counted, and injured birds were moved to a garden area adjacent to Three Logan Square (3LS) where they would not be swept up as trash, stepped on, or run over.

Over the next hour, I continued to find more birds. Initially, there had only been a few, but now birds were lying everywhere. The collisions would not stop. As soon as I completed processing one group of dead or injured birds, I would look up and see more. Strangers also pointed out additional birds down the block. While it was difficult to fully comprehend what was happening, I and the others pointing out birds to me, felt a sense of foreboding. But we also seemed to be bonding through the catastrophe. Even though this occurred during the early days of COVID-19, when social distancing had become the norm, many people walking to work stopped to talk, even speaking through their masks.

A pedestrian who I encountered near the Comcast Technology Center (CTC) on 18th Street told me she had just walked from City Hall to 19th and Cuthbert Street and reported that the streets were littered with birds. Other people asked, "What is happening?" Another stranger stopped to talk while I was in front of the CTC's block-long, 58-foot-high wall of glass. She showed me a photo that she had just taken of a Common Yellowthroat that had landed on her handbag! I worked faster and faster but could not keep up. "What is

happening!" I heard again and again. Even though my backpack had been well stocked with plastic Ziploc bags, I soon ran out and had to run to a nearby store to purchase more.

By 7:32 am, I was processing a pile of dead birds left by José Martinez by a dumpster across the street from the CTC when he appeared again with his extra-large dustpan overflowing with even more birds, which he then dumped where I was kneeling.

I was in shock. Injured birds were mixed with the dead. My emotions were like a rollercoaster. I was angry that the injured birds had been handled this way but glad they had been brought to me at least. I immediately started separating the living birds from the dead. I placed the dead birds about an inch apart and took photos. There were 76 birds in that pile, which I packed up and then moved on to the next disaster, leaving some stunned Black-and-white Warblers, which did not appear to be in any immediate danger of being stepped on.

Subsequently, there were 11 birds at Two Logan Square, three more at MC, one at the BNY Mellon Center "Atrium" (MA), one at 1701 Market Street, 12 more at the CC, and at 8:30 am, 42 more birds at CTC. I was now on autopilot. It was profoundly upsetting dealing with so much death. The weight of these



This photo of mostly deceased warblers from the 1800 block of Cuthbert Street (CTC) captured the horror of the day. It was used by the local press and reprinted around the globe. © 2020 Stephen Maciejewski

unfortunate encounters was mirrored everywhere, especially by the movement of heavy trucks that flattened so many of these warblers — butterflies of the bird world — as they crashed onto the street. I phoned Keith Russell, my friend of 40+ years, to tell him what was happening. I was so upset I could barely speak. He immediately came downtown, but it took him some time to reach me because he, too, was picking up dead birds as he was walking to meet me. We finally met at 8:51 am and began patrolling together.

After finding even more birds between 8:51 am and 9:27 am, including birds at buildings I had visited previously — which meant that birds continued to collide with buildings well after sunrise — we arrived back at the CTC at 9:30 am. Since I began monitoring that fall, I tried to get permission to search for birds on the large CTC sub-roofs associated with one of the building's tenants, the Four Seasons Hotel. I always found dead birds whenever I had obtained permission to search the sub-roofs of other nearby buildings — even sub-roofs or main roofs as high as 50 stories. However, I still had not been allowed to access sub-roofs at the CTC. But on October 2, as Keith and I passed the hotel's entrance on the 19th Street side of the building, one of the hotel's staff handed me a box containing many live but stunned warblers. The birds had been retrieved from the 5th-floor sub-roof. We were also told there were many dead birds on that sub-roof. I asked if we could collect them. They hesitated. I pleaded with them and said someone would have to gather them, so let us do it. I explained that we wanted to collect the bodies for the ANS, where all of the dead birds found during our monitoring work were being deposited. That way, their bodies could be used for scientific research. A staff member then made several phone calls, and miraculously, after several minutes, she said we could collect the birds. Our temperatures were taken, and we were offered masks and gloves, even though we were already wearing masks. We were told we could not take photos of the inside of the hotel, but photos facing the outside and images of the roof were allowed.

Keith and I were both overwhelmed by what we found. The sub-roof on the 18th Street side of the hotel was littered with the bodies of dead birds. One had to be careful when walking to avoid stepping on them. A few hotel staff were also trying to unfold a broken



Some of the 162 birds found on the 5th-floor sub-roof of the CTC building. © 2020 Stephen Maciejewski

awning encumbered by rainwater that had fallen the previous night. As they unfolded the awning, more dead birds and a fair amount of water dropped. Working quickly in case the management might change their minds, we took photos and gathered 84 bodies. But we had to leave 78 dead birds that were lying on parts of the roof we were not allowed to access. We thought about how many additional birds might be lying on the CTC's other sub-roofs or on the sub-roofs of other nearby buildings that would never be documented. After placing the birds into Ziploc bags without labeling them, we filled two grocery-sized satchels that Keith had brought and thanked everyone for allowing us to gather the dead. We then retrieved the box of live warblers, took them to the garden area next to 3LS, and removed the lid. All of the warblers soon flew out. It was now 10:30 am.

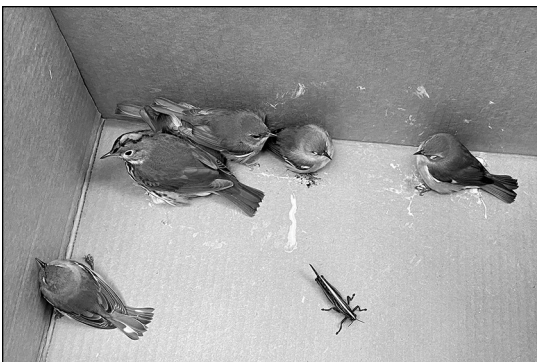
After taking additional photos and videos, we left the area at 10:49 am. Each of us carried about 200 dead birds that would be stored in our home freezers until we could label them and take them to the ANS. We were in shock. I was so distraught that I forgot to eat anything. My mind was racing. I remember walking home, thinking, and carrying those 200 beautiful but dead migratory birds, wondering what had just happened and what all this meant.

The interactions of birds with brightly lit buildings in Philadelphia have been recorded since the City Hall

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tower was first illuminated in 1897 (Baily 1900). A single-day mass collision of several hundred birds was subsequently recorded on May 21-22, 1915, at and around City Hall (Philadelphia's tallest building at the time at 548 feet) when 324 birds of 19 species were collected, mainly from the building's roof (Culver 1916). Then, on September 10-11, 1948, at and around the PSFS building at 1200 Market Street (Philadelphia's second-tallest building at the time at 491 feet, 748 feet to the tip of the tower), 207 birds of 23 species were collected, also mainly from the building's roof (Kramer 1949). Observers at the time attributed both events to artificial light at night emanating from the city's tallest buildings, attracting nocturnal migrants when skies were severely overcast and accompanied by fog and rain. Interestingly, as with the collision event of 2020, winds were virtually nonexistent. In 1948, "uncounted numbers" of birds had already been removed before anyone arrived on the scene to document the event. Warblers comprised 98% of the individual birds recovered in 1915 and 96% of the individuals recovered in 1948.

Coincidentally, official weather records for the night of October 1 indicated that less than a half inch of intermittent rain fell in Philadelphia. In fact, no rain fell most of the time I monitored in the morning, except for some drizzle around 5:40 am. There was also almost no wind, and the official wind speed remained well below 10 mph from midnight through noon on October 2. But the sky was completely overcast from midnight through 10:00 am, and it was somewhat foggy when I began monitoring at 5:40 am.



The hotel staff gave us a box containing many live but stunned warblers from the 5th-floor sub-roof. The birds were later released at the 3LS garden. © 2020 Stephen Maciejewski

The buildings where we found the largest numbers of birds happened to be the two tallest buildings currently in Philadelphia and two of the most brightly lit at night: CTC (1,121 feet) and CC (973 feet). Additionally, like Philadelphia's previous documented mass collisions, weather significantly reduced visibility (heavily overcast skies, intermittent light rain, and some fog), while wind speeds were very low. In total, we documented 455 dead and injured birds (Tables 2 and 3). These included 377 individuals of 24 species found on the ground and 78 dead birds on the CTC's 5th-floor sub-roof that we could not collect. One of the birds left on the roof was a Blue-headed Vireo — the 25th species for the day. Eighty-five percent of the identifiable birds we collected were warblers (40 birds — 11% of the total — run over by vehicles could not be identified). The species found in the largest numbers were the Black-throated Blue Warbler (116), Ovenbird (52), Black-and-white Warbler (42), Northern Parula (23), and Magnolia Warbler (10).

### Reflections

It has been 50 years since I was a student, but on the morning of October 2, a poem from my college years crept into my mind and kept repeating like a mantra. These eight lines from *The Second Coming* by Yeats captured the essence of that morning:

*“Turning and turning in the widening gyre  
The falcon cannot hear the falconer;  
Things fall apart; the centre cannot hold;  
Mere anarchy is loosed upon the world,  
The blood-dimmed tide is loosed, and everywhere  
The ceremony of innocence is drowned;  
The best lack all conviction, while the worst  
They are full of passionate intensity.”*

Although October 2, 2020, was a cataclysmic day for birds, it created a renewed sense of determination for Philadelphia's bird conservation efforts and specifically for us to do more to prevent this type of mass collision event from occurring again. Since the original collision monitoring study ended in 2011, AP has addressed the collision problem in Philadelphia through education, retrofitting windows of some collision-prone buildings with collision-preventing patterns, and other means. However, programs to address the issue of artificial light at night were lacking — although the original collision study's partners had

**Table 2. Dead and Injured Birds Collected on October 2, 2020, by Species**

SPECIES	NUMBER
Red-bellied Woodpecker	1
Northern Flicker	1
Red-eyed Vireo	2
Unidentified Vireo	1
Gray Catbird	1
Wood Thrush	5
House Sparrow	1
Dark-eyed Junco	1
Ovenbird	52
Northern Waterthrush	3
Black-and-white Warbler	42
Tennessee Warbler	6
Connecticut Warbler	1
Mourning Warbler	1
Kentucky Warbler	1
Common Yellowthroat	7
American Redstart	6
Northern Parula	23
Magnolia Warbler	10
Chestnut-sided Warbler	2
Black-throated Blue Warbler	116
Palm Warbler	2
Pine Warbler	1
Black-throated Green Warbler	3
Unidentified Warbler	44
Indigo Bunting	4
Unidentified Species	40

made an unsuccessful attempt to initiate a Philadelphia Lights Out program in 2006. The mass collision event garnered considerable local (Kummer 2020) and international media coverage. On October 14, a meeting was convened by representatives of the Academy of Natural Sciences of Drexel University, Audubon

**Table 3. Dead and Injured Birds Collected on October 2, 2020, by Location**

BUILDING	NUMBER
One Logan Square	3
Two Logan Square	12
Three Logan Square	16
1701 Market Street	2
1818 Market Street	10
1835 Market Street	1
Comcast Center	84
Comcast Technology Center	221
Commerce St.	1
G. Fred DiBona Jr. Building	10
BNY Mellon Center "Atrium"	8
BNY Mellon Center	6
Mellon Center/Mellon "Atrium"	3

Mid-Atlantic, the Delaware Valley Ornithological Club (DVOC), the National Audubon Society, Valley Forge Audubon Society, and the Wyncote Audubon Society. A new coalition called Bird Safe Philly (BSP) was formed, with representation from each convening organization, to encourage and organize efforts to reduce bird collisions in Philadelphia, especially collisions caused by artificial light at night.

As its first official act, BSP submitted an Op-Ed written by Robert Peck of the Academy of Natural Sciences and Audubon's Keith Russell to *The Philadelphia Inquirer* that advocated for the creation of a "Lights Out" program that would reduce the likelihood of another mass collision event occurring in the future (Peck and Russell 2020). Subsequently, BSP created committees to address lights out, monitoring, engagement, advocacy, social media and communication, and funding. Lauren Diamond of the DVOC created the BSP logo, and Connie Sanchez, treasurer of Wyncote Audubon and the program manager for Bird-Friendly Buildings at the National Audubon Society, created the BSP website.

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BSP then began planning to initiate Philadelphia's first Lights Out program, Lights Out Philly (LOP), in the spring of 2021. Through the efforts of Scott Cooper, president of the Academy of Natural Sciences, Comcast Corporation agreed to participate in LOP. Following Comcast's lead, several other organizations that could influence how hundreds of buildings in the downtown area are managed also agreed to participate, including the Philadelphia Building Owners and Managers Association (BOMA), Philadelphia Electric Company (PECO), Liberty Property Trust, Brandywine Realty Trust, and the Building Industry Association (BIA). On April 1, 2021, LOP was officially inaugurated. Participants were asked to turn off non-essential internal and external lighting between midnight and 6:00 am during the spring and fall migration periods from April 1 to May 31 and from August 15 to November 15.

Since 2020, Bird Safe Philly has expanded the collision monitoring effort in the downtown area to three additional sites (Ciocca Subaru dealership in the Grays Ferry area of Philadelphia, Dilworth Plaza area west of City Hall, and a three-block portion of the Independence National Historical Park between the Liberty Bell Pavilion and the National Constitution Center) and engaged dozens of additional volunteers to monitor these areas along with volunteers to transport stunned birds to the Schuylkill Center for Environmental Education's wildlife rehabilitation clinic and other rehab clinics in the region. These volunteers are a diverse group of people of different races, ages, and backgrounds, although most are birders or people interested in the natural world.

Since 2021, the number of buildings participating in LOP has grown from 30 to over 150. The list of participants now includes several dozen buildings at the University of Pennsylvania and Temple University and a number of private residences. The program has not only made the nighttime skyline of downtown Philadelphia noticeably darker during the spring and fall, but monitoring at several buildings participating in LOP indicates a decline in collisions. Most notably, at the MA, where 100% light reduction has been achieved at night, collisions have declined significantly. Previous research has already confirmed that Lights Out works and is the best practice for reducing collisions caused by artificial light at night (Van Doren



This drawing, created by artist Maria DiMauro, shows a Black-and-white Warbler that collided with the glass facade on the north side of the CC and was collected at 8:36 am. © 2020 Maria DiMauro

et al. 2021). We continue to monitor for problematic areas that are either caused by light pollution or reflective untreated glass.

The success of BSP and LOP has been due to the contributions of many people who have given their time, expertise, financial support, and other in-kind contributions and resources to assist the work. These include Don Haas and Rich McClure of the Philadelphia BOMA, Marianne Scott of the BIA, John Eskate, Bob Peck, Nate Rice, Jason Weckstein, and Lisa Willis of the ANS, Connie Sanchez of the National Audubon Society, Robin Irizarry and Keith Russell of Audubon Mid-Atlantic, Vince Smith of the Valley Forge Audubon Society, Leigh Altadonna (BSP leader), George Armistead, Anne Bekker, Stephanie Egger, Victoria Sindlinger, Judy Stepenaskie, Linda Widdop, Phil Witmer and myself of the Wyncote Audubon Society and the DVOC, and Tracey Cohen of the National Park Service.

Although I could not stop the slaughter on October 2, 2020, it was vital to document what occurred. In addition to the 455 dead and injured birds, unknown numbers of additional birds probably collided with other buildings within the monitoring area that were never documented because they fell onto one of the many sub-roofs on tall buildings in the area. When one also considers the many dead birds that eyewitnesses reported seeing around buildings located between the monitoring area and City Hall some five blocks away, Keith and I hypothesized that as many as 1000 to 1500 casualties may have occurred on that day.

Events such as this, where several hundred birds collided with one or more buildings on a single day, have been documented in Philadelphia three times. Other mass collisions may have occurred in Philadelphia over the years that were never reported. If the birding or conservation community or the press is not made aware of such an event, the fact that it occurred could be lost forever. The information that Keith and I were able to gather about what happened on October 2 would have been less complete if others had not shared information with us about birds they had found, including random strangers I had conversations with. The following individuals played a key role in helping us find birds:

- José Martinez at the CTC. He takes pride in keeping the sidewalks litter-free. He would point out where he had left birds for me or leave them on a small set of steps. He did not want them on “his” pavement.
- James McEvoy. He was the early morning doorman at the Four Seasons Hotel (CTC) and was very interested in the monitoring work. He even encouraged other staff members to save birds for me. After he left for another job, we documented fewer and fewer collisions at this site.
- Harvey Pittman at the CC. He was keen to help our project. He picked a particular site on a raised planting bed where he always left birds he found for me.
- William Hall works at 3LS. He always saved the victims and wanted to see what I had found each day during my monitoring. I remember thanking him for his assistance, and he said, “Stephen, no need to thank me. I have grandkids, and I also want them to have the opportunity to see these birds.”
- And the staff person at the Four Seasons Hotel who got us access to the 5th-floor sub-roof. I do not even know her name, but she made it possible for us to find 162 of the 455 birds we documented that day.

We owe a great deal of gratitude to the above individuals and others who enabled us to document many more birds on that day than we would have been able to alone. Without their help, the vast magnitude of the event might never have been understood, the press might not have been as interested in covering the story, and BSP and LOP might never have been created. But working as a community of concerned citizens enabled us to make a change for the better.

### Acknowledgments

I want to thank my long-time friend and expert birder, Keith Russell, for contributing to this article. He joined me on that horrific day and has patiently listened to my endless discussions about that traumatic event ever since. Keith also provided historical insights, edited the article, reviewed the statistics, and created the tables.

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