

We have officially concluded the spring 2024 survey season, signifying the end of our 8th season of *Lights Out*, *Dallas!* surveys.

On behalf of our entire team, THANK YOU to all of our partners and supporting organizations, many of which include dedicated teams and individuals who make our work possible each season. We cannot thank everyone enough for their continuous support of our work in downtown Dallas, in our surrounding communities, and across Texas.

As we bid farewell to spring and prepare for the warm summer ahead, we would like to share this season's highlights and observations with you.

Collision Survey Results

Spring 2024 was our 8th season documenting window collisions in Downtown Dallas. A total of 346 bird-building collisions were documented this season, which includes 295 mortalities, 38 rescued birds, and 13 stunned birds that hit windows and flew away, as seen in Fig. 1.

Lights Out Dallas										
	Surveys Completed	Mortalities Collected	Rescues Conducted	Species Documented	Volunteers Engaged	Volunteer Hours Served	Miles Surveyed	Lights Out for Wildlife Certifications Secured		
Spring 2024	58	295	38	44	81	637	403	29		
Fall 2023	80	380	62	54	66	733	560	60		
Spring 2023	80	253	25	49	58	681	572	48		
Fall 2022	80	323	28	51	82	751	597	49		
Spring 2022	80	310	41	56	74	882	593	213		
Fall 2021	78	399	40	56	30	555	658	82		
Spring 2021	57	228	17	52	37	657	439	145		
Fall 2020	80	457	21	53	30	529	682	-		
Total	593	2645	272	108	-	5425	4504	626		
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Figure 1. Lights Out, Dallas! survey results, Fall 2020 – Spring 2024



New Species for Lights Out, Dallas!

Building collisions were documented in three new species this spring (Fig. 2), bringing the total number of species documented by *Lights Out, Dallas*! to 108. The new species are Gray-cheeked Thrush (*Catharus minimus*), Bay-breasted Warbler (*Setophaga castanea*), & Blue-winged Warbler (*Vermivora cyanoptera*), as seen in the photo collage above. All three of these species are Neotropical migrants, meaning they winter in South and Central America and breed in North America. Thankfully, the Blue-winged Warbler was only stunned and was able to fly away to continue its migratory journey!



Figure 2. *Lights Out, Dallas!* new species documented in Spring 2024. Top left: Gray-cheeked Thrush; Top right, bottom: Bay-breasted Warbler; Center: Blue-winged Warbler. *Photo credits: Tim Brys, Karen Carpenter, Katie Emmons.*

Strengthened Partnerships

The Trinity River Audubon Center (TRAC) has deepened its engagement with the *Lights Out, Dallas!* initiative, focusing on broadening public awareness and education. TRAC has now hosted several *Lights Out, Dallas!* presentations for groups of various ages. These presentations are designed to educate the public about the impact of light pollution on migratory birds and the importance of reducing artificial light during migration seasons. Additionally, TRAC has integrated *Lights Out, Dallas!* tabling opportunities into their events, allowing visitors to learn more about the initiative and how they can contribute to bird conservation efforts.

To enhance the data collection and monitoring efforts of *Lights Out, Dallas!* both the Trinity River Audubon Center and the Dallas Zoo have committed additional resources and expertise. TRAC and the Dallas Zoo have mobilized a team of volunteers and staff to conduct bird surveys during peak migration seasons (Fig. 3). This enhanced survey effort allows for more accurate tracking of bird collisions.



The strengthened partnerships with the Trinity River Audubon Center and the Dallas Zoo represent a significant advancement in the *Lights Out, Dallas!* initiative. Through enhanced educational outreach and increased survey support, these collaborations are pivotal in promoting conservation awareness and ensuring the protection of migratory birds. This united effort underscores the community's commitment to environmental stewardship and the safeguarding of avian species.



Figure 3. Lights Out, Dallas! survey leaders from partner organizations

Differences in Dove Collisions by Age and Season

This season, we saw clear differences in Dove collisions by date and age. Age was determined in 76% of Whitewinged Dove (*Zenaida asiatica*) and Mourning Dove (*Zenaida macroura*) collisions this spring (n = 38). Of these, 90% were juvenile (hatch year) birds, and 10% were adults (after hatch year). All adult collisions occurred within the first four weeks of surveys, whereas juvenile collisions occurred from week two through week 12. Similar but less pronounced patterns have been documented in the last three spring seasons, with 52–68% of aged Dove collisions being juveniles and 32–48% being adults.

In spring, it is likely that high levels of breeding hormones contribute to collisions in adult Doves while inexperience with navigating the dangers of the city likely contributes to collisions in juveniles. This hypothesis is supported by the low numbers of Dove collisions documented in the fall (n = 4-11) compared to spring (n = 37-45) over the last four years. These trends demonstrate that building glass and light pollution pose dangers not only to migratory bird species but also to species that call Dallas home year-round.



Species Prevalence Similar to Spring 2023 and Spring 2022

Species prevalence this spring was similar to the past two springs with some key differences, as seen in Fig. 4, which shows the top building collisions (*fatal and non-fatal*) by species. For the top six most frequently found species, this season's numbers are closer to those from Spring 2022 than Spring 2023. Conversely, the numbers of the following four species were higher than in either of the past two springs.

As in Spring 2022, Ovenbirds (*Seiurus aurocapilla*) were the most frequently found species, and Lincoln's Sparrows (*Melospiza lincolnii*) were the second most frequent. Common Yellowthroats (*Geothlypis philadelphia*) remained the second-most prevalent Warbler species (after Ovenbirds), and Tennessee Warblers (*Leiothlypis peregrina*) made the top 10 list for the first time in Dallas. Despite being the third most frequent collider this season, fewer White-winged Doves (*Zenaida asiatica*) were found this spring than in the past two springs.

The increases in Grasshopper Sparrow (*Ammodramus savannarum*), Painted Bunting (*Passerina ciris*), and Common Yellowthroat collisions this spring are particularly concerning as all three of these species are listed as Species of Greatest Conservation Need in the state of Texas.¹

LIGHTS OUT, DALLAS!



Top Spring Collisions by Species

Species Common Name		Spring 2024 (58 Surveys)	Spring 2023 (80 Surveys)	Spring 2022 (80 Surveys)
Ovenbird		53	38	51
Lincoln's Sparrow	-	35	22	42
White-winged Dove		31	42	33
Common Yellowthroat	1	28	21	40
Indigo Bunting		18	5	19
Nashville Warbler	- Shar	17	5	21
Grasshopper Sparrow	*	16	11	8
Painted Bunting		12	6	9
Tennessee Warbler 🛛 🍕	-	12	3	7
Black-and-white Warbler	M.	11	7	4

Figure 4. Top bird—building collision species found in Dallas this spring compared to the last two springs



Composition of Survey Results Changes Throughout Season

As in past springs, New World Warblers (*Parulidae*) were the most frequently recorded bird—building collisions this spring (n = 157). The first Warbler appeared in Week 6, and then their numbers boomed, peaking in Week 9, then decreasing over Weeks 10–11. New World Sparrows (*Passerellidae*) ranked second (n = 64), first appearing in Week 3. New World Sparrow numbers then trended upward, peaking in Week 7, then decreasing over Weeks 8 and 9. Pigeons and Doves (*Columbidae*) ranked third (n = 41), occurring in low numbers in Weeks 1–4, then trending upward through Week 11. Cardinals and Buntings (*Cardinalidae*) were the fourth most prevalent family (n = 39), first appearing in Week 6. Cardinalids then trended upward, peaking in Week 8, then decreasing over Weeks 10–12.

The graph below (Fig. 5) depicts these changes in survey composition throughout the season. These four families represent 87% of all bird—building collisions recorded this spring (n = 346), with Warblers alone constituting 45% of all collisions. Furthermore, New World Sparrows and Warblers together represented an average of 48% of collision totals each week throughout the season (range = 0 - 80%).



Figure 5. Changes in prevalence of the four most frequently found families in Dallas throughout spring migration this year



Collision Numbers Increase for Species of Conservation Concern

Over the past four years, *Lights Out, Dallas!* has seen steady increases in the number of Grasshopper Sparrow (*Ammodramus savannarum*) collisions, both in the Spring and Fall. Figure 6 (below) shows these increases and a few of the Grasshopper Sparrows that struck buildings in Dallas in Spring 2024 and Fall 2023. Although more Grasshopper Sparrow collisions have been documented in Fall (n = 16-44) compared to Spring (n = 8-16), the same upward trends have been seen in both seasons. These increased collision rates are especially concerning because Grasshopper Sparrows are classified as a Species of Greatest Conservation Need by the Texas Parks & Wildlife Department¹, a Species of Concern by the US Fish & Wildlife Service², and a Common Species in Steep Decline by Partners in Flight³.

While habitat loss, fragmentation, and degradation are the main factors contributing to this grassland bird's decline⁴, collisions with buildings could potentially have additive or synergistic effects, particularly for migratory populations. To elucidate any such effects, future research should aim to learn more about Grasshopper Sparrow migration paths and flight behaviors (i.e., typical migration altitude), identify the degree of population connectivity throughout the full annual cycle, and identify any other factors that may put this species at higher risk of collisions.



Figure 6. Increases in Grasshopper Sparrow collisions in Dallas during fall and spring (*left*) with a few of the collision victims, two dead and one stunned (*right*)



Stark Difference in Dallas vs. Fort Worth Collisions

This Spring, there was a stark difference in the number of bird—building collisions found in Dallas (n = 346) versus Fort Worth (n = 42), as seen in Fig. 7 below. In both cities, surveys were conducted four days per week before and after peak migration (April 22 – May 12) and seven days a week during peak migration, with 58 Dallas surveys and 57 Fort Worth surveys. One possible explanation for the difference in collisions is differences in the number of birds migrating through each city. However, Cornell's BirdCast analysis⁵, which estimates the number of birds that flew over a given county each night during migration, is strongly correlated for Dallas County and Tarrant County (r = 0.9469), which is evident in Fig. 7. Furthermore, BirdCast estimates that 15,272,100 *more* birds traveled through Tarrant County compared to Dallas County during this survey season (March 11 – June 1). This indicates that other factors resulted in this drastic difference in collision numbers.



Figure 7. Bird—building collisions and bird migration intensity in Dallas vs. Fort Worth this spring

The most obvious difference between the two cities this spring was how dark downtown Fort Worth was compared to the brightly lit downtown Dallas. All buildings in downtown Fort Worth participated in *Lights Out!* by reducing non-essential lights at night during spring migration. While some buildings in downtown Dallas, such as Reunion Tower, participated in *Lights Out!* this spring, light levels in Dallas were still dangerously high throughout the migration season.

We acknowledge that correlation does not equal causation and that other factors likely contributed to the difference in collisions between the two cities, such as survey route length (Dallas = 7 mi, Fort Worth = 3.5 mi), building density and height, and local weather conditions. However, the difference in the mean collision rate for Dallas (5.97 bird collisions/survey) versus Fort Worth (0.74 bird collisions/survey) is too great to ignore.



Despite having fewer surveys than the past two springs, more collisions were recorded per survey day in Dallas this spring than any other spring since surveys began in Fall 2020.

Texas Conservation Alliance, along with our partner organizations, urges the municipal and business leaders of Dallas to join us in protecting migratory wildlife and setting an example for the entire community by reducing non-essential lights at night during the spring and fall migration seasons!

While light pollution is not the sole factor behind bird—building collisions, reducing light levels should decrease the number of birds that become disoriented during migration and keep them flying high above the glass-covered buildings that put them at great risk of collision.

"Never doubt that a small group of thoughtful, committed citizens can change the world; indeed, it is the only thing that ever has." - Margaret Mead

References:

- ¹ Texas Parks and Wildlife Department (2024). *State Wildlife Action Plan for Texas: 2023 Species of Greatest Conservation Need*. <u>https://tpwd.texas.gov/wildlife/wildlife-diversity/swap/</u>
- ² US Geological Survey (2015). *State Wildlife Action Plans: Compiled National List of Species of Greatest Conservation Need.* <u>https://www1.usgs.gov/csas/swap/national_list.html</u>
- ³ Partners in Flight (2023). Avian Conservation Assessment Database. <u>https://pif.birdconservancy.org/avian-conservation-assessment-database/</u>
- ⁴ Vickery, P. D. (2020). Grasshopper Sparrow (*Ammodramus savannarum*), version 1.0. In *Birds of the World* (A. F. Poole and F. B. Gill, Editors). Cornell Lab of Ornithology, Ithaca, NY, USA. https://doi.org/10.2173/bow.graspa.01
- ⁵ Cornell Lab of Ornithology (2024). *BirdCast: Migration Dashboard*. <u>https://birdcast.info/migration-tools/migration-dashboard/</u>

Report written by Lights Out, Dallas! Coordinators:

Jimena Vivanco Jimena@tcatexas.org

Heather Bullock <u>HeatherBullock@my.unt.edu</u>

