
Bird Safe KC
2019-2022 Report

Program Objectives

To significantly reduce bird mortality caused by building collisions in the Kansas City metro area by the following actions:

- Documenting buildings that are most prone to bird strikes and identifying specific windows or portions of windows that are most problematic.
- Working with building owners and managers to employ cost-effective solutions, such as closing blinds, turning off lights and treating windows at the most strike-prone sites.
- Encouraging tenants and building owners to extinguish lighting at night, particularly during spring and fall migration.
- Raising public awareness of avian window collisions and encouraging personal action in residential as well as commercial settings.
- Publicly commending companies and individuals that take steps to mitigate window strikes.

Project Background

The glass of both residential and commercial buildings poses a significant risk to birds, particularly during migration (e.g., Banks 1976, Ogden 1996). Fully transparent glass with vegetation on either side can cause birds to attempt to fly "through" the building. Highly reflective glass, such as that pictured on the right, can provide a disorienting view of vegetation that, to a bird, looks real and desirable to reach for foraging or shelter. As a taxonomic group, birds existed for millions of years prior to the proliferation of glass across the planet; it is a potentially lethal barrier to which they are not accustomed. Additionally, many of our most densely populated cities are right in the middle of migratory pathways. The proximity of birds to potential window-strike zones is compounded by the fact that many species migrate at night. The illuminated glow of urban and suburban areas can disorient migrants, particularly on nights with a low cloud ceiling, causing them to descend into developed areas (Parkins et al. 2016).

While avian collisions with windows have been studied intermittently across the US and Canada since the 1960s, most studies were typically small-scale and results were not widely published. However, over the past few years, researchers have been able to extrapolate the results of hundreds of such studies to estimate the nationwide rates of avian mortality from collisions with windows (Loss et al. 2014). Estimates range from 365 to 988 million bird mortalities each year in the US. This is in addition to large numbers of mortalities caused by birds colliding with vehicles, communications towers and energy infrastructure, which are significant but not as numerous as window collisions (Loss et al. 2015).

Recent data, extensively publicized by many media outlets in 2019, indicate that North America has lost almost 30% of its birds in the past 50 years (Rosenberg et al. 2019). While there are many causes of this significant decline, one of the most straightforward ways to contribute to bird conservation is to implement minor collision-reducing structural changes to windows on commercial and residential buildings.

*BirdSafeKC is a project of the **Missouri River Bird Observatory** in partnership with Burroughs Audubon Society of Greater Kansas City, Johnson County Community College Center for Sustainability, and Lights Out Heartland.*

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Methods

Site Selection

Buildings were selected based on two factors: 1) numerous anecdotal reports of bird carcasses being spotted outside the building and 2) building and landscaping factors that are known to result in window strikes. These factors include window area, transparency and/or reflectivity and proximity and height of surrounding vegetation (Klem Jr. et al. 2009; Hager et al. 2013). Permission to survey individual buildings is requested from management staff and/or volunteers conduct surveys only on public sidewalks.

Survey Methods

Spring and fall migration were selected as the survey seasons due to the significantly higher number of window strikes that occur during these timeframes. Surveys are conducted from 1 April to 15 June, and from 1 September to 15 November. Survey frequency is dependent on volunteer availability, but sites are typically surveyed at least once per week during the mid-morning to early-afternoon hours. The total number of surveys conducted each season is noted as 'survey effort' in the data charts below.

Photo courtesy of DeAnn Gregory

BirdSafeKC surveys follow methodology established by Johnson County Community College (K. Anton 2018, unpub.), Hager and Cosentino (2014) and the American Bird Conservancy (B. Lenz 2019, pers. comm). Surveyors walk the perimeter of buildings and scan within 30 feet of buildings for bird carcasses. Once a carcass is located, surveyors complete a form and take photographs to document the species and specific location of each carcass. These survey data are entered in the smartphone application iNaturalist as well as an Excel spreadsheet to facilitate the compilation of results. Instances when no carcasses are found during a survey are recorded as a zero-bird visit.

Data are compiled by building to display the number of strikes, the average number of strikes per survey day and the windows where strikes occurred. Because there are a number of factors that affect whether or not a carcass remains in place – such as removal by maintenance staff, street-sweeping crews or scavenging by other wildlife species – our estimates of the number of bird strikes are extremely conservative.

Our thanks to BirdSafeKC Volunteer Surveyors, 2019-2022

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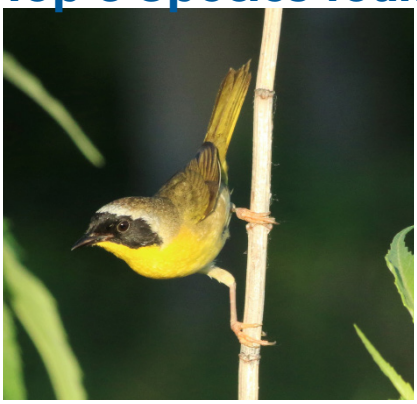
Format of this Report

This report combines Spring and Fall 2022 survey data with previously-reported data for 2019, 2020, and 2021. One table is presented for all seasons and years, with all sites combined, to give the reader an understanding of the extent of bird collisions just within our limited KC study area. Additional tables present comprehensive data for all seasons for each route and site, along with the most strike-prone windows of each building.

Cover photo: Flicker by the Water by Amy Watts

Top 3 Species found on BirdStrikesKC Surveys: 2019 - 2022



Common Yellowthroat
Photo by Araks Ohanyan

White-throated Sparrow
Photo by Steve Garr

Nashville Warbler
Photo by Erik Ost

Comprehensive Data by Species 2019 - 2022

Species	Spring 2019	Fall 2019	Spring 2020	Fall 2020	Spring 2021	Fall 2021	Spring 2022	Fall 2022	Total
American Coot		1	2		1	1			**5**
American Crow		1							**1**
American Goldfinch		1			2	2			**5**
American Redstart		1	3			1	1		**6**
American Robin	2	8	2	5	12	1	1		**31**
American Woodcock		4		5		2		2	**13**
Black-and-White Warbler	1	1	3	1	5	5	1		**17**
Black-capped Chickadee					1				**1**
Blackburnian Warbler					1				**1**
Blackpoll Warbler			2	1	3				**6**
Blue-headed Vireo					1				**1**
Blue-winged Teal					1				**1**
Brown Creeper				6	1	3	1	1	**12**
Brown Thrasher		2	2			3	1		**8**
Canada Warbler			1		1	1	1		**4**
Carolina Wren			1						**1**
Cedar Waxwing		1		2	4	4			**11**
Chimney Swift		2	1	2					**5**
Chipping Sparrow	1	3		2		1	1		**8**
Clay-colored Sparrow		3	1	2		1			**7**
Common Grackle			1			1			**2**
Common Nighthawk					1				**1**
Common Yellowthroat	1	9	15	18	25	8	4	7	**87**

Comprehensive Data by Species 2019 - 2022 Continued

Species	Spring 2019	Fall 2019	Spring 2020	Fall 2020	Spring 2021	Fall 2021	Spring 2022	Fall 2022	Total
Dark-eyed Junco		16	1	9	2	14		4	**46**
Dickcissel				2					**2**
Downy Woodpecker				2			2		**4**
Eastern Phoebe				1					**1**
Eastern Kingbird	1								**1**
European Starling	1	2	4		6	1	1	2	**17**
Field Sparrow		1			1	2			**4**
Fox Sparrow		2				1		1	**4**
Golden-crowned Kinglet								1	**1**
Golden-winged Warbler					1	1			**2**
Grasshopper Sparrow		2	3	1		1			**7**
Gray Catbird	4	2	4	3	5	2	2		**22**
Great-tailed Grackle			1						**1**
Hairy Woodpecker		1							**1**
Harris' Sparrow		1							**1**
Hermit Thrush				2					**2**
House Finch		1	4	2	4				**11**
House Sparrow		3	1		2	2			**8**
House Wren	2	3	2	5	2	11		9	**34**
Indigo Bunting		2	6	2	13		2		**25**
Kentucky Warbler					1				**1**
Killdeer						1			**1**
Lincoln's Sparrow		10		10	2	7		9	**38**
Magnolia Warbler			2		1	1	1		**5**
Marsh Wren		1		4					**5**
Mourning Dove	2	7	2	8	3	9		2	**33**
Mourning Warbler		2	3	1	5	1		1	**13**
Nashville Warbler	1	16	8	17	16	4	2	2	**66**
Northern Cardinal		2		2	1	1			**6**
Northern Flicker		3		5	2		1	1	**12**
Northern Parula					1				**1**
Northern Waterthrush			1	3	2	1		2	**9**
Orange-crowned Warbler		4		3	1	1		1	**10**
Ovenbird		5	8	8	18	3	7	2	**51**
Palm Warbler								1	**1**

Comprehensive Data by Species 2019 - 2022 Continued

Species	Spring 2019	Fall 2019	Spring 2020	Fall 2020	Spring 2021	Fall 2021	Spring 2022	Fall 2022	Total
Prothonotary Warbler	1						1		**2**
Red-bellied Woodpecker				1	2			1	**4**
Red-breasted Nuthatch				2		3		3	**8**
Red-eyed Vireo	2	2	2	1	6				**13**
Red-headed Woodpecker		1		3	1				**5**
Red-winged Blackbird		2							**2**
Rock Pigeon		3	2		2	3			**10**
Rose-breasted Grosbeak	2	1	1	3	10	1	2		**20**
Ruby-crowned Kinglet		1			1	3			**5**
Ruby-throated Hummingbird		8		10	2	10	1	2	**33**
Scarlet Tanager						1			**1**
Sedge Wren		1		2					**3**
Song Sparrow		8		9		9		2	**28**
Sora		2	1				2		**5**
Summer Tanager	1	1			3		1	1	**7**
Swainson's Thrush	9	1	10	1	31				**52**
Swamp Sparrow		10		6	1	7		3	**27**
Tennessee Warbler	5	2	11	2	24		1		**45**
Tufted Titmouse			1						**1**
Unidentifiable	10	27	6	32	47	20	6	5	**153**
Unid. Flycatcher			9	1	4	2			**16**
Unid. Hawk					1				**1**
Unid. Sparrow			1	6		3			**10**
Unid. Swallow					1				**1**
Unid. Swift					1				**1**
Unid. Thrush					7				**7**
Unid. Warbler			2	8	6	17	2	9	**44**
Unid. Woodpecker				1					**1**
Unid. Wren				1			1		**2**
Virginia Rail				1		1		1	**3**
Warbling Vireo					1				**1**
Western Kingbird					1				**1**
Whip-poor-will					1				**1**
White-breasted Nuthatch					1				**1**

Comprehensive Data by Species 2019 - 2022 Continued

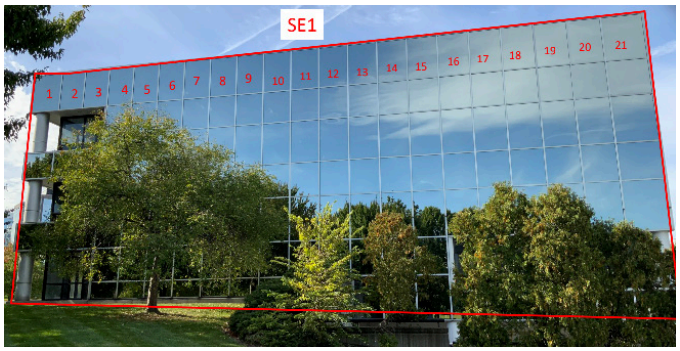
Species	Spring 2019	Fall 2019	Spring 2020	Fall 2020	Spring 2021	Fall 2021	Spring 2022	Fall 2022	Total
White-throated Sparrow	1	22	7	13	13	32	5	7	**100**
Wilson's Warbler		1	3				1	1	**6**
Wood Thrush			1		1	1	1		**4**
Worm-eating Warbler			1						**1**
Yellow Rail				1					**1**
Yellow Warbler		1	2	1	4				**8**
Yellow-bellied Flycatcher					1				**1**
Yellow-bellied Sapsucker	1	4		3		2		1	**11**
Yellow-breasted Chat							1		**1**
Yellow-billed Cuckoo	3	6	1	3	8				**21**
Yellow-throated Warbler						1			**1**
Yellow-rumped Warbler		1			1			2	**4**
Total by Season	**51**	**228**	**145**	**245**	**330**	**214**	**54**	**86**	**1353**
Survey Effort by Season	**122**	**200+**	**Covid Limited**	**400+**	**259**	**150**	**128**	**102**	

Window Strike Solutions

There are actions that can be taken to reduce avian window strikes, as well as many window treatment products that significantly reduce collisions. One of the easiest and most cost-effective mitigation techniques is to use bird-safe glass in the construction of new buildings. However, if you have an existing structure, there are still many options for reducing bird strikes.

- *Lights Out:* By simply extinguishing exterior, and some interior, lighting at night – particularly during migration – you will greatly reduce the possibility that birds will be attracted to your building while in flight. See: https://lightsoutheartland.org for more information.
- *Closing curtains and blinds:* Window transparency and reflectivity can be mitigated by engaging interior window coverings.
- *Placement of landscaping:* Often, birds are trying to fly from one tree or bush to one they "see" reflected in the window. Birds can reach fatal flight speeds when flying to a window from vegetation located 10-30 feet from a building, while they are unable to reach such speeds when starting from trees and shrubs planted close to buildings.
- *Window treatments:* Numerous after-market products and artistic possibilities exist for treating problematic windows. Some building owners have chosen to engage artists to create murals on particular windows. Others chose to place patterned tape or "Zen curtains" to disrupt birds' visual perception of a window. Most window treatments are either attractive or almost unnoticeable to the human eye. To be effective, only the most collision-prone windows need to be treated – this is why the BirdSafeKC project records not just the building that a bird hit, but the specific window or column of windows. The photos seen here are of bird strike mitigation efforts at Johnson County Community College, courtesy of Krystal Anton.

Comprehensive Data by Route 2019 - 2022



The ultimate goal of BirdSafeKC is to treat high-risk windows to reduce strikes. Therefore, an important part of the data is the section of the building where the most strikes occur, along with window column numbers (see photo at left for example). In all of the following tables, windows where three or more carcasses were found during one season, or more than ten across all seasons, are highlighted in red.

Data shown is cumulative over all survey seasons. Tracking the amount of survey effort (i.e. number of visits) is crucial to compare relative mortality rates between buildings. The number of times each building was surveyed varies due to owner permission or volunteer availability. Sites with more than 0.50 carcasses documented per survey are highlighted in red; these are sites that could significantly reduce bird mortality by treating certain windows.

Downtown Kansas City

The Downtown North survey route is bordered by 7th Street to the north, Truman Street to the south, Main Street to the west, and Cherry Street to the east. Downtown South surveys covered several buildings between 13th Street to the north and 18th Street to the south. With a few exceptions, surveys were done on public sidewalks only, therefore some sides of buildings were inaccessible. We note that street-sweeping by the KC Downtown Community Improvement District and by private contractors likely means that fatal bird collisions on these survey routes are underestimated. Additionally, BirdSafeKC volunteers were denied access to the main public entrance of 1001 Locust in May 2021; this likely resulted in a significant undercount at that site. Downtown will remain a survey priority in 2023.

Downtown North Route

Building	Total # Visits	Total Carcasses	Carcasses/Survey	Problematic Sections/Windows
720 Main	111	37	0.33	E1, W1, S1, S2, S4
1100 Main	131	27	0.21	E1, E3, N2, N5
1200 Main	149	35	0.23	E1, E2, E3, E4, E5, N8, W2, W3
1000 Walnut	138	24	0.17	E8, E9, E11, N4, N8, W1, W6
1100 Walnut	145	36	0.25	East side, Entrance, S8, S10
1101 Walnut	103	41	0.40	South side, NW1
1201 Walnut	97	23	0.24	N3, N4, N6, N7, N8, W3, W4, B4
1001 Locust	159	90	0.57	E1, N1, N2, W1, W2, W4, Courtyard
Various buildings (incidentals)		74		

Downtown South Route

Building	Total # Visits	Total Carcasses	Carcasses/Survey	Problematic Sections/Windows
1601 McGee	219	155	0.71	patio area, northeast treed alcove, west side
1741 McGee	161	29	0.18	1N, 2S, 2W, 3W, 4W, 5W, S1
1407 Grand	172	132	0.77	E2, E3, E4, E5, E6, E7, N1, N2, N3, N4, W1
Various buildings (incidentals)		32		

Crown Center

Anecdotal reports of window strikes at Crown Center have been circulating in the KC community for years. Standardized surveys have shown that there are several extremely strike-prone locations in this area of the city. The buildings and structures included on this route have varied slightly by season and volunteer availability, but portions of Crown Center were surveyed during both migration seasons in 2019 through 2022. This route remains a survey priority in 2023.

Building/Structure	Total # Visits	Total Carcasses	Carcasses/Survey	Problematic Sections/Windows
Link 1	117	32	0.27	E16, E20/21, N7, S8, W3, W6
Link 2	115	9	0.08	S6
Link 3	148	98	0.66	E17
2501 McGee	155	113	0.73	N16, E24
2450 Grand	82	6	0.07	E9, E11, S1
2380 McGee	29	4	0.14	No pattern discernable; removed from route in 2022
2323 Grand	39	15	0.38	N16, S1, S2, S3, W7, W8; removed from route in 2022
2345 Grand	55	22	0.40	N3, W2, W5; removed from route in 2022
Various buildings (incidentals)		55		

Ward Parkway

The Ward Parkway route was established in Spring 2019 due to the configuration of landscaping with mirrored buildings. While several buildings on this route have shown relatively low window strike frequency, two buildings have some of the highest rates in the BirdSafe dataset. Unfortunately, permission to survey those two buildings was withdrawn by the property managers.

Building	Total # Visits	Total Carcasses	Carcasses/Survey	Problematic Sections/Windows
9200	69	7	0.10	W2, NE1
9221	11	9	0.82	No pattern discernable; not surveyed since October 2019
9229	63	19	0.30	N1, N2, N8, S1, S3, W2
9233	78	25	0.32	N2, N4, S1, S2, S3, S4, S6, W2
9237	14	15	1.07	No pattern discernable; only surveyed in Fall 2020

Heartland Financial

Anecdotal reports of bird carcasses from tenants at the Heartland Financial building prompted surveys in both seasons 2019, fall 2020, and spring 2021. Regular surveys showed that the building has a moderately high strike rate. Permission to survey the building was withdrawn fall 2021, and not surveyed since, despite some tenants previously expressing concern for bird mortality.

Building	Total # Visits	Total Carcasses	Carcasses/Survey	Problematic Windows
1600 NE Coronado	62	22	0.35	South and west sides; Removed from route in 2021

Cliff Professional Buildings

Mirrored buildings, coupled in some cases with vegetation at a distance likely to be dangerous to birds, led to the decision to survey several Cliff Drive buildings beginning in 2019 and continuing through 2020 and 2021. A change in ownership at Cliffview Professional Building during the Summer of 2021 resulted in the temporary suspension of surveys during fall 2021. Permissions for the two buildings was given in early 2022 and steady surveys began again.

Building	Total # Visits	Total Carcasses	Carcasses/Survey	Problematic Sections/Windows
4721 Cliff	108	21	0.19	E1, E2, S5, W1, W3; removed from route in 2022
4801 Cliff	194	51	0.26	A3, B1, B3, B4, B6, B8, B9
4741 S. Cochise	201	71	0.35	N1, N2, N3, S1, S2, S3, W1, W5

West Country Club Plaza

Several buildings just west of Country Club Plaza have been reported as potentially dangerous to birds. Surveys in fall 2020 and 2021 indicated that one of the three (4520 Madison) had very few strikes despite its mirrored exterior and nearby vegetation. Anecdotal reports for several years leading up to 2020 suggested that 4600 Madison was moderately strike-prone, however our survey data show that it is less so than many other buildings. The highly mirrored building at 900 W. 48th Place does show relatively high rates of window collisions during migration, particularly on the north side of the building. For that reason, and with confirmed permission, 900 W. 48th was the only building on this route for both seasons in 2022.

Building	Total # Visits	Total Carcasses	Carcasses/Survey	Problematic Sections/Windows
4600 Madison	72	12	0.17	A3, E1, E2, E4, S3, S5, W3, W4; removed from route in 2022
900 W. 48th Place	78	44	0.56	N2, N3, E5

Holmes Road/Executive Hills

The Holmes Road/Executive Hills area contains 8-10 completely mirrored buildings within a landscape that is potentially attractive to foraging birds. Permission to survey around buildings has varied across sites and seasons; this route has previously encompassed four additional buildings.

Webster University was surveyed regularly in Spring 2019, while several other nearby buildings were surveyed intermittently. Preliminary data indicate that at least one portion of the University building - the glass walkway or "link" between the building and the parking garage - is extremely strike-prone. Intermittent surveys were done at ths site throughout 2020 and 2021. Surveys at 1200 and 1300 104th Street occurred intermittently in Spring 2019, and regularly during 2021. Data indicate that they are moderately strike-prone, particularly parts of the 1300 building.

Building	Total # Visits	Total Carcasses	Carcasses/Survey	Problematic Sections/Windows
10450 Holmes	22	23	1.05	Link; removed from route in 2022
1200 104th	53	15	0.28	E1, E2, S3
1300 104th	52	20	0.38	SE1, SW2

References

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Resources

American Bird Conservancy – Preventing Window Strikes:
https://abcbirds.org/glass-collisions/

Cornell Lab of Ornithology:
https://www.allaboutbirds.org/news/why-birds-hit-windows-and-how-you-can-help-prevent-it/

BirdLife International:
https://www.birdlife.org/worldwide/news/how-can-we-really-prevent-birds-flying-our-windows

BirdWatching Daily:
https://www.birdwatchingdaily.com/gear/preventing-bird-window-collisions/15-products-prevent-birds-hitting-windows/

Michigan Audubon Bird-Friendly Communities:
https://www.michiganaudubon.org/bfc/bird-window-collisions/

Please consider supporting the BirdSafeKC project!

✿ If you are a KC resident, please spread the word about the BirdSafeKC project - share this report with others!

✿ Consider donating to the BirdSafeKC project at mrbo.org/supportMRBO. Though surveys are conducted by volunteers, funds are needed for project coordination, data compilation and report production.

✿ If you are a commercial building owner or property manager in KC, we would be delighted to work with you to reduce bird strikes on your structure! Contact dana.ripper@mrbo.org to get started.

Together, we can save hundreds of birds each year in the Kansas City metro.

MISSOURI RIVER • BIRD OBSERVATORY •

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Photo: Cedar Waxwing in Mulberry Tree by Jamie McGuire