NASWG

NORTH AMERICAN SONGBIRD WORKING GROUP

September 2019 Newsletter

Issue II

Native songbirds connect us to nature — essential for human well-being. Unfortunately, North American migratory birds are in trouble, and they are disappearing at alarming rates. BirdLife International (2008) reports over half of neotropical migratory songbirds have suffered widespread declines over the last 40 years. Major threats include habitat loss and degradation, predation by cats, and collisions with buildings and towers. A recent study in *Science* (https://science.sciencemag.org/content/early/2019/09/18/science.aaw1313) found that North America has lost more than 2.9 billion birds since 1970. In less than half a century, the avian population of the continent has declined by some 29 percent, or more than one in four birds.

The first steps towards supporting native songbird conservation are already occurring at many zoos and aquariums in the form of native songbird feeding stations, Christmas bird counts on grounds, using bird-friendly glass treatments on buildings and exhibits, celebrating World Migratory Bird Day, and educating guests about native songbirds.

Learn about what zoos and aquariums are doing to advance the husbandry and welfare practices of native songbirds by keeping up with us through our biannual newsletter and participating in the new North American Songbird SAFE program.

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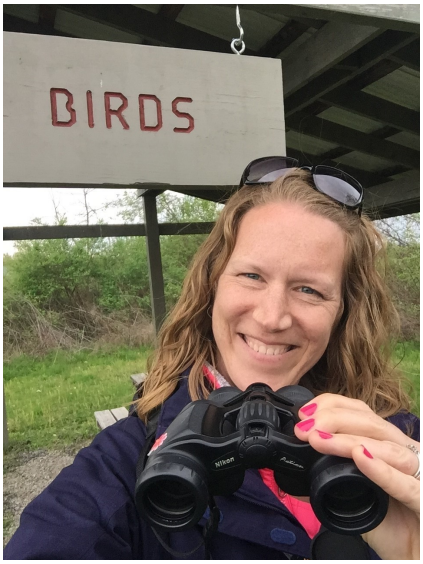
NORTH AMERICAN SONGBIRD WORKING GROUP

Newsletter Editor: Kirby Pitchford

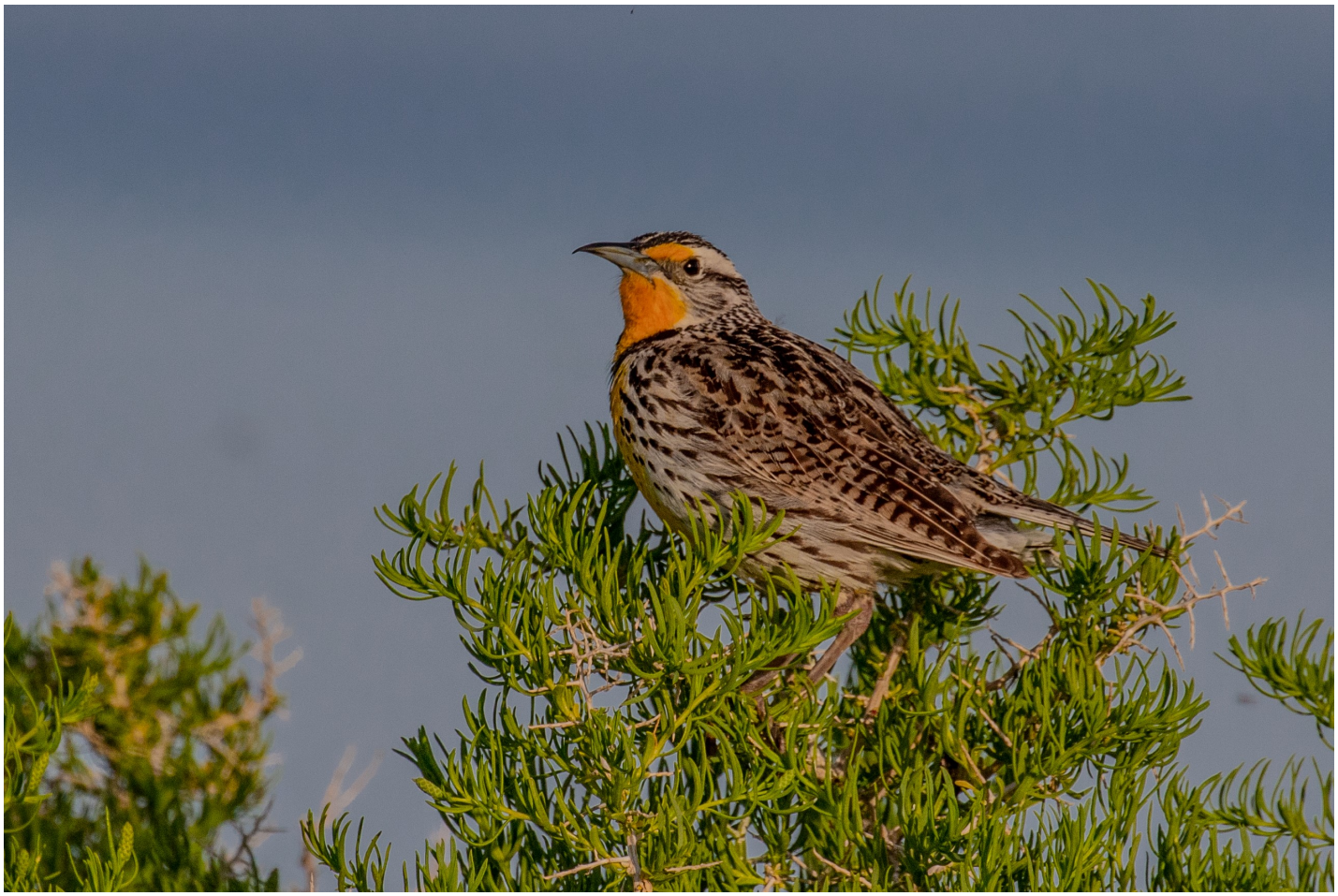
Welcome to the Flock!

Brianne Warthman, Senior Educator at Columbus Zoo and Aquarium, joins the team!



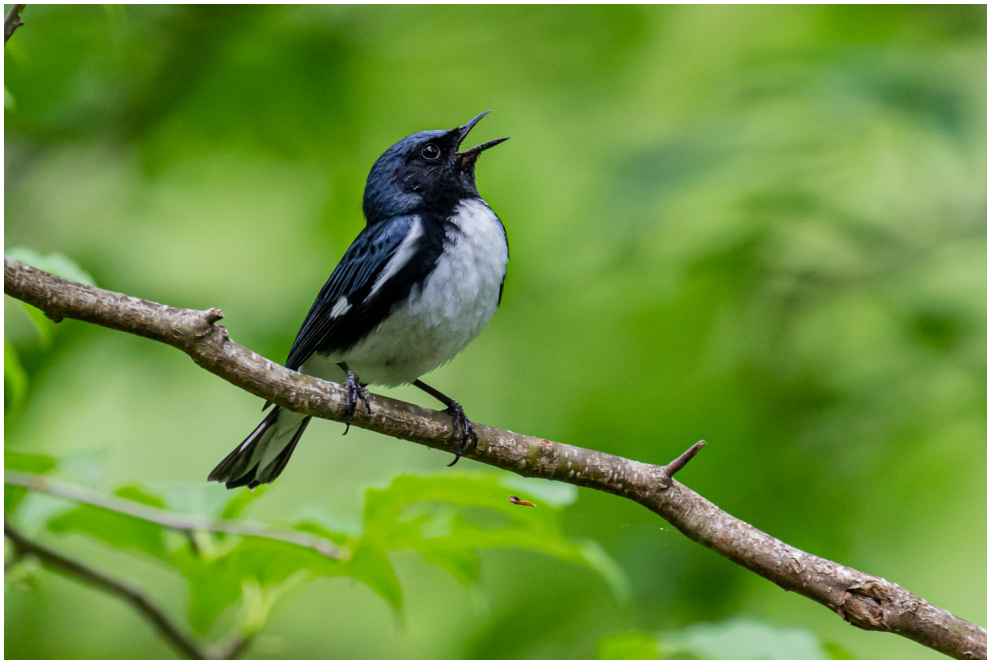
Since 2008, Brianne has been an Educator at the Columbus Zoo and Aquarium where she currently supervises Camp-In Overnights and Birthday Parties and plays a key role in the coordination of the Interpretive team. She is a Certified Interpretive Trainer through NAI and presents an annual Certified Interpretive Guide course to teach interpretive principles and program development to volunteers, staff and outside colleagues. Before her years at the Columbus Zoo, Brianne worked as an Interpretive Naturalist for Columbus and Franklin County Metro Parks where she developed her love of birds and sharing that love with others. She and her friends ('the Finches') have been going on birding trips together for years and even have their own group logo and hashtag (#finchmigration). Brianne has a B.S. in Human Dimensions in Natural Resources from The Ohio State University.

We are excited to begin working with Brianne as she settles into her new role as one of our education advisors!



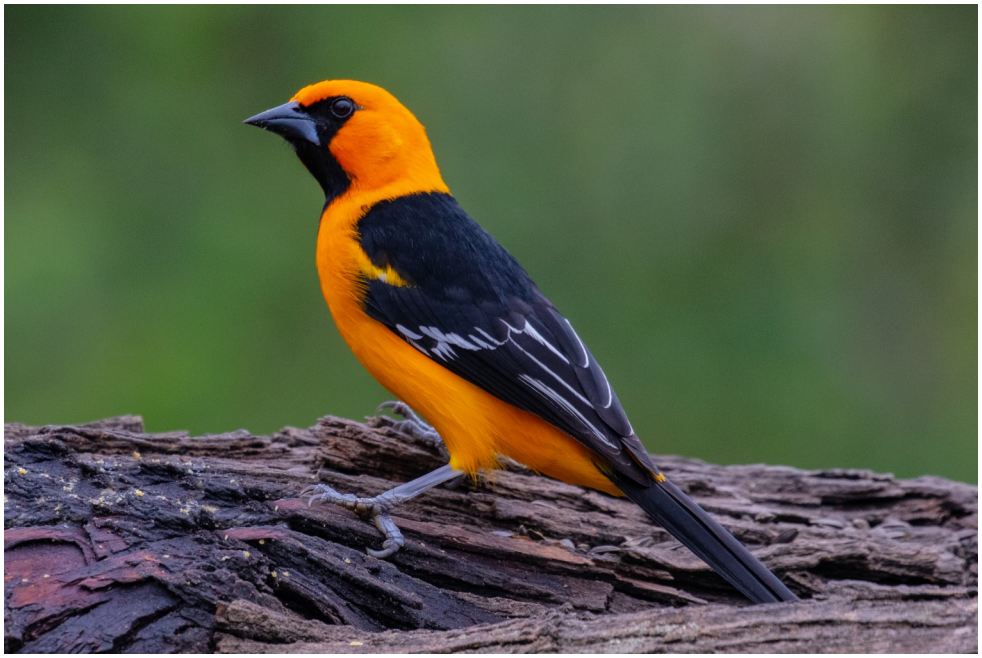
Western Meadowlark by Eric Peterson

Newsletter Update



Now in it's second year, the NASWG will begin to publish newsletters biannually, issues for both spring and fall to coincide roughly with the celebration of World Migratory Bird Day.

If your facility works with native songbirds, has developed husbandry or breeding protocols, celebrates World Migratory Bird Day, or participates in their conservation, we want to hear from you! Please email articles and pictures to Kirby Pitchford at kpitchfo@aum.edu by September 1 or April 1 to be included in the following issue.



Top: Black-throated blue warbler; bottom: Altamira oriole by Eric Peterson

Bird Rehabilitator and Zoo Network

The intent of the Bird Rehabilitator and Zoo Network (BRaZN) is to facilitate communication and coordination between the bird rehabilitation and zoo community. The goal of this network is to successfully increase transfers of non-releasable birds from rehabilitators to AZA zoo facilities seeking those species and exchange information and training opportunities related to successful bird husbandry.

Sign up for this listserv by going to https://network.aza.org/communities and searching 'BRaZN'

More on BRaZN

Jo Anna Lutmerding, USFWS and Sara Hallager, Smithsonian NZP

The U.S. Fish and Wildlife Service Migratory Bird Program (Service) works to conserve migratory birds for the benefit of the American people, and this mission aligns with the conservation mission of both the Association of Zoos and Aquariums (AZA) and federally permitted migratory bird rehabilitators (rehabilitators).

Creation of this network resulted from a small group of staff from the Service, AZA, multiple AZA accredited facilities, and rehabilitators that formed to discuss how to improve communication and coordination with the rehabilitation community that will assist each organization or community accomplish their mission.

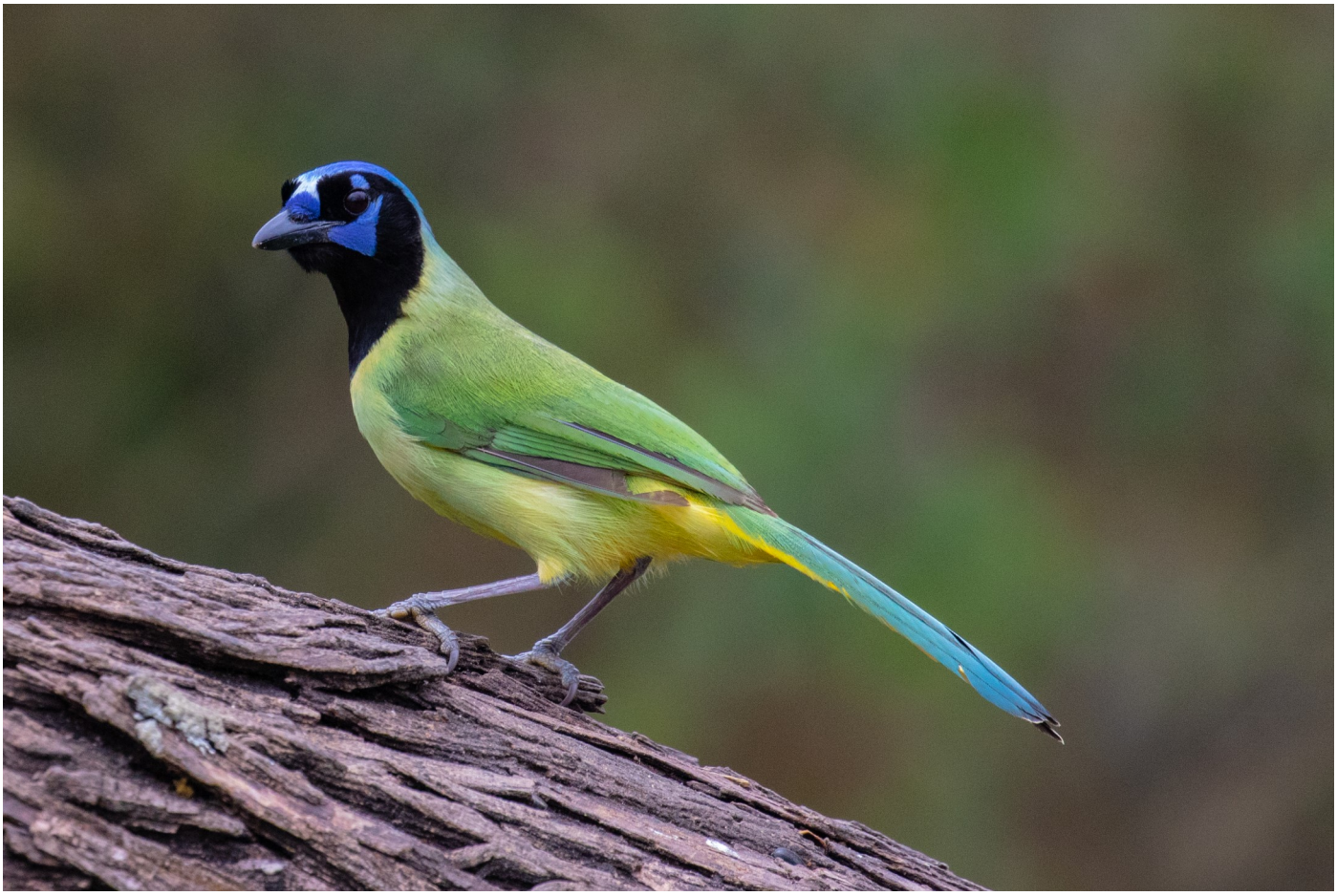
Our vision for this effort is that non-releasable migratory birds from rehabilitators can be successfully placed in AZA facilities seeking those species.

Our objectives for the BRaZN are to:

1. Facilitate placement of non-releasable migratory birds through this central location that is accessible to any interested member of the zoo or rehabilitation community, as well as Service staff engaged in this effort.

2. Connect members of these communities via sharing resources on successful bird husbandry and available training in caring for birds under human care.

Please take advantage of this opportunity to further the missions of all of our organizations.



Green Jay by Eric Peterson

North American Songbird SAFE

Sara Hallager, Smithsonian National Zoological Park

In August 2019, AZA approved the North American Songbird SAFE (Saving Animals From Extinction) as a new SAFE program, joining 23 other distinguished SAFE programs. The Songbird SAFE program covers 323 resident and migratory songbird species that spend some or part of their annual life cycle in North America. Among the species covered, 5 are listed by IUCN https://www.iucnredlist.org/ as endangered (tricolored blackbird, golden-winged warbler, brown-capped rosy finch, black rosy finch, saltmarsh sparrow), 11 species are listed as Near Threatened and 13 are listed as Vulnerable. While 290 species are listed as Least Concern, of note is that 127 species of the 323 species covered by SAFE are declining in number.

North American songbirds are declining at an alarming rate. Since the late 1960's nearly 50% of neotropical migrants have significantly declined with some species (e.g. rusty blackbird) approaching population declines of 90% (http://www.stateofthebirds.org/2016/ and http://datazone.birdlife.org/sowb/casestudy/north-american-monitoring-schemes-are-revealing-declines-in-migratory-species.) The causes of decline are many and include habitat loss, climate change, outdoor cats, building strikes, pesticides, declining insect numbers and more. While the threats are significant, this is a SAFE program that offers great hope because every zoo and aquarium has native songbirds on property and can participate in this SAFE program!

The North American Songbird SAFE program offers easy, affordable and impactful solutions to save songbirds. Many zoos and aquariums are already engaged in conservation efforts of native avifauna. There many ways your zoo and aquarium can participate! For example:

1. Host a Migratory Bird Day event during spring and/or fall migration: https://www.environmentamericas.org/wmbd/

2. Build a catio and educate your guests on why it's important to keep cats indoors: https://abcbirds.org/catio-solutions-cats/

3. Plant a pollinator garden using native species in your area which benefits birds and insects.

4. Prevent bird strikes at your facility by making your exhibit glass bird friendly: https://abcbirds.org/program/glass-collisions/

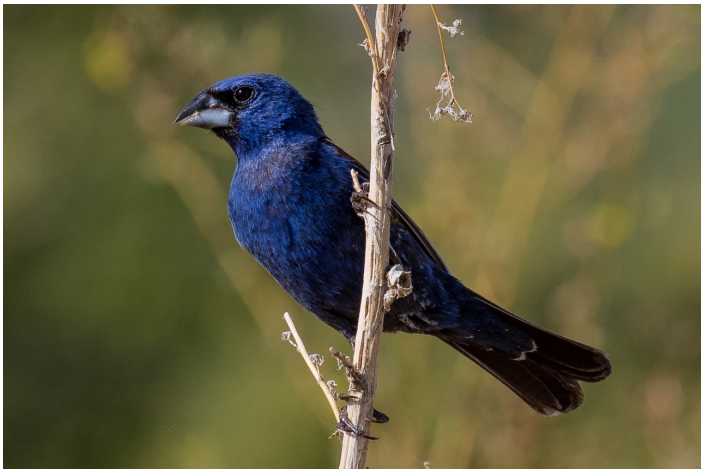
5. Participate in a Lights out Program: https://www.audubon.org/conservation/project/lights-out

6. Promote the sale of bird friendly coffee in your gift shop: https://nationalzoo.si.edu/migratory-birds/bird-friendly-coffee

7. Lead bird walks around your grounds and show guests the great diversity of birds on your property!

8. Participate in Christmas Bird Counts: https://www.audubon.org/conservation/science/christmas-bird-count or the Great Backyard Bird Count https://www.audubon.org/conservation/about-great-backyard-bird-count

9. Build a Motus Station and help collect data on migrating birds: https://motus.org/



Blue Grosbeak by Eric Peterson

There are many, many ways you can help save our native songbirds and we'd like to hear from you! To learn how you can participate in the Songbird SAFE Program or to tell us what you are doing to save North American songbirds, please contact the Songbird SAFE Co-Chairs
Sara Hallager HallagerS@si.edu or
Mike Kreger michael.kreger@columbuszoo.org

Loggerhead Shrike Conservation

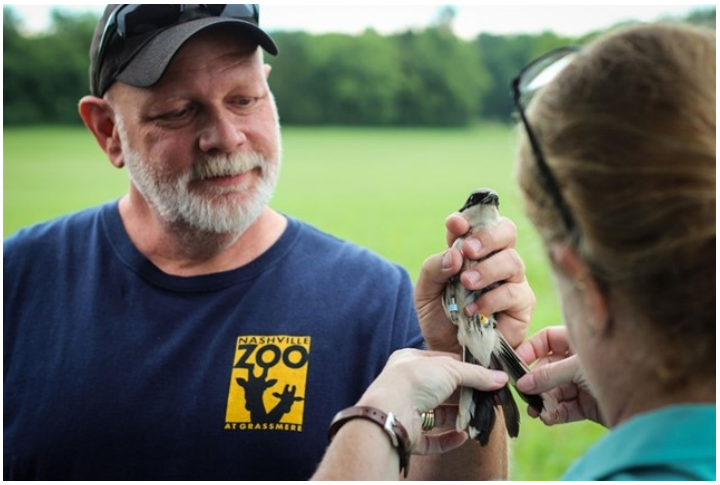
Nashville Zoo

The loggerhead shrike *(Lanius ludovicianus)* lives primarily in the Southeastern portion of the United States, but has been known to nest as far north as southern New Jersey and in the Ontario province of Canada, where they are endangered.

Loggerhead shrikes are often found in open pastures or grasslands with elevated perches and nesting sites, especially areas that have barbed-wire fencing. The shrike is nicknamed the "butcherbird" for its habit of impaling prey on thorny shrubs and barbed wire. Their diet mainly consists of large insects, small mammals, reptiles and occasionally smaller birds.

The loggerhead shrike, along with many other grassland bird species, is in steep decline. The loggerhead shrike has lost an estimated 74% of its population since 1970 and the population could decline by half in the next 25 years without significant action. It was identified as a Species of Greatest Conservation Need in the 2015 Tennessee State Wildlife Action Plan, making it a priority for conservation.

The cause of shrikes' decline in population is poorly understood and is the subject of much research. Direct loss and degradation of native grassland habitats has been cited as a primary factor in the decline of loggerhead shrikes.



Nashville Zoo is a participating member of the Eastern Loggerhead Shrike Working Group, which was formed in 2013 and is composed of many state, federal and non-government entities. The Zoo has been working closely with the Loggerhead Shrike Working Group to identify research, conservation and management priorities in the soon-to-be-finalized Loggerhead Shrike Conservation Action Plan.

Among these priorities is implementation of a collaborative loggerhead shrike trapping and banding project across the species' breeding and wintering range in the Southeast United States. This project will help researchers evaluate the shrike's migration, population dynamics, and habitat. The unique color combinations of the bands allow biologists to identify individual birds that are re-sighted.

Learn more about the Loggerhead Shrike Working Group at www.loggerheadshrike.org

Nashville Zoo staff, alongside other local researchers, have been surveying and monitoring loggerhead shrikes in Middle Tennessee since 2013, and have successfully banded several shrikes. Each individual was banded with one standard USGS band and 3 plastic color bands (2 bands per leg) and released at the capture site. In 2015, one individual was also outfitted with a transmitter that tracked the bird's movements for six weeks in order to create a map of its territories.

In 2016, the Zoo received four captive shrikes from Wildlife Preservation Canada for a migratory urge study. These birds now live on the Zoo's property where the Avian Department cares for them and studies how they utilize their habitat during the different seasons.

By monitoring wild populations and studying captive birds, we hope to learn more about the components of a suitable shrike habitat so that we can better manage land and provide recommendations to landowners on how they can ensure their land is a shrike-friendly habitat.

Original article can be found at the following link: https://www.nashvillezoo.org/loggerhead-shrike-conservation

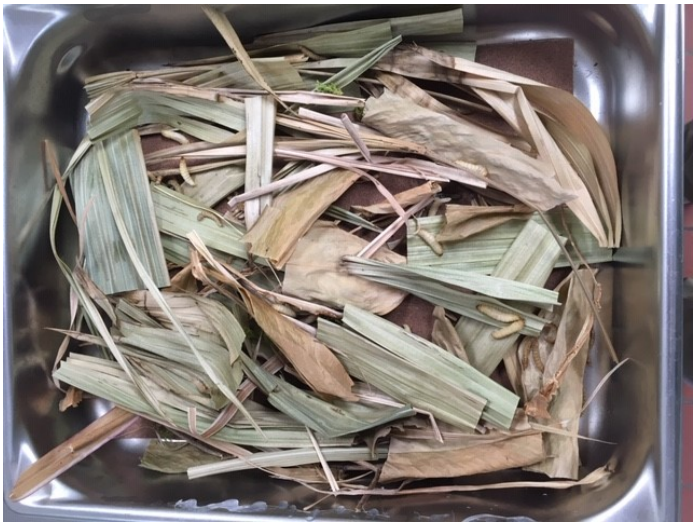
Native Songbird Enrichment

Sara Hallager, Kathy Brader, Shelby Burns, Lori Smith, Smithsonian's National Zoo and Conservation Biology Institute

Keeping native North American songbirds in off exhibit holding offers many opportunities for enrichment! It's important to consider the natural biology of the species when offering enrichment. For example, ovenbird and wood thrush are species of the forest floor and so providing a hollow log or foraging tray mimics their tendencies to scratch around on the ground looking for bugs. Species like black and white warblers will appreciate leaning pieces of wood or pieces of bark to cling on to as they would in the wild. Species that make pendulant nests like orchard orioles and Baltimore orioles will relish bits of grass, bamboo or paper to shred. Species that favor streams like Louisiana waterthrush love a shallow stream or some kind of moving water source. At the National Zoo, we've found that many birds seek out UVB bulbs to bask under although wood thrush less so, perhaps due to their forest dwelling lifestyle. A great many of our birds spend a lot of time in foraging trays, filled with real or fake leaves and filled with bugs. We place sandpaper in the bottom of the tray to help keep their nails in good shape. During the breeding season, be sure your native songbirds have an array of nesting material to choose from! Depending on the species, favored items include cotton, twine, newspaper, mammal hair, pine needles, mud, grass, bamboo.

Here are some ideas for enriching your native songbirds.

- Hollow logs for foraging; especially for forest floor species
- Mulch or soil tray for species that spend time on the forest floor or nest on the ground
- Paper or real leaves to shred (favored by orioles)
- Foraging trays with leaves and insects
- Broadcast insects within the exhibit
- Misting
- Water fountains
- Auditory such as talk radio, music, ocean, brook or tropical bird sounds
- Mirrors (may not be appropriate for all species)
- UVB lamps for basking (favored by most species)
- Cardboard tubes so that crickets can crawl out



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Birds Flying Into Windows? Truth About Birds and Glass Collisions

Christine Sheppard, Ph.D. and Bryan Lenz, Ph.D.

Glass collisions kill vast numbers of birds in the United States each year. Yet most Americans know little about this danger, and even fewer are aware of the solutions available to help prevent these deaths — fixes that in many cases are easy and inexpensive. American Bird Conservancy's collisions experts, Christine Sheppard, Ph.D., and Bryan Lenz, Ph.D., put together a list of responses to the 14 questions they are most frequently asked. Take a look. Chances are, we've got an answer for you below.

1) How many birds are killed by glass collisions in the U.S. each year?

Because glass is used so widely, giving a definitive answer is difficult, but Smithsonian researchers attempted to do so in 2014. They estimated that homes and other buildings one to three stories tall accounted for 44 percent of all bird fatalities, about 253 million bird deaths annually. Larger, low-rise buildings four to 11 stories high caused 339 million deaths. And high-rise buildings, 11 floors and higher, kill 508,000 total birds annually. Individual skyscrapers can be quite deadly for birds, but they kill fewer birds overall due to their limited numbers.

By combining these numbers, the Smithsonian reported that collisions likely kill between 365 million and 1 billion birds annually in the United States, with a median estimate of 599 million. We believe that the true number is closer to a billion, for several reasons. For one, data used in the study is now more than six years old, and there has been a steady increase in glass use since that time, increasing the likelihood of fatal collisions. In addition, we've learned that bird carcass reports tend to understate deaths, meaning that more dead birds go uncounted than we realized.

This means that the only anthropogenic (human-caused) threat that kills more birds in the United States each year is domestic cats.

2) Why do birds collide with glass?

Transparent glass is invisible to both humans and birds, but humans can use door frames and other visual clues to anticipate the presence of glass and avoid collisions — most of the time. Birds, of course, don't share this ability. They perceive reflected images as literal objects, which explains why glass reflections, especially ones that present images of food, shelter, or an escape route, can trigger collisions.

3) Are birds okay when they hit windows and fly away?

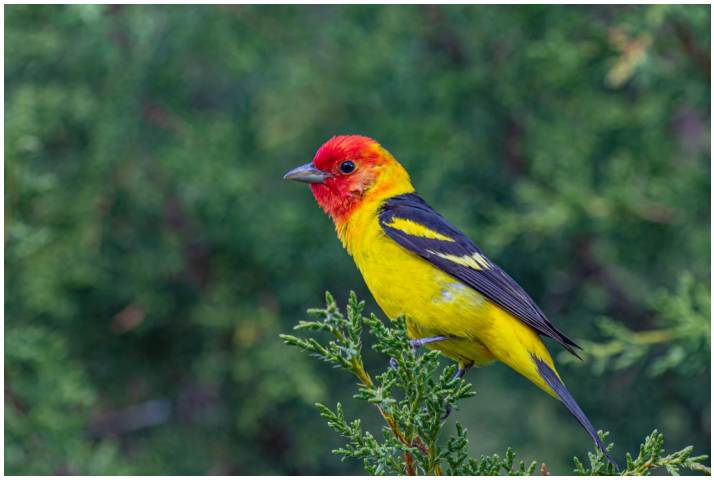
After colliding with glass, some birds may be only temporarily stunned and without lasting injury — but often they are not so lucky. In many of these cases, birds suffer internal hemorrhages, concussions, or damage to their bills, wings, eyes, or skulls. While they may be able to fly temporarily, birds with even moderate injuries are much more vulnerable to predators and other environmental dangers. In many instances, however, birds are killed immediately and never fly away.

4) Why don't I see birds that have been killed by collisions more often?

There are several reasons. One is that dead birds are not always visible. Birds flying into glass at high speeds may bounce off and land some distance away, and be hidden under plantings or behind other nearby objects.

When they do fall in open spaces, birds usually don't stay there for long. Groundskeepers sweep up dead and injured birds as part of their routine building maintenance. And most homeowners do the same.

Animals also quickly dispose of dead birds. Raccoons, crows, house cats, opossums, rats, and chipmunks will carry off dead and injured birds soon after they hit the ground, and may actually check a window with frequent collisions multiple times a day.



Western Tanager by Eric Peterson

Birds Flying Into Windows? Truth About Birds and Glass Collisions

Continued...

5) How do I stop birds from hitting my windows?

There are many ways to make windows bird-friendly. One of the best is to use external insect screens. These screens virtually eliminate reflections, and if birds do hit them, the impact is cushioned, reducing the likelihood of injury. An added benefit is that these screens are easy to install on existing or new home windows. If screens aren't an option, you can use a range of materials — tape, decals, strings, cords, paint, netting, and shutters are options — to create window patterns that birds will interpret as solid objects, needing to be avoided. It's important to make sure that birds see no viable way to fly between the adhesives or objects you're using, so make sure to eliminate all spaces larger than two inches.

Remember, whichever material you use needs to be visible to birds from at least ten feet away so that they have time to see the material and change course.

6) Can I apply something to the inside of my windows to stop bird collisions?

The best place to apply solutions is on the outside of the window, where they are easily visible. However, using external solutions isn't always an option. Some windows — like those on a tall building — can be difficult to access from the outside. In these cases, we recommend testing a variety of solutions. This is because different kinds of glass have varying reflective levels and, unfortunately, there is no universal solution. To conduct a test, apply a sticky note, tape, or sample of your proposed solution to the inside of the window and then look at it from the outside every hour or two, starting in the early morning. If you can see your test material most of the time, birds will too, and an inside solution may work for you.

In many cases, however, internal solutions do not work, and reflections will hide your solution during part or all of the day, thereby reducing or eliminating its effectiveness. But this shouldn't deter you from acting. Adding something to the inside of your windows is better than doing nothing.

7) Will bird-friendly window products obscure the view from my window?

No, you don't need to impair your view to save birds. In our experience, people quickly adjust to bird-friendly design solutions, often forgetting that they are even there. We have also found that when family, friends, or customers notice the pattern and learn its purpose, they appreciate the effort to protect birds. If you are designing a new building or replacing windows, consider the professional solutions favored by architects. Many of these elegant products have enjoyed long-standing popularity among architects for their aesthetic appeal alone.

8) Does light cause birds to hit buildings?

Light does increase collision numbers, but not directly. Recent studies confirm that urban glow attracts birds into the human-built environment, where they run a higher risk of collisions. Migratory birds traveling at night are also attracted by intense lights contrasted against the night sky. The “beacon effect,” as this occurrence is commonly known, can be caused by lighthouses, offshore oil platforms, or powerful light displays, like the twin beams at the World Trade Center memorial. These lights can thoroughly disrupt birds' ability to navigate, effectively trapping them around the light. However, as light pollution continues to brighten nighttime skies and the surrounding darkness needed to perpetuate the "beacon effect" is lost, this danger to migratory birds may well diminish. Despite the dangers posed by nighttime lights, it's important to note that most collisions take place during the day, when migratory birds are refueling to continue on their journeys.

Common Redpoll by Eric Peterson

Birds Flying Into Windows? Truth About Birds and Glass Collisions

Continued II...

9) I put a decal up, but birds still hit my windows. What can I do?

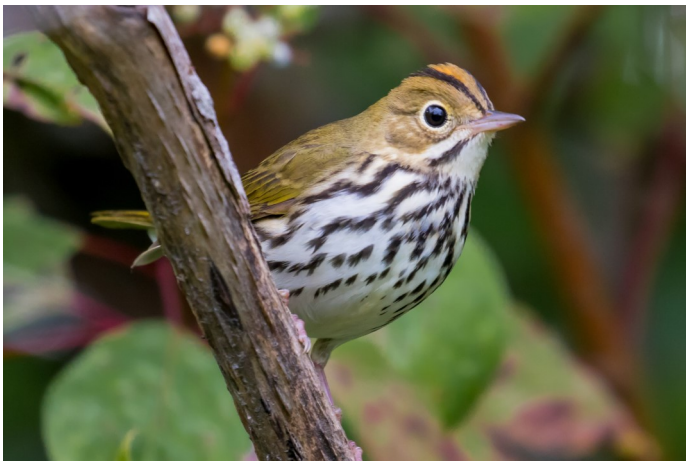
A single decal may be enough to warn an alert human to expect a glass door, but for a bird it's simply an obstacle to fly around.

To successfully deter birds, decals and other collision deterrents must be applied with proper spacing to create the illusion of a cluttered environment through which it would be difficult or impossible to fly. You can learn more **here.** Remember to make sure that whichever pattern you use on your windows should not have any spaces more than two inches wide.

10) What can I do about a building that causes collisions in my town?

The first thing to do is document the problem. Take photos of the dead birds you find and keep a list of numbers and dates.

If there is a facilities or maintenance department, ask what they have noticed; they are usually responsible for cleaning up birds that have died after hitting glass and may be great allies who help you collect data or convince building managers of the danger to birds. After documenting the problem contact the building owner or manager to tell her or him about the problem, and provide advice or resources (such as this blog) on how to address it. Keep in mind that you are making a request and looking for a partner to save birds, so be sure to keep these interactions positive and non-confrontational. Avoid vilifying the responsible party for a collision problem that they likely had no idea existed.



Ovenbird by Eric Peterson

You can also talk to people who live, work, or shop in the building in question to see if anyone else shares your concerns. If so, ask them if they would like to be involved. By working with others, you build a collective voice that can draw more attention to the problem. Remember, there are many ways to get involved. These include helping with monitoring, writing letters to building owners, attending meetings with building management, and organizing community action.

11) What can I do to keep buildings that harm birds from being constructed where I live?

Buildings designed without bird-friendly design principles have the potential to be deadly for birds. A variety of factors determine the level of the threat they pose, including the amount of glass used, placement and reflectivity of the glass, the height and extent of vegetation around the building, and the presence of water, among other things. Given the extremely low cost of constructing a bird-friendly building, we believe that all new buildings — not just glass-covered skyscrapers — should incorporate bird-friendly features. There are several ways to help make this happen. The first is to develop and pass a local ordinance requiring the adoption of bird-friendly building standards in your community. Keep in mind that ordinances tend to apply to large buildings and exempt low rises and homes, so it is important to make sure that the ordinance applies to as many buildings as possible. Although passing an ordinance is a great accomplishment, it's not the only thing you can do.

Consider approaching the developers of new and proposed building projects with your concerns. Since this can be a time-consuming process, we suggest focusing on projects with a high likelihood of success (e.g., nature centers, museums) or organizations that influence multiple buildings (e.g., local government, universities, health care organizations, and architecture firms) to help them adopt bird-safe building policies.

While it's critical to make sure that new buildings incorporate bird-friendly designs, don't forget that existing buildings already account for hundreds of millions of bird deaths annually. Consequently, the need to retrofit homes and other buildings will remain an important way to reduce bird collisions for the foreseeable future.

Birds Flying Into Windows? Truth About Birds and Glass Collisions

Continued III...

12) Are all LEED-rated buildings bird-friendly?

Not necessarily. When architects, developers, and other stakeholders intend to create a LEED-rated building, they review available credit options and select the amount of credits needed for the rating they want. Bird-friendly credits, however, weren't available until 2011, when the LEED program adopted a new, bird-focused building design credit known as “Pilot credit SSpc55: Bird Collision Deterrence.” Like all credits in the LEED system, the use of this bird-friendly credit is not mandatory. So, while many builders have opted to use this credit, not all LEED-rated buildings are bird-friendly. Regardless of LEED rating, we strongly encourage architects and builders to incorporate bird-friendly buildings guidelines into their designs.

13) When do most bird collisions with glass take place?

Collisions don't happen at an even pace over the course of a year, or even throughout the day. Most collisions happen during daylight hours or immediately before dawn, with few occurring at night. Mornings in particular tend to be the worst time of day for collisions. During migration, this is because migratory birds that have flown all night are usually in a state of exhaustion as the sun comes up and as they look for a place to land and refuel. Those that land in and near cities find themselves in a maze of deadly glass.

In addition, resident birds are generally most active in the morning, as they wake up hungry and immediately search for food. During the course of a year, migration periods bring the largest upticks in collisions, when huge numbers of birds stop to rest, often in unfamiliar areas where glass is common. Fall is worse than spring due to the larger number of birds in flight. This is because fall migration includes both adult birds and juveniles that were born over the summer. Spring migration includes only adults returning to breed. But migration is not the only dangerous season. We also see collision increases in late spring, as nesting birds fledge their young, and in winter, when resident birds leave their territories and cover larger areas in search of food.

14) What does ABC do to protect birds from glass collisions?

American Bird Conservancy strives to reduce bird-and-glass collisions by making the human-built environment as safe as possible for birds. To maximize our impact, we focus on the following areas:

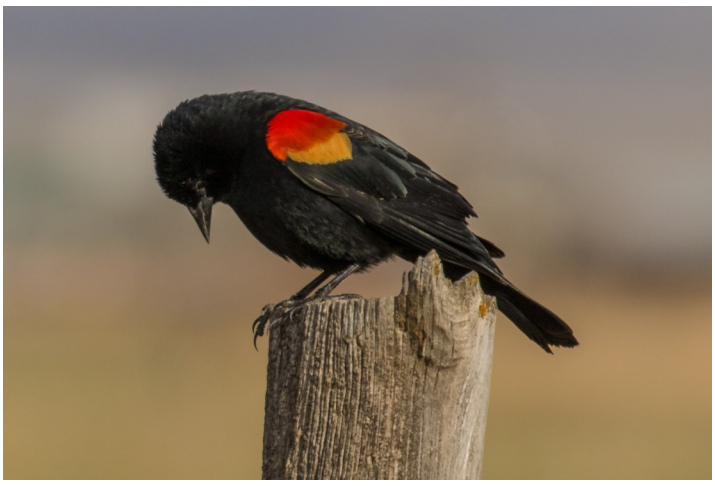
Product testing: We operate a flight tunnel to better understand how birds interact with various commercially available window treatments. These evaluations help us create bird-friendly building guidelines for architects and recommend effective solutions for people living in homes and other buildings. As experts in the field, we also evaluate and document scientific literature related to bird collisions.

Legislation, codes, and LEED: We help promote science-based, bird-friendly legislation based on the results of tunnel tests conducted by ourselves and other researchers. For example, we worked with members of Congress to draft the national Bird-Safe Buildings Act, which would require public buildings to incorporate bird-friendly building design and materials. We have also helped to establish building guidelines like the LEED Pilot Credit SSPc55 and pass local ordinances.

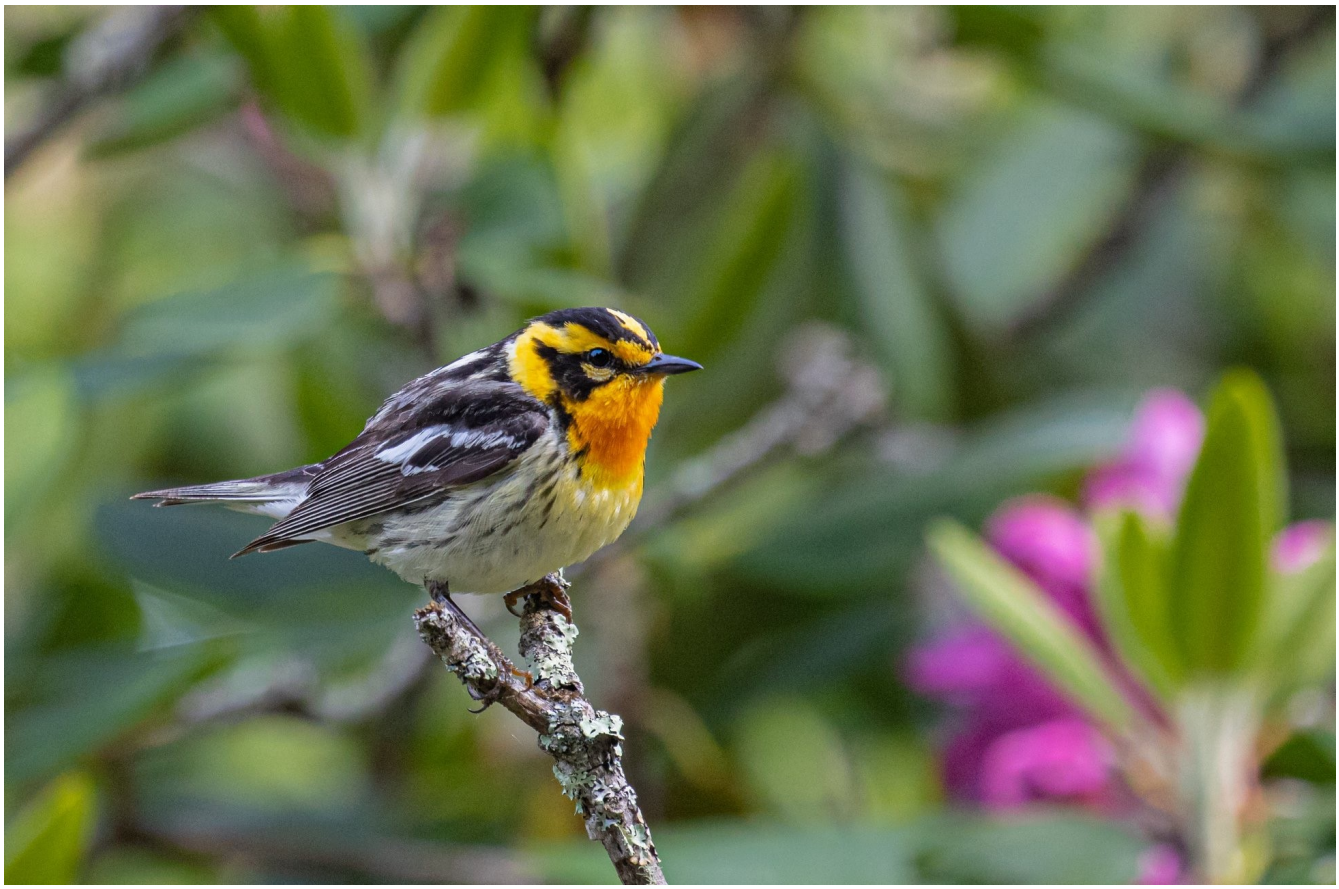
Educating architects and engineers: ABC offers a bird-friendly building design course that architects can take for continuing education credit from the American Institute of Architects and the Green Building Council.

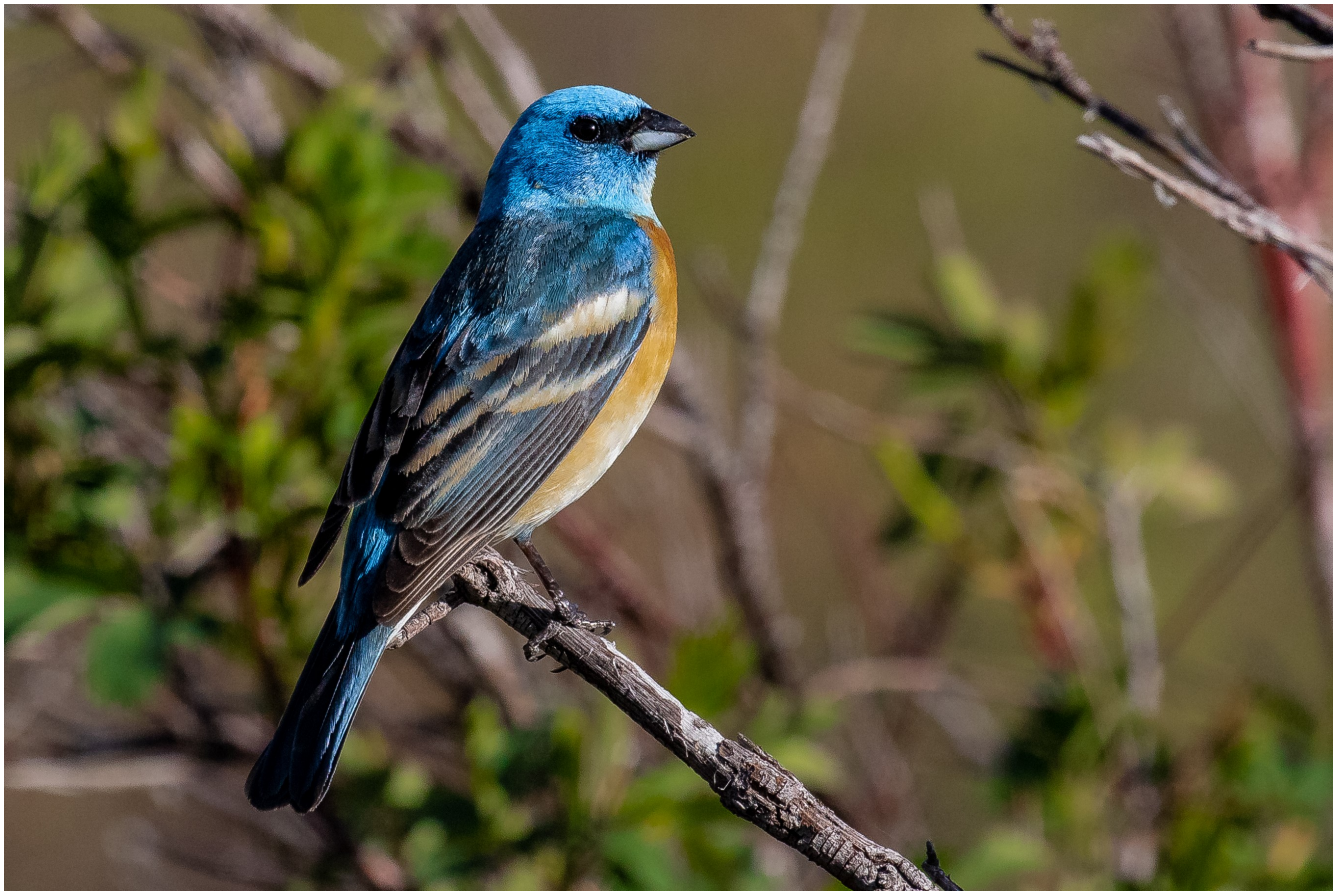
Guidance on retrofits and monitoring: ABC helps businesses, universities, and individuals create effective monitoring programs and select the right solutions to reduce collisions.

Public education and outreach: A large part of ABC's collisions mission is raising public awareness about this issue. We connect people with solutions and provide detailed information to homeowners, architects, engineers, and lawmakers.



Red-winged Blackbird by Eric Peterson





Top: Blackburnian warbler; bottom: Lazuli bunting by Eric Peterson

Scientists use eBird data to propose optimal bird conservation plan

Gustave Exelson, Cornell University

A new paper published in the journal *Nature Communications* shows a blueprint for conserving enough habitat to protect the populations of almost one-third of the warblers, orioles, tanagers, and other birds that migrate among the Americas throughout the year.

For the research, an international team of scientists used the Cornell Lab of Ornithology's global citizen science database, eBird, to calculate how to sufficiently conserve habitat across the Western Hemisphere for all the habitats these birds use throughout their annual cycle of breeding, migration, and overwintering. The study provides planners with guidance on the locations and amounts of land that must be conserved for 30 percent of the global populations for each of 117 Neotropical migratory bird species.

More than a third of Neotropical migratory birds are suffering population declines, yet a 2015 global assessment found that only 9 percent of migratory bird species have adequate habitat protection across their yearly ranges to protect their populations. Conservation of migratory birds has historically been difficult, partly because they require habitat across continents and conservation efforts have been challenged by limited knowledge of their abundance and distribution over their vast ranges and throughout the year.

"We are excited to be the first to use a data-driven approach that identifies the most critical spaces for bird conservation across breeding, overwintering, and migratory stopover areas throughout the Western Hemisphere. In doing so, we provide guidance on where, when, and what type of habitat should be conserved to sustain populations," said Richard Schuster, Liber Ero Postdoctoral Fellow at Carleton University, and lead author on the *Nature Communications* paper. "This is a vital step if conservationists are to make the best use of limited resources and address the most critical problems at a hemispheric scale."

The team's analysis found that conservation strategies were most efficient when they incorporated working lands, such as agriculture or forestry, rather than exclusively focusing on areas with limited human impacts (i.e., intact or undisturbed landscapes). The importance of shared-use or working landscapes to migratory birds underscores how strategic conservation can accommodate both human livelihoods and biodiversity. The research also found that efficiency was greatest—requiring 56 percent less land area—when planning across the entire year in full, rather than separately by week.

"Efforts to conserve migratory species have traditionally focused on single species and emphasized breeding grounds. Our results show that planning for multiple species across the entire year represents a far more efficient approach to land use planning," said Scott Wilson, Environment and Climate Change Canada research scientist and co-author on the paper.

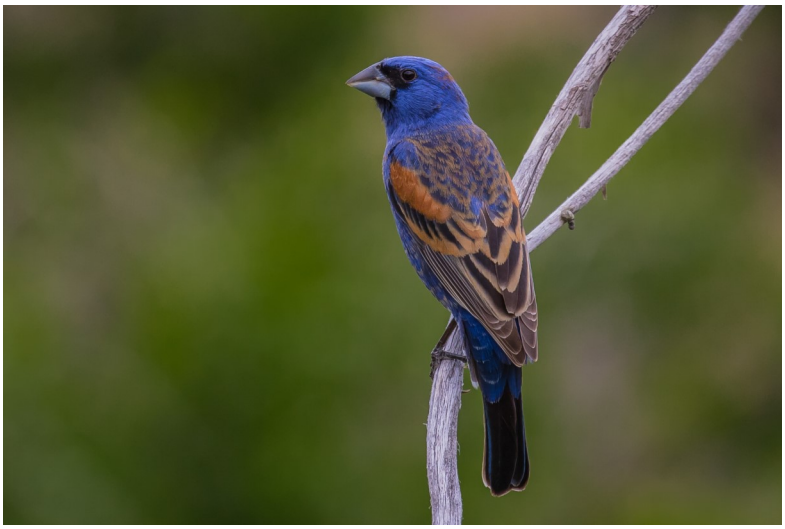
"This study illustrates how globally crowd-sourced data can facilitate strategic planning to achieve the best return on conservation investments. No other data source could have achieved anything close to this level of detail and efficiency in spatial planning over such a vast area," said Cornell Lab senior conservation science director and co-author Amanda Rodewald.

Canada Jay by Eric Peterson

A Keeper's Tips for Housing Rehabilitated Songbirds

Christina Carlson, Cosley Zoo

At Cosley Zoo, we have a diverse collection of rehabilitated songbirds in our indoor/outdoor aviary year round. Most of our collection consists of individuals with either physical or behavioral injuries that would prevent them from living a successful life in the wild. Housing rehabilitated songbirds poses multiple challenges. Ensuring that the birds receive optimal welfare is the ultimate goal. Accessibility and safety are critical to proper welfare with animals that have been rehabilitated.



Blue Grosbeak by Eric Peterson

Physical disabilities and limitations can restrict the access a rehabilitated songbird has to an exhibit's amenities. At Cosley Zoo, perches are carefully constructed and hung to assist those who cannot fly properly. The branches act as ladders and ramps to gain access to higher areas of the exhibit that could otherwise only be reached by flight. There are several branches placed around each exhibit starting on the ground and sloping up to the top of the exhibit. Our enclosure fencing is also well suited for allowing birds to climb up to any perch in the exhibit, rather than having to fly. In the indoor holding areas, our enclosures are perched similarly. Our migratory population needs to be shifted inside for the colder months of the year. Shift doors for inside enclosures are along the ground, allowing all species to enter despite flight impairments. When the doors are opened, food dishes are placed in doorways to help show the songbirds where the openings are located, enticing the birds inside without us having to catch them up.

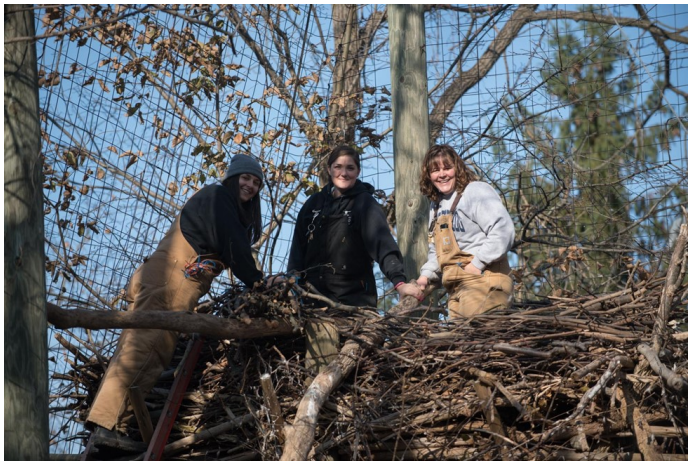
Each day, the keepers examine and test branches, and replace or fix any that may have rotted out or broken from stress or destructive species. Keepers also monitor any wood structures within the exhibit to prevent any escape or injury due to falling perches. Each species has unique requirements for proper nutrition. Bowls are placed in a variety of locations both along the ground and higher up. Hanging bowls are typically placed near perches for easy access. Diets are divided into multiple bowls to allow access to all birds, regardless of physical ability. Additionally, we place a variety of water dishes of varying depths around the exhibit to accommodate birds who are not as comfortable bathing in or drinking out of deeper water. There are running ponds along with water dishes throughout each exhibit. Perching and rocks are strategically placed within to give the birds both access to the water and a safe route out of the water if they should fall in. Because many of our birds spend more time than normal on the ground, switching out and rotating substrate regularly is important to impede any bacteria that might harbor within. For enrichment, we steer clear of any stringy material or substrate to prevent a bird with an injured foot or wing from becoming trapped.

Cosley Zoo takes careful consideration when placing a bird into an exhibit with an already established population. Every individual's behavioral tendencies and physical impairments are noted before adding the bird to the exhibit to ensure that a smooth transition will occur. The exhibit is also assessed before adding individuals with impairments to ensure they have the opportunity to remove themselves from other species. While the introduction is happening, keeper staff closely monitors the interactions between the species, and are ready to intervene if need be. It is crucial to complete regular routine exams of birds with physical impairments to ensure that their injuries have not progressed or changed. Assessing birds for any changes to their pre-existing injuries helps keepers to maintain a safe environment for the birds. It can, however, be difficult to avoid stress during these exams. Monitoring the birds closely during veterinary exams or in other instances where restraint is needed is of the utmost importance. Because our rehabilitated birds are all native to our state, housing these species in an outdoor aviary poses another challenge. All keeper staff closely monitor any interactions with any wild conspecifics, and fecals are run twice yearly to test for parasites. Watching for nests and eggs also enables us to prevent any reproduction that was unauthorized, either within the exhibit or from an outside individual.

Keeping in mind the unique situations each individual requires to live in a safe, accessible, and welfare-rich environment allows us to optimize the lives of our rehabilitated native songbirds. Working with a knowledgeable team to come up with creative solutions to address the challenges that keeping rehabilitated songbirds creates is imperative to a successful collection.

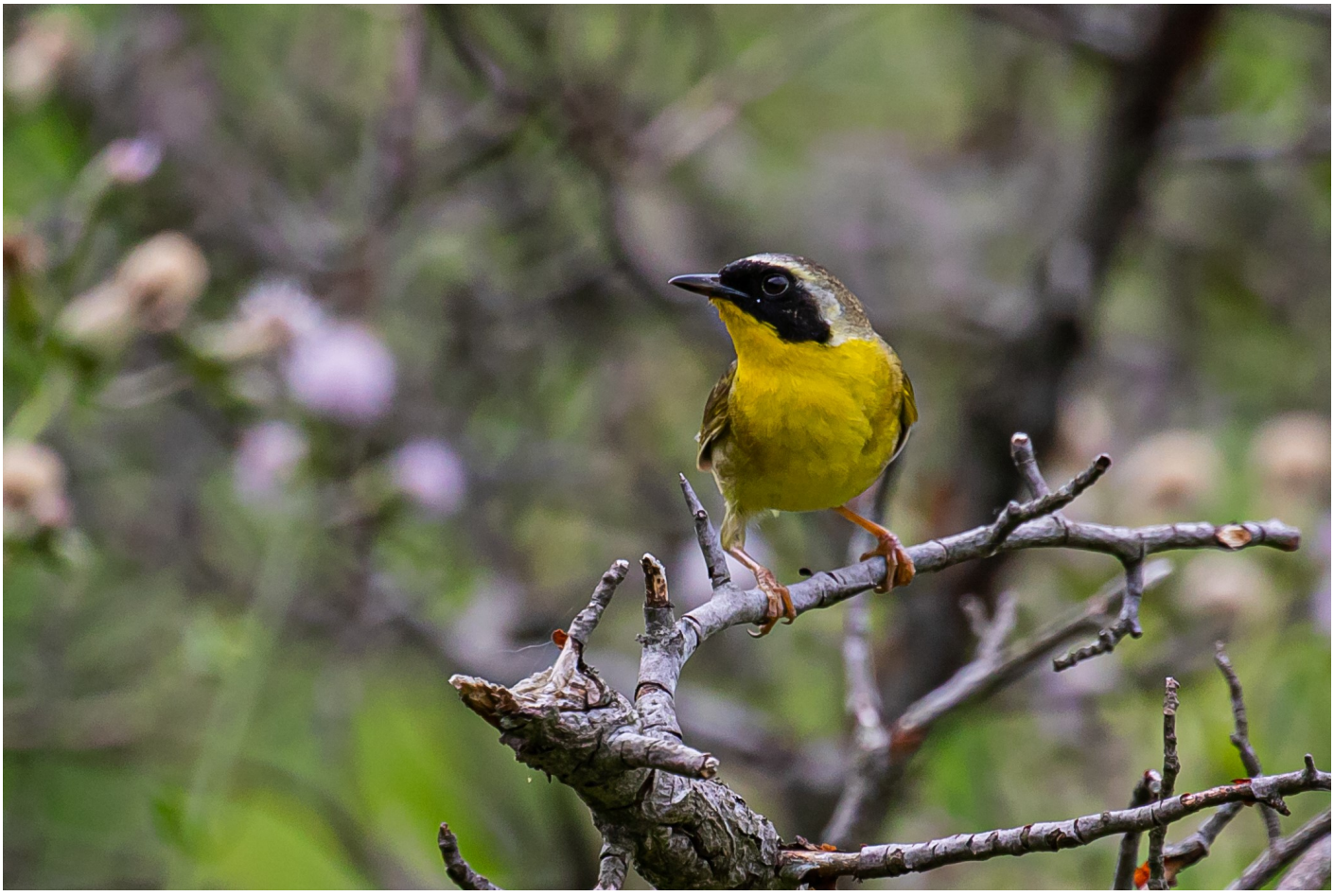
Songbird Celebutante

Meet Michelle Tremoulis from Columbus Zoo and Aquarium



Re-twigging the bald eagle nest. Michelle on far right.

Michelle earned her degrees in Biology and Psychology from Muskingum College. She has over 20 years of experience in avian husbandry. Michelle works in the North America/Polar Frontier region of the zoo and cares for a wide variety of animals. Michelle works in the North American Songbird Aviary with a diverse collection of waterfowl, gamebirds and passerines. She also cares for raptors and Trumpeter Swans. Michelle is especially proud of her work in the aviary where she provides non-releasable rehabilitated birds a home where they can survive and thrive. Using a rehabilitated population of birds to educate the zoo visitors about the threats migratory birds face and the actions they can take to conserve them in their own back yards is one of her favorite things to do.

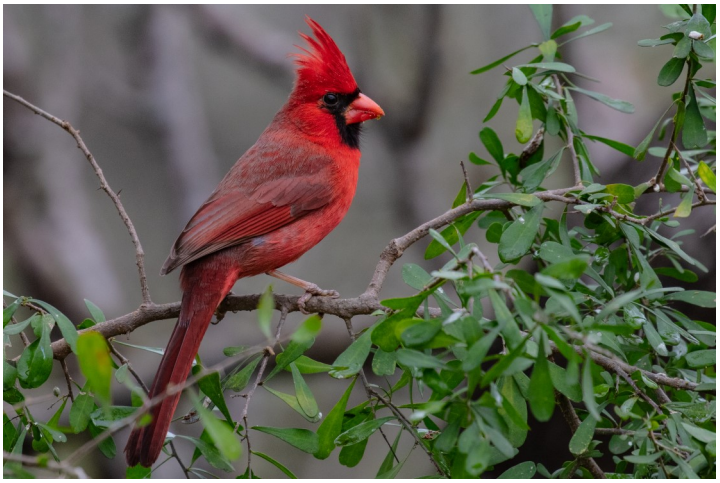


Common Yellowthroat by Eric Peterson

Creating Bird-Friendly Communities: Lights Out

National Audubon Society

Every year, billions of birds migrate north in the spring and south in the fall, the majority of them flying at night, navigating with the night sky. However, as they pass over big cities on their way, they can become disoriented by bright artificial lights and skyglow, often causing them to collide with buildings or windows. While lights can throw birds off their migration paths, bird fatalities are more directly caused by the amount of energy the birds waste flying around and calling out in confusion. The exhaustion can then leave them vulnerable to other urban threats.



Northern Cardinal by Eric Peterson

Dozens of species are affected, including priority species—those we have identified as most in need of and most likely to benefit from our help— such as the Allen's Hummingbird, Varied Thrush, Golden-winged Warbler, and Seaside Sparrow. Just one building can cause major problems for birds in the area; within one week in 2017, nearly 400 passerines (warblers, grosbeaks, etc.) were caught in the floodlights of a 32-story Texas skyscraper and killed via window collisions.

Audubon's Lights Out program is a national effort to reduce this problem. The strategy is simple: by convincing building owners and managers to turn off excess lighting during the months migrating birds are flying overhead, we help to provide them safe passage between their nesting and wintering grounds.

Turning off bright lights helps birds move on within minutes, as discovered by the Cornell Lab of Ornithology and New York City Audubon during the annual 9/11 memorial in New York City. Hundreds of birds are caught in the memorial's beams every year but turning them off for just 20 to 30 minutes at a time greatly reduces the density of birds in the area.

Taking more steps to decrease the amount of light our buildings emit minimizes unnecessary bird deaths saves money by reducing energy consumption, and supports your or your organization's sustainability goals. Moreover, taking these kinds of initiatives to protect birds can even earn you recognition for green, bird-friendly practices.

Original article can be found at the following link: https://www.audubon.org/conservation/project/lights-out

NASWG

NORTH AMERICAN SONGBIRD WORKING GROUP

Want to contribute to the **Lights Out** solution?

- Turn off exterior decorative lighting
- Extinguish pot and flood-lights
- Substitute strobe lighting wherever possible
- Reduce atrium lighting wherever possible
- Turn off interior lighting especially on higher stories
- Substitute task and area lighting for workers staying late or pull window coverings
- Down-shield exterior lighting to eliminate horizontal glare and all light directed upward
- Install automatic motion sensors and controls wherever possible
- When converting to new lighting assess quality and quantity of light needed, avoiding over-lighting with newer, brighter technology

North American Songbird Working Group Team

Core Team, Advisors, and Contact Info

Core Team

Nikki Smith, Columbus Zoo and Aquarium	Husbandry Champion, Chair
Sara Hallager, Smithsonian National Zoological Park	Husbandry Champion
Anne Tieber, Saint Louis Zoo	International Migratory Bird Day Champion
Jason Fischer, Disney's Animal Kingdom	Research Advisor
Tom Schneider, Detroit Zoological Society	Urban Bird Treaty Champion
Shane Good, Akron Zoo	Glass Strike Prevention Champion; Lights Out Champion
Bonnie Van Dam, Detroit Zoological Society	Glass Strike Prevention Champion
Lindsay Jacks, Lights out Baltimore	Glass Strike Prevention Champion

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Rhana Paris, NC Aquarium on Roanoke Island	Education Advisor
Brianne Warthman, Columbus Zoo and Aquarium	Education Advisor
Joe Smith, Fort Wayne's Children's Zoo	Veterinary Advisor
Kim Cook, Akron Zoo	Veterinary Advisor
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Kelly Vineyard, Columbus Zoo and Aquarium	Husbandry Advisor
Mike Kreger, Columbus Zoo and Aquarium; The Wilds	Conservation Advisor
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