



Lights-out Bogotá

Saving migratory birds by engaging new audiences in South America



Bogotá, Colombia, at night, a bustling city of 10 million people, and a crucial flyway for millions of migratory birds seeking passage through the northern Andes of South America

Background

Light pollution has been identified as one of the greatest emerging threats to migratory birds globally. Raising awareness of this threat in large cities, is therefore critical to mitigating impacts along busy migration flyways, as well as to creating greater environmental awareness and sensibility in the general public.

Artificial light attracts and disorients migrating birds, making them vulnerable to collisions with buildings and other manmade structures. In the U.S. alone, upwards of **1 billion birds** are killed by collisions each year; however, migration systems, and the human footprint, are global, meaning these risks are ubiquitous across our planet.

There are several successful initiatives mitigating these threats in North America but none in the Neotropical region, where most birds migrate to and through during the non-breeding season. The [BirdCast project](#), for example, uses weather surveillance radar and migration models to predict/track where and when birds are migrating through the continental US in real time, while successful education and community science initiatives have spearhead [lights out campaigns](#) during peak migration nights. These data tools and education campaigns provide unprecedented opportunities for birdwatchers and nature enthusiasts to enjoy and learn about migration. Perhaps most transformative is that these migration observations and forecasts raise awareness of the risks nocturnally-migrating birds face, and can be actively used to reduce their exposure to hazards.

Bogotá – a case study for the Neotropics

Here we conceptualize a project to raise awareness about bird migration in a mass audience, highlighting the opportunities for the public to contribute to migratory bird welfare in Colombia - **a nation that boasts the world's greatest diversity of birds.**

Bogotá, Colombia's capital and largest city, is known to be risky for migrating birds. This metropolis of close to **10 million people** lies on a major flight path for long-distance migratory birds, many of which have origins from across the eastern US and Canada. The topography of the Andes funnels birds towards the highland plateau on which Bogotá is located (8500 feet above sea level), which represents the last suitable habitat before birds cross the inhospitable spine of the Eastern Andes – a line of moorland type habitats between 10,000 and 12,000 feet.

A growing number of eBird records, combined with automated recordings and historical radar data, highlight how the combination of geography and climatic factors regularly result in **major fallouts** – events in which thousands of birds encounter poor migration conditions and literally “fall-out” of the sky into whatever habitat is most proximate. These city fall-outs provide unique opportunities for the general public to observe and learn about migration and to understand the importance of green spaces in urban landscapes. Unfortunately, they also inevitably increase the probability of birds colliding with glass windows, leading to recurrent mass mortality events during migration periods.



Photo ©Nick Bayly

The Bogotá skyline framed by the high spine of the Eastern Andes – low cloud, drizzle and mist hinder the passage of birds over the Andes leading to fallouts of species like the Yellow-billed Cuckoo, Eastern Wood-pewee, Red-eyed Vireo, Swainson's Thrush, Blackburnian Warbler and Scarlet Tanager across the city, often with fatal consequences.

Recent technological and political developments have created a unique opportunity to fill the major gaps in our understanding of migration patterns in large cities like Bogotá, while simultaneously reaching audiences of millions of people.

Key among these developments is information from the newly consolidated weather radar network in Colombia, acoustic monitoring and ground surveys. A preliminary analysis conducted by the University of Chicago, SELVA, and the Cornell Lab of Ornithology, indicates that data on bird movements over Bogotá are sufficiently robust to permit the construction of a predictive model for migration intensity - a first for a Neotropical location.

On the political front, **there has arguably never been more political will in Colombia to conserve birds.** The government of Colombia has embraced and celebrated the country's global standing as the World's Number 1 in terms of bird diversity and supported the construction of a national bird conservation strategy [ENCA Colombia 2030](#). Further, the Ministry of the Environment and the Humboldt Institute are leading a UN funded project called '[Biodivercities](#)', in which cities are implementing sustainability and environmental education programs.

Given the above and successful 'Lights Out' campaigns in cities like Houston and Dallas, we believe that the stage is set for launching a program in Bogotá. Specifically, we aim to:

- 1) Pilot messaging about bird migration and Lights-Out campaigns with large audiences in Latin America, starting with Bogotá
- 2) Combine radar observations, eBird and acoustic monitoring to generate the first predictive migration model for a major Neotropical city



An Eastern Wood-Pewee takes up residence on a city park bench for want of a better perch having failed to cross the Andes the previous night. Photo ©Nick Bayly



Project activities

Here we outline activities under phase 1 of the project. Future phases will expand activities to other cities in Colombia and consolidate an annual lights-out campaign and refine predictive migration models in order to create an early warning system for major migration events:

- ✦ Develop a mobile educational display and carry out awareness campaigns highlighting the spectacle of migration in major city parks in Bogotá
- ✦ Design and implement a citizen-science project to monitor bird collisions
- ✦ Create outreach materials about bird migration and lights out campaigns including animated radar products, a brochure and short film
- ✦ Create an alliance of prominent city actors such as the city mayor, Secretaría de Ambiente, Humboldt Institute, Jardín Botánico and the Ministry of Environment to support and promote a 'lights-out' campaign in Bogotá
- ✦ Work with alliance to engage media outlets and disseminate outreach material
- ✦ Process bird migration data from weather radars, automated acoustic recorders and eBird to support a bird migration model for Bogotá and Colombia

Expected outcomes / deliverables

- ★ At least 5,000 people reached through education activities linked to the mobile display in city parks during the migration periods in 2024
- ★ Bird collisions project running with volunteer monitors recording data for at least 10 buildings in Bogotá for spring and fall migration 2024
- ★ Outreach materials including animated radar products, a lights-out campaign brochure and a short film, describing the global importance of Bogotá for migratory birds
- ★ Outreach products delivered to key political figures, institutions and media outlets
- ★ Alliance of key city actors consolidated
- ★ Media outlets promoting bird migration and a lights-out campaign during migration
- ★ A dataset of migration patterns combining radar, automated recordings and ground surveys in Colombia, and a preliminary predictive model, the first of its kind for a country south of the contiguous US

Funding needs

Getting this project started and implementing phase 1 will require an investment of **\$35.5K USD**.

Contact

For detailed information on budget needs or for an extended proposal please contact Camila Gómez camila.gomez@selva.org.co

You can also visit www.selva.org.co to learn more about our work.

Project partners: Cornell Lab of Ornithology

