



In the past 18 months, communities around the globe have turned to birds for comfort and realized the necessity of maintaining a healthy natural world. And through these challenging times, more people than ever have found information and inspiration through the Cornell Lab of Ornithology.

Like you, we have a deep love for birds and biodiversity, and we are privileged to have the support of a global community of millions of people to help us lead bird science and conservation forward. We're proud to be able to offer indispensable tools such as eBird, the Merlin Bird ID app, the Raven sound identification software, and the all-encompassing bird reference *Birds of the World*—tools that are only possible because so many birdwatchers are generous with their time and choose to be involved with the Cornell Lab in so many ways.

People worldwide are participating in our citizen-science projects like NestWatch, FeederWatch, and the

Great Backyard Bird Count at record rates. At the same time, more scientists and conservationists are turning to us for the ornithological big data and tools they can't find anywhere else. More participation and engagement lead to more data, which allow us to advance science and research, build better products and tools, and further increase engagement in a positive feedback loop.

The Cornell Lab leads with science to understand the natural world and to guide us toward actions that will have lasting positive results for birds and the planet. With billions of birds to observe and conserve, and billions of people who can help birds thrive, we need to reach the world. Your support has helped us build global connections among the diverse communities of people who love and study birds, and between people and the birds themselves.

Thank you for furthering our mission to interpret and conserve the earth's biological diversity through research, education, and citizen science focused on birds.

Linda R. Macaulay

2021 ANNUAL REPORT

CONNECTING A GLOBAL COMMUNITY

The Cornell Lab's team of experts is creating innovative products and tools powered by the largest collection of bird occurrence data in the world and the world's largest digital wildlife archive.



RUBY-TOPAZ HUMMINGBIRD BY
CIRO ALBANO/MACAULAY LIBRARY

THE DREAM OF SOUND ID BECOMES A REALITY

Knowing the names of the birds with which we share the world helps us connect with them, and to care about them. This year, a new sound-identification feature within the free Merlin Bird ID app connects people with birds by revealing which bird species are singing in a given area.

Merlin's magical Sound ID feature would not have been possible without more than 1 billion observations in eBird and more than 1 million audio recordings in the Macaulay Library that were shared by birders from across the globe. The breadth and depth of this unmatched dataset, combined with technical experts from the world of computer vision and artificial intelligence, made this quantum leap in birding technology possible. Your support helps keep the Merlin app free for everyone around the world.

"What amazed me was the way the app untangled the layers of song, correctly identifying the birds that were singing in my yard...as well as the birds that were singing across the street."

—Margaret Renkl, New York Times columnist



BIRDING WITH A PURPOSE

Robust global participation in projects like eBird, the Macaulay Library, and Merlin means we are better able to understand birds and to act for their benefit. In the past year, people around the world...

- submitted 16 million eBird checklists.
- archived 10 million photographs in the Macaulay Library.
- cataloged 300,000 audio recordings.
- downloaded the Merlin Bird ID app 2 million times.

eBirders logged more than 15 million person-hours in the field last year, collecting valuable bird information, more than double the time that went into constructing the Empire State Building.

And all of this data doesn't just help Cornell Lab projects. Scientists around the globe turn to the Lab every day to advance our understanding of birds. Since the start of 2020, eBird or Macaulay Library assets were used in over 150 peer-reviewed publications.



ABOVE: COMMON YELLOWTHROAT BY BRAD IMHOFF
RIGHT: BARN SWALLOW BY RYAN SANDERSON. IMAGES
COURTESY MACAULAY LIBRARY.

GROWING BIRDS OF THE WORLD TO SERVE THE WORLD

Just 18 months after its creation, the *Birds of the World* project is providing unprecedented access to avian life-history information, helping researchers, conservationists, students, and others to learn about and protect birds. *Birds of the World* brings together information from peer-reviewed publications, millions of bird observations from eBird, and multimedia from the Macaulay Library into a single powerful platform that provides an unparalleled view into the lives of birds. Along with more than 10,000 individual and institutional subscribers, member support has allowed us to provide more than 22,000 free subscriptions to students, educators, and wildlife rehabilitators—giving them access to critical information that helps them help birds.

The Cornell Lab of Ornithology Birds of the World

Birds of the World covers the life history of all 10,824 species of birds with photos, audio recordings, and videos from the Macaulay Library. Accounts are updated with the colorful and detailed models of abundance estimates from eBird Status and Trends as they become available.



Coppersmith Barbet

Psilopogon haemacephalus

LC Least Concern Names (20) Subspecies (9)

Lester L. Short, Jennifer F. M. Horne, and Guy M. Kirwan
Version: 1.0 — Published March 4, 2020
Text last updated March 27, 2013

SEEH PHOTO AUDIO

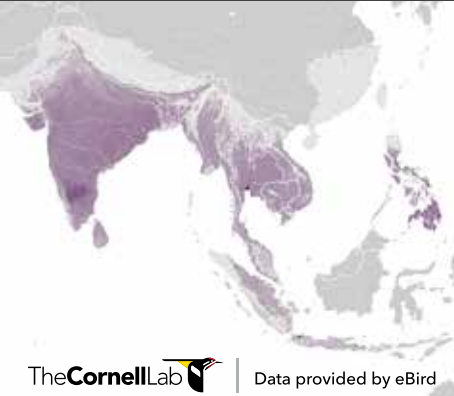
eBird and Macaulay Library

191,760
Observations

9,527
Photos

885
Recordings

52
Videos



The Cornell Lab of Ornithology

Data provided by eBird

COPPERSMITH BARBET BY SNEHA GUPTA/MACAULAY LIBRARY

HEARING THE UNHEARD: A LISTENING REVOLUTION

THE ETHEREAL SOUNDS OF SPAWNING FISH COULD BE KEY TO PROTECTING THEM

When red hind, an economically important fish in the waters around Bermuda, gather to spawn, most of the global population can be squeezed into a very small slice of the ocean. It's a breeding strategy that works for hind and other groupers, but it also makes them vulnerable to extreme overfishing.

These aggregations also make a lot of noise, and the churning waters could be key to helping save the species.

A team of Cornell Lab scientists are working with J-P Rouja of Nonsuch Expeditions, Bermuda, in using underwater sound recorders to monitor these seasonal activities and assist the Bermudan government in making better management decisions.

"By identifying the unique sounds produced by these fish, we can...know exactly when these aggregations are happening, and can alert the fisheries managers in real time if it is outside the seasonally protected dates and areas," says Aaron Rice, principal ecologist for the K. Lisa Yang Center for Conservation Bioacoustics. "Predicting these key life-cycle events helps sustain the red hind populations, and helps the entire industry sustain itself into the future."

Aerial view of the Bermuda reef platform, which lies adjacent to the Southern Hind Ground Marine Protected Area, site of the world's largest congregation of spawning red hind.

©LOOKBERMUDA

A NETWORK OF FOREST PROTECTION ACROSS AFRICA

For the past four years, researchers and officials have been protecting elephants and detecting poachers through a network of Cornell Lab-produced Swift automated recording units across 1,250 square kilometers in Nouabalé-Ndoki National Park in the Republic of the Congo in Africa. The program has drawn so much positive attention that other conservation organizations in the region want to set up monitoring networks in elephant strongholds across Central Africa. To build the capacity to help, the Cornell Lab's Elephant Listening Project (ELP) is working in partnership with the Wildlife Conservation Society and the Sangha Tri-National Foundation to establish a first-of-its-kind bioacoustic research hub near the headquarters of Nouabalé-Ndoki.

ELP research associate Daniela Hedwig says the new hub will be staffed with a team of Congolese experts who train conservation practitioners in protected areas across Central Africa, helping them set up and run acoustic monitoring projects. The hub will also provide the resources to analyze and process the sound recordings from across the region. "It will absolutely level up the ability to protect forest elephants all around Central Africa," Hedwig says.

"When arrayed on a large scale, bioacoustics... can be an incredibly powerful tool to guide conservation decisions."

—K. Lisa Yang, Cornell Lab board member



PHOTO COURTESY OF THE ELEPHANT LISTENING PROJECT

Onesi Samba, Frelcia Bambi, and Phael Malonga (pictured here with Daniela Hedwig) maintain the acoustic survey in Nouabalé-Ndoki National Park, and will lead the training and analysis efforts provided by the new bioacoustic research hub.

World Wildlife Fund's Living Planet Report 2020 found the average population sizes of mammals, birds, fish, amphibians, and reptiles have dropped an alarming 68% since 1970. The newly named K. Lisa Yang Center for Conservation Bioacoustics is working to reverse the downward curve of biodiversity by listening to the Earth in incredible new ways.

HEARING THE UNHEARD SOUNDS OF THE TROPICAL FOREST

As the lungs of the earth, healthy rainforests are key to a healthy natural world. And katydids are a key part of that ecosystem, munching on plants and serving as a food source for a wide variety of tropical creatures. Monitoring katydid populations helps scientists understand the changes taking place in rainforests, and setting up acoustic recorders is often the best way to detect these hard-to-spot insects—but there is a small problem: many katydids make sounds well above the human range of hearing!

Laurel Symes, assistant director of the K. Lisa Yang Center for Conservation Bioacoustics, began monitoring the katydids on Barro Colorado Island in Panama in 2016 with a network of automated sound recorders placed throughout the forest. She and her team have pioneered computational methods of detecting ultrasonic calls of katydids, leading to the discovery of new songs and new algorithms for extracting calls from recordings that contain months or even years of data. The team also created the first-ever visual and audio guide to the katydids of Panama, and their recordings are establishing important baseline data of katydid populations that will allow researchers to track the health of katydids and the rainforests in the future. "The guide and the recordings we're making will be a tool for scientists in many areas, including those monitoring changes in insect populations or evaluating restoration projects," says Symes. "And even for farmers determining whether the insects in their fields are beneficial or potential pests."



CHRISTIAN ZIEGLER



SHARON MARTINSON

Laurel Symes holds a male and female of the largest katydid species found on Barro Colorado Island, Panama.



SHARON MARTINSON

Laurel Symes deploys a Swift recording unit in the forest canopy, 80 feet above ground level. These units will run for months, capturing sounds from the treetops.

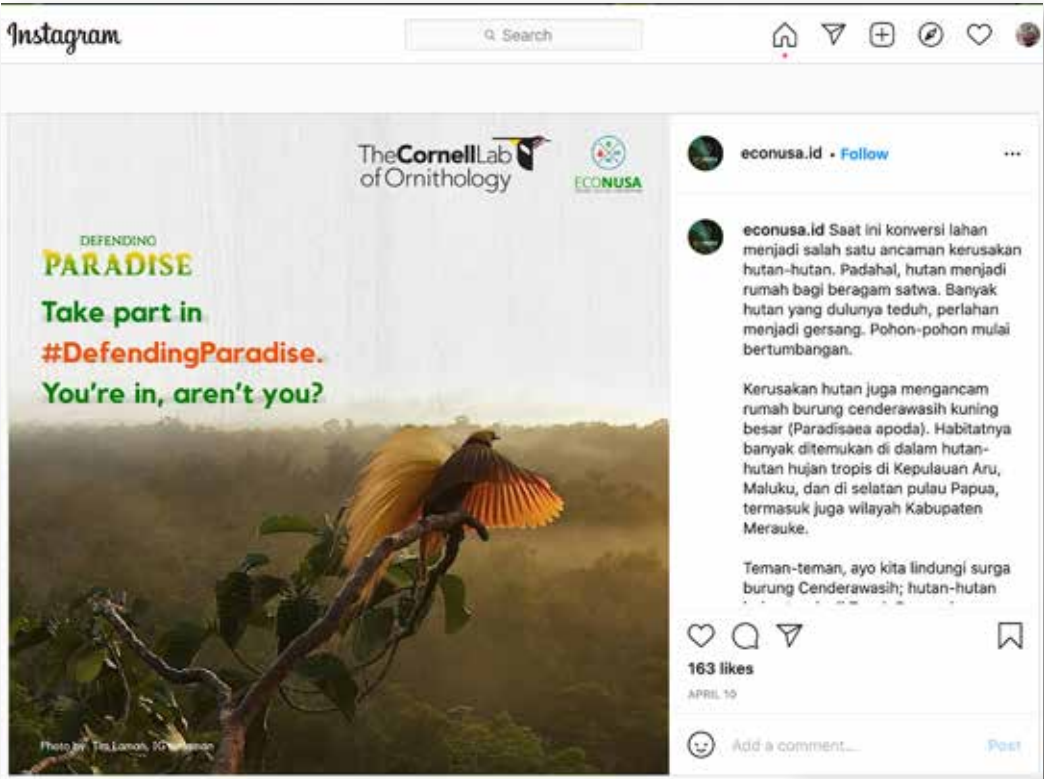


CHRISTIAN ZIEGLER

Many katydids mimic leaves, sticks, and lichen. The brown spots are not injury or disease, just part of the camouflage.

STIRRING PASSION IN PEOPLE'S HEARTS

The Cornell Lab's Center for Conservation Media connects with groups around the world to produce media that make a difference for birds and nature. Bird Cams, the Virtual Visitor Center, and the art of Maya Lin invite the world to connect with birds and the Cornell Lab.



INVITING PEOPLE TO CONNECT THROUGH BIRD CAMS AND FREE ONLINE EVENTS

In June 2020 a team of educators began crafting a raft of engaging webinars, family programs, and workshops so people could learn and engage with the Cornell Lab from home, no matter where they live. They have now produced over 60 free live online programs that have been viewed more than 500,000 times as live-streamed events or as archived videos.

Lisa Kopp, visitor experience manager, says that the webinars have also been instrumental in keeping the Cornell Lab accessible and relevant to would-be visitors in the face of the extended building closure and reduced opportunities for participation in the Lab's in-person programs.

Bird Cams also helped bring nature inside for hundreds of thousands of people in the past year, with a 150% increase in viewership and a three-fold jump in the amount of time that viewers spent engaged with the live-streamed nests and feeders. For many, it became more than a virtual window into the lives of birds: it became central to people's well-being.



"I live in a senior living facility in Florida. ...your Sapsucker Woods Feeder Cam on YouTube has been a godsend to both me and an unknowable number of other housebound birders during quarantine. We have it playing all day on our living room TV and it never fails to lift our spirits."

—Bird Cams Viewer



BIRDS-OF-PARADISE HELP TURN A COUNTRY TOWARD CONSERVATION

In 2018, when leaders in the provinces of Papua and West Papua, in Indonesian New Guinea, pledged to protect 70% of their remaining intact rainforests, the Cornell Lab provided science, compelling stories, and inspirational film and photography of the birds-of-paradise to raise awareness of this ambitious and important effort.

Now, the Lab is partnering with the Indonesian environmental organization EcoNusa on a social media campaign, "Defending Paradise," to build support among urban youth in Indonesia and help conserve one of Earth's most important and imperiled intact rainforests. The powerful visual storytelling of the Center for Conservation Media's Birds-of-Paradise Project is central to the campaign.

"EcoNusa has the ability to reach millions of young people across Indonesia who care about the environment but aren't necessarily connected to or even aware of the amazing places that exist in their own country," says Birds-of-Paradise Project leader Ed Scholes. "They are drawing on our expertise and the Birds-of-Paradise media we've created to tell the stories of these forests and to build a network of people who will actively engage in their protection."



The Indonesian conservation group EcoNusa is using Cornell Lab assets and expertise to spread a message of forest conservation on social media. Partnerships with two of the most popular music groups in Indonesia—the rock band Slank (top, Slank's lead singer Akhadi Wira Satriaji) and the K-Pop group Blackpink (above)—are helping build support for forest protection among younger demographics throughout the country.



MACAULAY LIBRARY HELPS BRING "GHOST FOREST" TO LIFE

In May, artist Maya Lin, best known for designing the Vietnam Veterans Memorial in Washington, D.C., installed Ghost Forest, a towering stand of 49 haunting Atlantic white cedar trees in Madison Square Park in New York City. Continuing Lin's series of works related to the extinction crisis, Ghost Forest features sounds of animals once common in Manhattan, broadcast throughout the installation. As she has done for previous works, Lin engaged the experts and archives at the Macaulay Library to help her convey what has been lost.

GIVING BIRDS A SEAT AT THE TABLE

POWERFUL PARTNERSHIPS FOR BIRD CONSERVATION

In 2020, the U.S. Fish and Wildlife Service found that eBird was the best data source to guide Bald Eagle risk assessments for siting wind energy, and the door was opened for the agency to use eBird data to streamline more projects moving forward. The Lab is now working with the USFWS to use estimates from the eBird Status and Trends project to update the population size of Golden Eagles, which will be a more robust and efficient way to predict the effects of incidental take from wind energy on local populations.

Amanda Rodewald, director of the Center for Avian Population Studies, also presented at policy briefings organized by Rep. Alan Lowenthal's office to help policymakers restrengthen the Migratory Bird Treaty Act protections that were previously rolled back. And she met with staff from the Council on Environmental Quality and the USFWS about how the Cornell Lab can support important work on President Biden's America the Beautiful Plan, an effort to conserve at least 30% of the nation's lands and waters by 2030.

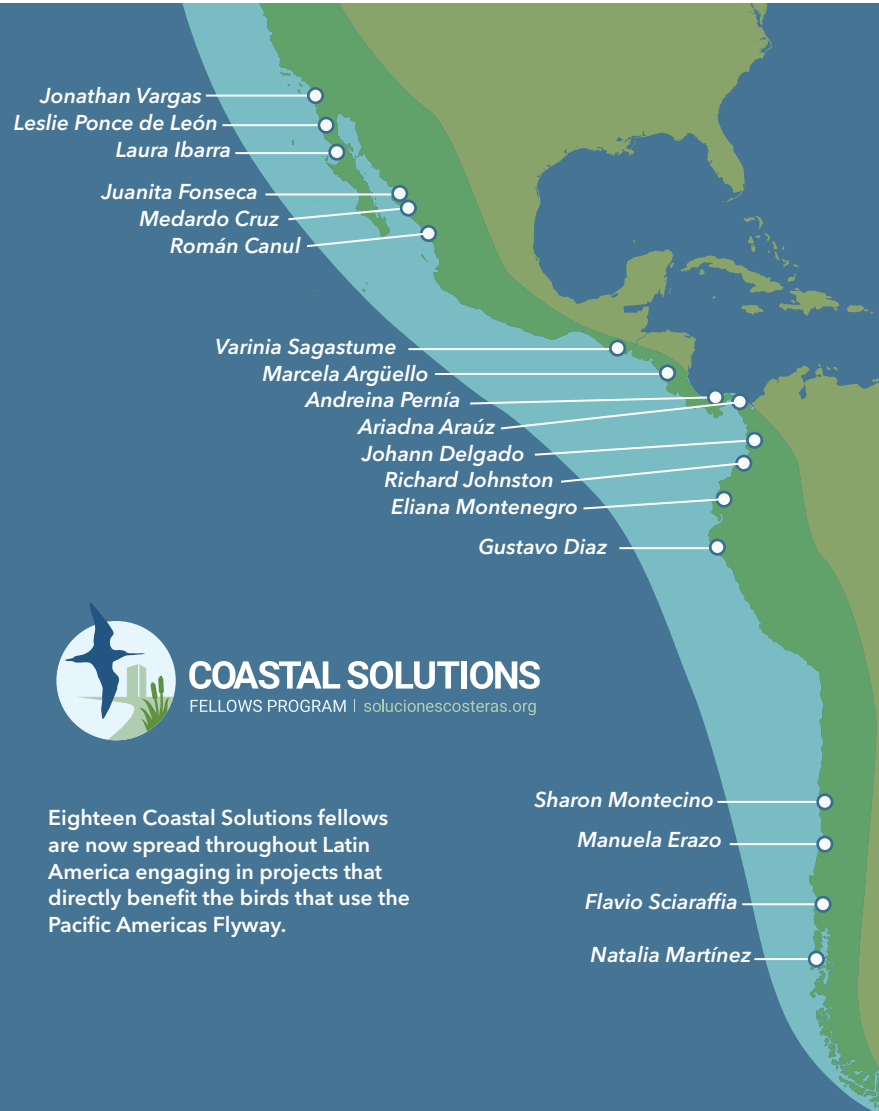


GOLDEN EAGLE BY BRYAN CALK/MACALULAY LIBRARY

COASTAL SOLUTIONS FELLOWS SHAPE NATIONAL POLICY IN CHILE

Flavio Sciaraffia, part of the second Coastal Solutions Fellows cohort, was recently tapped by the Chilean government to assist in writing bylaws of new federal legislation allowing local municipalities to make their own regulations to protect wetlands. The law will empower urban communities to take the steps necessary to protect the river deltas, estuaries, and coastlines that are key habitats for both resident and migratory birds, and that in turn protect coastal residents from storm surges and rising sea levels. A partnership between Coastal Solutions and the Río Cruces Wetland Center in the city of Valdivia, Chile, now supports five coastal cities that have reached out for help creating and implementing local regulations.

Building on this success, and thanks to your generosity and the support of the Packard Foundation, the Coastal Solutions Fellows program recently welcomed its third cohort of six young professionals from Latin America. These Fellows will dedicate the next two years to working on new approaches to coastal development and ecosystem management along the Pacific Americas Flyway that will benefit birds and people.



Threats to birds and our natural world demand action from governments, industries, nonprofits, and communities. The Cornell Lab is forging partnerships across all of these areas to find innovative solutions to the most pressing conservation needs of our time.

OUR COFFEE, OUR BIRDS

When coffee farms in Central and South America maintain tree cover, surrounding forests, and healthy waterways, it makes a huge difference for birds—from the toucans and parrots that live there year-round, to the migrating warblers, thrushes, and orioles that traverse the hemisphere twice a year.

The Our Coffee, Our Birds project combines Cornell Lab expertise with outreach and data collection tools such as eBird, Merlin, and Swift automated recorders to work with coffee growers and companies like Nespresso to help them quantify how people and birds benefit from coffee grown on healthy landscapes in Costa Rica, Nicaragua, and Colombia—and to help those kinds of landscapes spread through Latin America.

"We're using birds to work alongside farming communities to highlight the connection between their presence and healthy farms," says project leader Viviana Ruiz-Gutierrez, "and we place a lot of emphasis on empowering all members of these communities—young kids, local youth, and the farmers themselves—to get involved using the Lab's user-friendly tools like Merlin and eBird."

Several years of bird monitoring in coffee landscapes have shown that bird species are benefiting from regenerative agricultural practices, such as tree planting along riparian strips adjacent to coffee farms. In one of the many on-the-ground



NUESTROCAFÉ
NUESTRASAVES

projects, Our Coffee, Our Birds, in partnership with Fundación Nicafrance and ECOM in Nicaragua, is supporting 50 farmers in Nicaragua in planting more than 10,000 trees across 68 hectares of sun-grown coffee farms. The trees make the farms more suitable for a wide variety of birds, while the farmers and communities benefit from a healthier, more productive landscape. After 15 years, farmers will further benefit economically by sustainably harvesting a small percentage of the timber while still maintaining the optimum amount of canopy cover for birds.



LIGHTS OUT

Lights Out Texas relies on the power of BirdCast's detailed bird migration forecasts to signal the most important nights for keeping skylines and neighborhoods as dark as possible. The initiative took flight this spring with a coordinated statewide messaging campaign, and cities across the state made proclamations to encourage businesses and residents to dim lights during peak migration nights in the region.

In all, over three dozen businesses with large buildings, including 12 of the tallest buildings in Dallas, helped migrating birds this spring by going dark as birds were moving through one of the busiest migration corridors in North America.

LIGHTS ON PHOTO BY PONDS AND LIGHTS OUT PHOTO BY LLOYD CLAYTON

REACHING MORE PEOPLE, AND IN NEW WAYS

RECORD CITIZEN-SCIENCE PARTICIPATION REFLECTS A DEEPENING LOVE OF BIRDS AND SCIENCE

Two of the Cornell Lab's longest-running projects saw dramatic increases in participation this year: Project FeederWatch has typically grown around 5% from year to year. During the 2020–2021 season, the project saw an incredible 33% increase in FeederWatchers, amounting to thousands more people contributing bird observations to bolster scientific efforts.

Similarly, the number of NestWatchers grew by about 36% throughout 2020—around twice the typical annual growth rate—and the number of people who downloaded nest box plans nearly doubled. Robyn Bailey, NestWatch project leader, said this means more people are seeing conservation as something personal and close to home, rather than something that happens somewhere else. “When a bird is nesting in your shrub, or on your porch, or in the nest box you put up, you feel more responsibility for it than when you see a nest out in the forest on a hike. You see all the ways it is vulnerable—predators, hot weather, too much rain—and start asking questions about how to keep it safe.”

I truly enjoy participating in Project FeederWatch. I'm more of a field birder/listener type and wasn't so sure I'd get into the project, but I came to look forward to it each week over the past two seasons. I've learned a lot about what attracts a variety of birds (namely, native plants, water, and suet almost more than seed), and will take these principles with me throughout my life, no matter where I live.

—Angel Poe, environmental educator, San Antonio, Texas

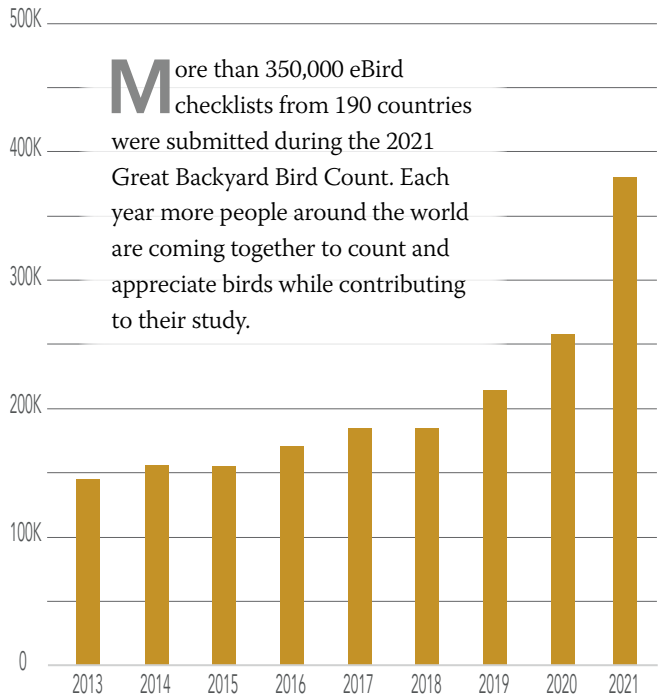


RUFIOUS HUMMINGBIRD BY ERIC PITTMAN/NESTWATCH



CAROLINA WREN BY ANN DUVAL/PROJECT FEEDERWATCH

GREAT BACKYARD BIRD COUNT GROWS GREATER



Deepening communities' connections with birds and science is critical to spurring positive action on birds' behalf. Last year, more people than ever gave time and energy by participating in citizen- and community-science projects around the world, and birds and the natural world are better for it.

BIRD ACADEMY STRENGTHENS CONNECTIONS WITH BIRDS FOR LEARNERS OF ALL AGES

Through Bird Academy, the Cornell Lab's online learning hub, tens of thousands of students of all ages engage in a grand community of learning about birds. With over 85,000 new course enrollments between July 2020 and June 2021, Bird Academy offered guidance and in-depth learning opportunities to a world that saw a rapid increase in people's interest in birds. Three new courses launched in the past year—Bird Photography, The Wonderful World of Owls, and Growing Wild: Gardening for Birds and Nature—give people even more new ways to learn about, enjoy, and care for birds in their backyards and beyond.



CAPE MAY WARBLER BY RYAN SANDERSON/MACAULAY LIBRARY

NOISE PROJECT: COMMUNITY-BASED RESEARCH POINTS TO IMPROVED OUTCOMES FOR PEOPLE AND SCIENCE

The Cornell Lab is gaining immeasurably from participating in what amounts to a whole new way of thinking about the scientific process. In 2018, the National Science Foundation awarded a multimillion-dollar grant to the Cornell Lab for the Noise Project, co-created and co-led by communities that have been historically excluded from the sciences. The Cornell Lab and four community-based organizations are partnering to design projects aimed at understanding how noise pollution affects communities, ecosystems, and our health, in order to create positive change.

Marilú Lopez Fretts, coordinator of the Noise Project, says that working with community partners as equals in the scientific process leads to better communication and dissemination of the results of the work, more knowledge for the community, and better research results. “Equitable scientific research that is community-led, inclusive, and co-created with both community-based organizations and science institutions brings about better outcomes, more balanced research, fewer blind spots, and more impact,” says Lopez Fretts.



MARILÚ LOPEZ FRETTS (3)

Co-principal investigators Berenice Rodriguez and Makeda Cheatom from the World Beat Center, a nonprofit multicultural arts organization in San Diego, have turned their garden into both a noise sanctuary and a place to conduct research on the effects of noise pollution on the human and bird populations in the surrounding urban landscape. Top right: A Townsend's Warbler in the garden.

MEETING THE CHALLENGES OF THE FUTURE

THE FUTURE MEETS HISTORY IN NEW HUBBARD BROOK FIELD ORNITHOLOGY PROGRAM FOR UNDERGRADUATES

Long-term research sites are extremely valuable for understanding the impact of ecosystem changes on birds. Now undergraduates at Cornell University have the opportunity to tap into the rich well of biological research and experience going back over half a century at the Hubbard Brook Experimental Forest in New Hampshire through the year-long Hubbard Brook Field Ornithology Program.

Students in the program come to Hubbard Brook for a 10- to 12-week field season to engage in meaningful field experiences and have the opportunity to develop original research leading to peer-reviewed publications to support their development as scholars.

The generosity of donors allowed the Cornell Lab to award experiential grants to seven undergraduate Ivy Scholars, giving opportunities to students who were eager for research and learning opportunities after so many avenues were shut down during the pandemic.



JULIAN DINNER

Sara Kaiser (program director) trains undergraduate Lindsey Forg ('22) in how to band and measure Black-throated Blue Warbler nestlings at the Hubbard Brook Experimental Forest in New Hampshire.



The 8,000-acre Hubbard Brook Experimental Forest is the site of long-term ecological research that started more than 50 years ago. Now Cornell undergraduates have the opportunity to learn from and contribute to research at this historic study site.

ALISA MUNIZ

THANK YOU, SPONSORS!

Through these partnerships we reached out to new audiences to improve the understanding and protection of birds in backyards and around the world.

The Cornell Lab thanks these sponsors for their support in 2021.

Aramark • Clarion Corporation
D&D Commodities, Ltd. • Ecological Associates, Inc.
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Princeton University Press • Swarovski • Wild Birds Unlimited, Inc.
Wild Birds Unlimited at Sapsucker Woods • ZEISS

For information about partnership opportunities, contact Justin Cleveland, manager of corporate partnerships, at jbc258@cornell.edu.

Access to research opportunities and experienced mentors helps students take the latest bird research questions to the next level. Access to a safe study environment is key to allowing the next generation to flourish.

CORNELL LAB GRAD STUDENTS SPOTLIGHT FIELD SAFETY

Minority-identity scientists often face dangers of being followed, sexually assaulted, harassed, threatened with guns, or having the police called while they are out in the field doing research. Such encounters affect physical and mental health, diminish the sense of safety during fieldwork, and hinder productivity and professional development.

Cornell grad students Monique Pipkin and Amelia-Juliette Demery are both studying birds for their PhDs. When Pipkin reached out to Demery last year about strategies she used to stay safe when doing research in the field, it led the two to publish an unexpected and valuable

paper with applications far beyond the ornithological community. "Safe fieldwork strategies for at-risk individuals, their supervisors and institutions" was published in *Nature Ecology and Evolution*, and immediately made waves across many disciplines that place researchers in the field.

"Amelia and Monique have done a fantastic job of not only highlighting the risks that people might face in field settings," says Irby Lovette, Fuller Professor of Ornithology and Amelia's academic advisor, "but also of suggesting solutions to lessen those risks, making our discipline more inclusive to people of all kinds of backgrounds."

Monique Pipkin (right, top) studies the causes and function of iridescent plumage in tree swallows and the use of art for informal science education in museum settings. Amelia-Juliette Demery (right, bottom) studies the evolution of iris and bill coloration. She also looks at ways to use science policy to make conservation-focused decisions and how to make science more inclusive and equitable.



COURTESY OF MONIQUE PIPKIN



COURTESY OF AMELIA-JULIETTE DEMERY

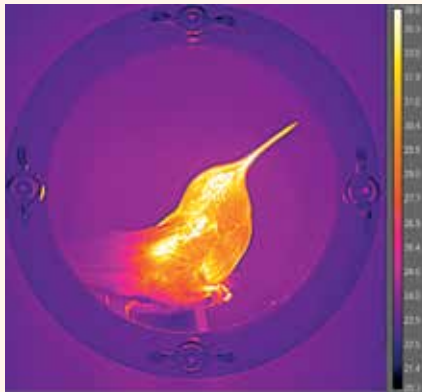
POSTDOCS DRIVE SCIENCE FORWARD

Despite limitations on access to facilities and travel, the Rose Postdoctoral Fellows continued to advance the frontiers of ornithology and other biological sciences last year. Whether studying the tiniest hummingbirds or entire bird populations, these scientific leaders didn't miss a beat during the pandemic.



Gemma Clucas is working with partners on the East Coast to monitor how the breeding success of seabirds, such as terns and puffins, is being affected by shifts in their diets. Clucas is now sharing these data with fisheries biologists at NOAA so that interactions between seabirds and forage fish populations can be included in fisheries-management decisions.

ROSEATE TERN BY SAM MILLER/MACALUAY LIBRARY



ANUSHA SHANKAR/DON POWERS/EMILY BLACKWELL

Using thermal imagery, Anusha Shankar discovered that some hummingbird species use a form of "shallow" torpor, a state of reduced metabolism used during rest periods in cold temperatures. This previously unknown state allows birds to conserve energy without the associated costs of deep torpor such as sleep deprivation, loss of immune function, and risk of predation.



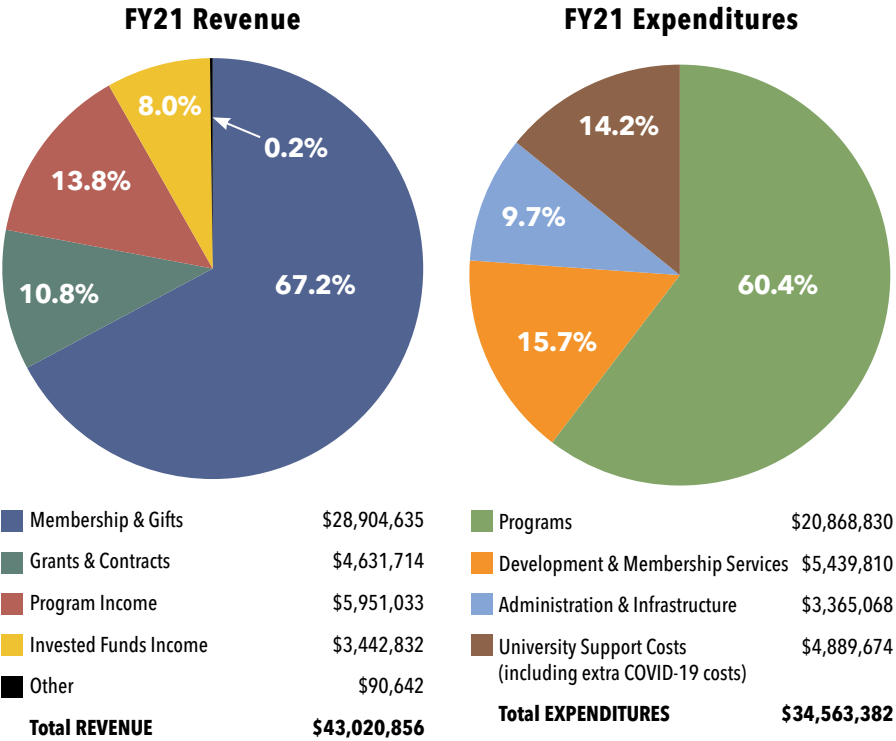
COURTESY OF COURTNEY DAVIS

As part of the Our Coffee, Our Birds project, Courtney Davis is applying computer science models to eBird data to develop a tool to evaluate bird diversity in coffee landscapes at unprecedented scales, ultimately benefiting bird conservation in some of the most biologically diverse regions on Earth.

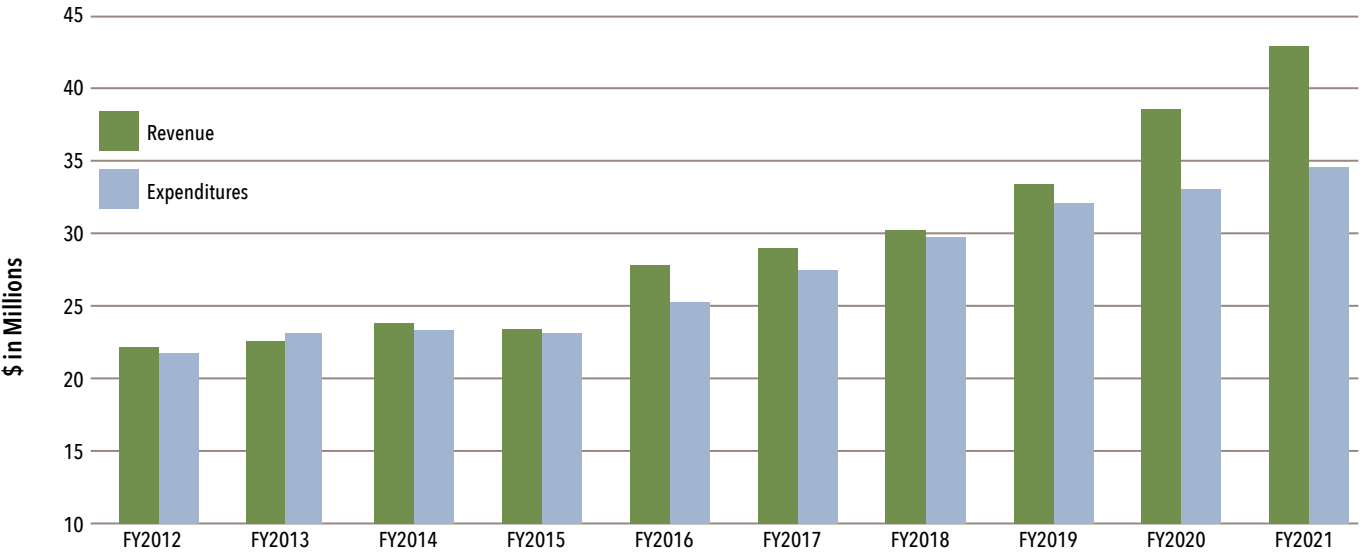
FINANCIAL REPORT

2021 FISCAL YEAR: JULY 1, 2020 TO JUNE 30, 2021

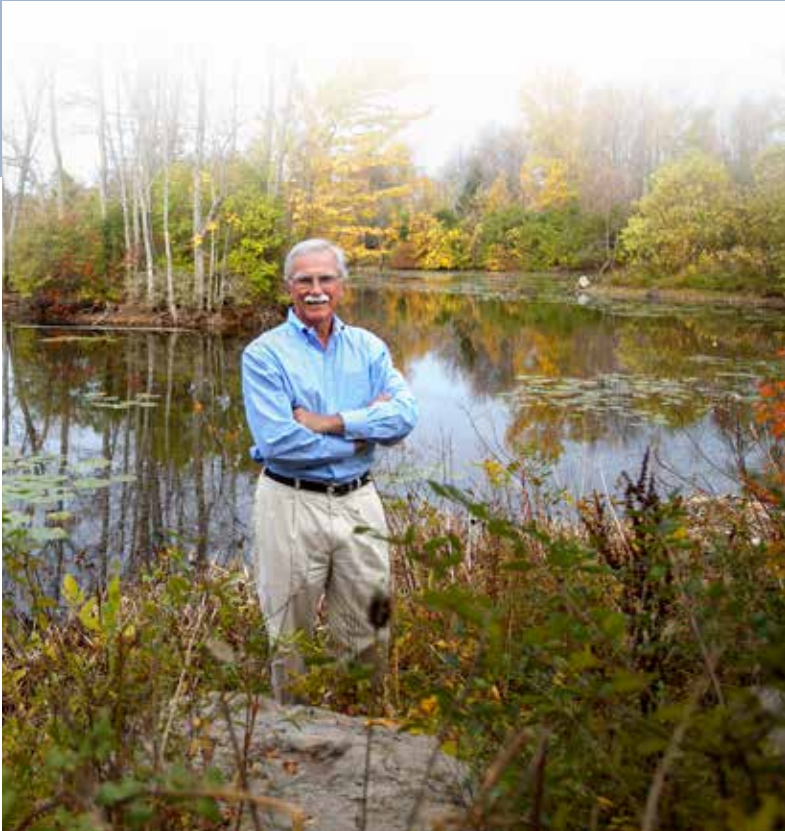
Thank you for supporting the Cornell Lab of Ornithology. In fiscal year 2021, thousands of members and donors provided more than 67% of our annual revenue, a total of \$28.9 million that expands our capacity to promote global conservation through research, education, and citizen science. As it was for many people and organizations, fiscal year 2021 was unusual for the Lab: we saw increases both in charitable giving and program revenues (in part driven by the fact that during the pandemic many people sought out activities such as birding or online courses such as Bird Academy) combined with expense reductions (including a university-mandated hiring freeze and salary reductions, spending cuts, and travel restrictions). As a result, the Lab ended the year with an uncommon surplus of funds. With most of these financial limitations now lifted, this surplus will allow us to grow in strategic ways as quickly as possible in fiscal year 2022 and beyond, particularly given that the threats facing birds and biodiversity are immediate and significant. Thank you for making it possible for us to invest in our vital research, education, and conservation efforts.



Annual operating revenue and expenditures, 2012-2021



If you have questions, comments, or requests for the Cornell Lab's membership and development team, please contact Bramble Klipple at 607-254-1105, bck42@cornell.edu, or Mary Guthrie at 607-254-2157, msg21@cornell.edu.



Honoring Fitz's Legacy

Thank you to everyone who gave this year in honor of retired director John W. Fitzpatrick. You contributed more than \$3.7 million through June 30, 2021, gifts that will help fuel the Lab's next chapter as a fitting tribute to Fitz's legacy. You can still make a gift in honor of Fitz through the end of 2021 at birds.cornell.edu/honor-fitz.

We are deeply grateful to our more than 100,000 supporters at every level, all of whom make it possible for the Cornell Lab of Ornithology to advance the understanding of nature and engage people of all ages in learning about birds and protecting the planet. We're also pleased to include a list of Sapsucker Woods Society members and honor and memorial tributes online at birds.cornell.edu/donors.

LEAVE A LEGACY FOR BIRDS

By including the Cornell Lab in your will, trust, or beneficiary designation, you can create a personal legacy that will have a lasting impact for birds, discovery, and conservation. We would be happy to help you make a plan that will benefit you, your family, and ultimately, the birds.

CALL: 607-254-2471 **EMAIL:** labgifts@cornell.edu **VISIT:** birds.cornell.giftplans.org

RED-THROATED LOONS BY GERRIT VYN

The **Cornell Lab** of Ornithology