



CONSERVATION IN ACTION

Accredited zoos play an important role in the conservation of wildlife and wild places around the globe. As collaborators, zoos work with government agencies, non-profits, conservation organizations, universities, and others to help address regional and global threats to biodiversity and find solutions to mitigate population declines. Through innovative approaches and expertise in the field, zoos play a crucial role in saving species.

In the last 50 years, North America has lost nearly 3 billion birds. This staggering number accounts for more than one in four birds that have been lost to environmental and human impacts. Climate change has played a role in species declines as well as light pollution, city skyscrapers along migration routes, loss of natural resources, and threats like outdoor cats.

Birds are a valuable part of the ecosystem and play a key role as indicators of biodiversity. Bird populations are highly sensitive to environmental changes, so they are often among the first to show signs when something is wrong. As an integral part of the food chain, birds keep insect and rodent populations in check. Many bird species are also seed dispersers, allowing plants to distribute across wide ranges.

At Zoo Atlanta, we are interested in the decline of bird populations and understanding how we can intervene most effectively to save species. In partnership with Birds Canada, Zoo Atlanta recently installed a Motus tower as part of the Motus Wildlife Tracking System. Through this technology, we are now connected to an international collaborative research network that can use radio telemetry data to facilitate research and education on the ecology and conservation of migratory bird species.

Conservation action must be collaborative and based in science. It requires asking questions and investigating the answers to help formulate solutions. Effective conservation action follows the same iterative process as scientific inquiry; programs adapt and change as more is learned about the outcomes of conservation work. Follow the conservation process below to better understand how Zoo Atlanta and our partners use broad-based technology to understand bird populations and make threat assessments that will help drive solutions.



1. THE ISSUE

There has been a significant decline in bird populations over the last 50 years due to environmental and human impacts. It is difficult to get an accurate count of bird populations due to the vast distances that migratory birds travel.

THE ISSUE AND STATUS: How do we gather information to assess declines in bird populations around the world and use that information to mitigate threats?



2. CREATE A STRATEGY

Through collaboration with partners around the world, avian scientists utilize the technology of the Motus Wildlife Tracking Systems to gather and share data that capture population assessments across geographic ranges and globally. They can then interpret the data to identify locations where birds are found, and in turn work to identify threats impacting these habitats.

THE STRATEGY: How do we use data gathered on bird populations to identify threats?



3. DESIGN PLAN

Biologists attach small temporary radio transmitter backpacks on migratory birds and install Motus towers along migratory bird routes around the world to collect data on individuals and species as they travel past the different towers. Data are shared across organizations to understand population trends regionally and globally.

THE ACTION PLAN: How can the strategy be tested?



4. TEST, OBSERVE, RECORD

As more birds are tagged with radio transmitters and additional towers are installed, it will become easier for organizations to look for trends in data regionally, globally, and by species to better understand where declines are taking place and what threats bird species may be facing. Additional data are referenced including weather and climate patterns, natural resources, and other environmental and human impacts to the ecosystem.

TEST, OBSERVE, RECORD: What happens when the plan is implemented?



5. DATA ANALYSIS

Partners utilize all available data, including Motus Wildlife System Tracking data, to make recommendations for specific species, for bird species of a certain range, and for bird species globally. For example, a recent study found that songbirds who were exposed to insecticides showed a reduced body mass and delayed migration which could be attributed to population declines. (Eng, M.I., Stutchbury, B.J.M., and C.A. Morrissey.2019. A neonicotinoid insecticide reduces fueling and delays migration in songbirds. Science.DOI:10.1126/science.aaw9419)

DATA ANALYSIS: What do the results mean?



6. COMMUNICATE

We communicate results of the project with partners, stakeholders, and the public to highlight successes, challenges, and opportunities for improvement. This information helps raise awareness and share recommendations to help mitigate threats regionally and globally to migratory bird species. We celebrate the important roles that birds play in our ecosystem and encourage others to get involved in community science projects that support bird conservation.

COMMUNICATE: Share the results with others.



7. REFLECT & ADAPT

Avian conservation organizations work collaboratively with partners and stakeholders to adapt conservation plans based on results and the current state of the population and ecosystem. This adaptive management strategy allows scientists to make changes over time, often years, to adapt to the ever-changing needs of the species and habitat.

RESULTS: Discuss the results and how the strategy can be adapted.



HOW YOU CAN HELP TO PROTECT BIRDS

Everyone can take action to save species! Migratory birds travel thousands of miles and may stop in your backyard or local parks to rest, eat, and find shelter.

- You can help them on their journeys by planting native plants and removing invasive species.
- Avoid using chemicals on your lawn and garden.
- Keep habitats healthy by picking up litter and reducing your consumption of single-use items like straws, plastic bags, and disposable drink containers.
- At night, close your blinds and turn off lights to reduce light pollution, which can confuse birds.
- Prevent collisions and make your windows bird-safe by applying window film, exterior screens, or paint to your windows.
- Keep your cats indoors.
- Take time to watch the birds in your area and get involved in community science projects like the Great Backyard Bird Count to learn more and help out.

We all play an important role in conservation action!

To learn more about Motus Wildlife Tracking Systems, view data, and to see where the towers are located in your region, visit <https://motus.org/>.



FREE CURRICULAR CONNECTIONS AT zooatlanta.org/education-poster/



Motus is a program of Birds Canada





Dear Educators,

We are excited to share with you this year's Education Poster highlighting Conservation in Action! At Zoo Atlanta, we are committed to making a difference for wildlife and wild places and hope that you will join us in our work. Our mission is to "...save wildlife and their habitats through conservation, research, education, and engaging experiences. Our efforts connect people to animals and inspire conservation action."

In this year's Conservation in Action poster, we introduce you to one of the many conservation programs that we are involved in. Migratory birds are an integral part of our ecosystem, and we have seen a sharp decline of migratory bird species over the last 50 years. At Zoo Atlanta, we are collaborating with scientists around the world to help provide data that will lead to impactful decisions to save species. Join us this year in exploring the threats that migratory birds face and engaging your learners in real life science.

Each poster is designed to reflect the Scientific Method with curricular connections found on our website that will help guide student learning. We are here to support you as educators and to help build the next generation of scientists, conservationists, biologists, engineers, and more.

On behalf of the entire team at Zoo Atlanta, we invite you to visit us this school year to get up close to wildlife and learn how we are involved in conservation and research around the globe. We are a living resource right in the heart of Atlanta – just waiting to be used as a classroom resource for your students! If you cannot make it to the Zoo, check out the ways we can bring the Zoo to you. From our YouTube page to our Cases for Conservation (free to borrow) and our ZooMobile programs, there is something sure to enhance your classroom curriculum.

Working together, we can inspire the next generation of innovative, STEM literate, conservation-minded students.

Thanks for all you do!
Staci Wiech
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