

# BIRDCONSERVATION

The Magazine of American Bird Conservancy

SPRING 2021







ABC is dedicated to conserving wild birds and their habitats throughout the Americas. With an emphasis on achieving results and working in partnership, we take on the greatest threats facing birds today, innovating and building on rapid advancements in science to halt extinctions, protect habitats, eliminate threats, and build capacity for bird conservation.

[abcbirds.org](http://abcbirds.org)

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*Bird Conservation* is the member magazine of ABC and is published three times yearly.

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Kirtland's Warbler by Jason Jablonski



Harpy Eagle by Stanislav Harvančík

Broad-billed Hummingbird by Betty Rizzotti



Long Point Peninsula by SF Photo, Shutterstock

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COVER: Kirtland's Warbler by Brian Small

LEFT: Spot-billed Toucanet pair, female on left, male on right. Photo by Nick Athanas, Tropical Birding



# Feeling Grateful This Spring

*As I write, it is clear that it's finally spring. Early spring for sure, but the signs of rejuvenation are now everywhere here in the Mid-Atlantic region. Bird song has started up, the Red-shouldered Hawks are displaying over the house, the days are longer, and the temperature has warmed. And, boy, do we ever need this spring after the last 12 months.*

Today, we are still operating in a very different workplace compared with this time last year, and I'd like to say how thankful I am to ABC's wonderful supporters, who rallied to help make 2020 a year not only of survival but one of growth and progress for the organization. I would also like to tell you how proud I am of the ABC staff and Board for their amazing work over the past year to continue and build on our vital mission of conserving birds and their habitats throughout the Americas, despite the challenges we all have faced.

ABC has been extremely fortunate during the pandemic. We do not depend on large events for fundraising, and much of our work can be done remotely or between physically distanced groups working in the field. We were also very grateful in 2020 to receive a significant bequest from the estate of the late Phyllis Brissenden, a long-time ABC supporter, that is helping us to expand our programs to address the loss of American birds, and in particular to tackle



The spring of 2021 could be one of the most welcome in our lifetimes, and a great opportunity to remember how wonderful it is to have beautiful wild birds and wild places in our lives ...

Yellow Warbler by FotoRequest, Shutterstock

the threat to Hawaiian forest birds from the spread of mosquito-borne avian malaria.

In the fall of 2020, ABC underwent an internal reorganization that will enable us to build a stronger regional framework for our programs within the U.S. With our new Bird City Americas and soon-to-be-formally-announced ABC Ambassador initiatives, we believe we are on track to scale up our work to tackle the loss of birds that was documented in the *Science* article we co-authored with the Cornell Lab of Ornithology and a range of other institutions in 2019. Our study revealed a reduction of some 3 billion birds from North American populations over a 50-year period.

As we hopefully begin to see a light at the end of the pandemic tunnel, as vaccines roll out and infection rates decline, birds can help shine that light on some of the most important long-term challenges we all will face in the future — degradation of habitats, climate change, and the over-use



of pesticides, for example. The spring of 2021 could be one of the most welcome in our lifetimes, and it will be a great opportunity to remember how resilient nature can be: how wonderful it is to have beautiful wild birds and wild places in our lives to bring calm, peace, and enjoyment to our free time and to remind us of the health of our environment.

ABC will continue to tackle all of these long-term challenges and to defend birds from threats across

the Americas. We have also recently begun to develop some pilot projects to address threats that impact birds further afield through our new partnership in BirdLife International. For example, we will be aiming to ramp up efforts to reduce the impact of the wild bird trade in Java, Indonesia, where it is reported that there are now more birds in cages than in the island's forests. ABC hopes to be able to help change this.

I would like to finish by extending my heartfelt thanks once more to you for contributing to ABC's critical work. We are so fortunate to be able to count on such unwavering and solid supporters.

Thank you.

A handwritten signature in black ink, appearing to read 'Michael J. Parr'.

Michael J. Parr  
President







## For Endangered Sparrows, Are Fallow Fields Fertile Ground?

The Worthen's Sparrow is one of the few bird species endemic to the Chihuahuan Desert. The pink-billed, grayish breasted songbird is now mostly found within the El Tokio BirdScape in northeastern Mexico, after losing much of its grassland and scrubland habitat to over-grazing and conversion to cropland. Fewer than 1,000 individuals are thought to remain, and the species ranks as Endangered both on the International Union for Conservation of Nature's Red List and under Mexican law.

For the past ten years, ABC has collaborated with Mexican partner Pronatura Noreste (PNE) to restore degraded grasslands and to sign conservation agreements with local communities in the El Tokio BirdScape in order to conserve more than 140,000 acres.

During that time, ABC's partners at the Autonomous University of Nuevo León (UANL) have monitored



Worthen's Sparrow by Greg Homel, Natural Elements Productions

the Worthen's Sparrow population, conducting surveys in several sites in El Tokio. For the last three years, the researchers have documented an apparent population drop in these areas, likely due to scarce rainfall and predation by snakes and Coyotes. During this time frame, they noted that recent nesting occurred mostly in fallow potato fields dominated by ruderal forbs, the first plants to colonize areas left to re-grow.

The UANL researchers, with support from ABC, PNE, and another Mexican partner, *Especies, Sociedad y Hábitat*, aim to understand what makes these fallow lands suitable for the Worthen's Sparrow and which characteristics maximize the species' density and breeding use. They also want to identify negative factors, such as the use of pesticides.

With this knowledge, the partners will work together to develop conservation strategies to reduce nest predation and address agricultural issues, so that on both protected acreage and working farms, there will be an expansive future for this endemic Mexican songbird.

*ABC would like to thank the National Fish and Wildlife Foundation as well as the Southern Wings program and the states of Iowa, Kansas, Nebraska, Oklahoma, South Dakota, and Texas for funding our work in the El Tokio BirdScape.*

*— by Eliphaleth Carmona and Irene Ruvalcaba-Ortega, UANL, and ABC Conservation Specialist Andrés Anchondo*



Agricultural area suitable for Worthen's Sparrows, within the El Tokio BirdScape. Photo by David Wiedenfeld

## Tagged Songbirds Link Appalachians and Nicaragua

Louisiana Waterthrushes and Wood Thrushes are now singing on eastern forest territories, but nanotags tell us where else they've been. In January and February 2020, with support from the Pennsylvania Game Commission, researchers from ABC and the El Jaguar Reserve in Nicaragua deployed 20 of the tiny transmitters on birds of these two species, in hopes of monitoring them via the growing Motus Wildlife Tracking System.

“Motus” means movement or motion in Latin, a fitting name for this international radio-telemetry-monitoring network of more than 750 receiving stations, headed up by Birds Canada. In 2019, with funding from the Missouri Department of Conservation, ABC helped install a Motus receiving station in northern



A netted Louisiana Waterthrush awaits its nanotag at El Jaguar Reserve, Nicaragua. Photo by Georges Duriaux

Nicaragua at El Jaguar — one of only a few in Central America. These receiving station/tag systems are helping scientists learn more details about Neotropical migrants' movements, knowledge that will boost efforts to conserve them.

All told, ten nanotags were placed on Wood Thrushes (WOTH) and 10 on Louisiana Waterthrushes (LOWA). Initial analysis of spring and summer 2020 data showed detections of five of the thrushes and three of the waterthrushes in the U.S. during migration and the breeding season. This includes one LOWA in Pennsylvania, and multiple hits of WOTH in Pennsylvania, Maryland, New York, Ohio, and North Carolina.

The data still require further vetting to ensure accuracy, but preliminary results indicate that for both species, there is a likely connection between forests in the Appalachian Mountains Joint Venture, a conservation coalition including ABC that spans a dozen states, and the Nicaragua Highlands, an ABC-declared Bird-Scape. Funds for these efforts came from Pennsylvania, via the Southern Wings program, which links state wildlife agencies with projects in countries where declining northern nesters winter.

Fall and winter data have yet to be analyzed, but one LOWA that was



Moises Siles of El Jaguar Reserve holds a Wood Thrush that was captured, fitted with a nanotag, and released in January 2020. Photo by Andrew Rothman

tagged in 2020 was recaptured in a mistnet at El Jaguar Reserve in February 2021. This bird successfully completed its annual migration north and then returned. Unfortunately, Motus towers did not detect this bird's movements during migration and breeding.

The batteries on all of the tiny waterthrush nanotags are now likely dead, but we expect the larger nanotags on the Wood Thrushes to continue transmitting until summer 2022. We hope to soon have more information on the return of other birds tagged at El Jaguar in 2020, once we upload and process the rest of the data.

— by Andrew Rothman, ABC's Director of Wintering Grounds Conservation

Join American Bird Conservancy for a live webinar with this issue's contributors!

The discussion will take place Wednesday, May 12, at 4:00 p.m. EST. Register here: [bit.ly/MagazineQASpring2021](https://bit.ly/MagazineQASpring2021)



Snow Geese by rck\_953, Shutterstock



## IUCN Red List Update Brings Good News, Some Warnings

Each year, the International Union for Conservation of Nature (IUCN) evaluates the status of species on its Red List of Threatened Species, a key listing that ranks most of the world's species by conservation need. This evaluation measures carefully chosen criteria, such as each species' population size and trend. The 2020 update brought some welcome news: In the Americas, an important group of species that ABC and our partners have worked to protect have lowered threat status. A few others, however, moved to a higher threat category.

First, the good news: Conservation efforts paid off for three species previously considered in the highest threat category, Critically Endangered (CR). Peru's endemic Junin Grebe and two hummingbirds — Black-breasted Puffleg of Ecuador and Glittering Starfrontlet of Colombia — dropped to the lower threat category of Endangered (EN). ABC partners have protected reserves for the two hummingbirds and worked to reduce nesting area loss around the grebe's lake habitat.

Nine species ABC partners have protected changed from EN to less dire Vulnerable (VU) and Near Threatened (NT) status, indicating that dedicated conservation and careful monitoring have had a positive impact. Two of these, the Long-whiskered Owlet and Yellow-eared Parrot, have benefited from ABC's flagship conservation programs with our Peruvian partner Asociación Ecosistemas Andinos, in the case of the owlet, and Fundación ProAves in Colombia, for the parrot.

For some ABC focal species, though, ramped-up efforts are needed to turn



Junin Grebe by Pete Morris

Conservation efforts paid off for species previously considered Critically Endangered, including Peru's endemic Junin Grebe.

the tide. Three species with which ABC and partners have recently begun conservation efforts shifted from EN to CR status, indicating they are more threatened than previously thought. For one of these, the Lilacine Amazon parrot in Ecuador, ABC and partner Fundación de Conservación Jocotoco have recently initiated

projects with local communities to protect roost areas and reduce poaching. For the other two, the Santa Marta Sabrewing hummingbird and Great Green Macaw, ABC and partners have created reserves, but more work is needed to ensure adequate habitat is protected.

Some species for which ABC has yet to begin conservation efforts jumped to more-threatened categories. These include the Perijá Starfrontlet hummingbird that occurs at the border between Venezuela and Colombia and the Santa Marta Foliage-gleaner of Colombia, as well as these island birds: the Great White Heron, Bahama Warbler, and St. Lucia Oriole. The heron, still considered by some experts to be an all-white Great Blue Heron subspecies, also occurs in southern Florida in the U.S. These species will be priorities for ABC and our partners' work in the near future.

— by David Wiedenfeld, ABC Senior Conservation Scientist

### Parrots in Peril

The 2020 IUCN Red List update has moved four New World parrot species — the Great Green Macaw, Lilacine Amazon, Orange-fronted Parakeet, and Black-billed Amazon — to higher threat categories.

All are threatened by habitat loss, direct persecution, or capture for the pet trade.

Over half of New World parrots are classified as Near Threatened, globally threatened, or extinct, but thanks to targeted conservation by ABC and partners, 12 of these species, including the Lear's Macaw, Blue-throated Macaw, and Yellow-eared Parrot, have stabilized or increased their populations.



Great Green Macaw by Marc Scott-Parkin, Shutterstock



# Administration Revokes 2017 Move to Weaken Migratory Bird Protections

A conservation cornerstone for over a century, the Migratory Bird Treaty Act (MBTA) has been under fire since 2017, when the Department of the Interior issued its so-called “M-Opinion” (Solicitor’s Opinion M-37050), which weakened protections for birds from commercial activities. But in March, the new Administration announced that it would revoke the opinion, restoring protection against “incidental take” by commercial activities. Incidental take is the

unintended but predictable and avoidable killing of migratory birds, for example, after they land on uncovered waste water pits at oil and gas facilities, or collide with wind turbines, communication towers, powerlines, or other infrastructure. ABC, along with the National Audubon Society and other conservation groups, was a plaintiff in a successful lawsuit challenging the M-Opinion.

The Administration also announced it will reverse a rule that codified the

M-Opinion, and would accept public comments on new ways that migratory birds can be conserved.

Companies can greatly reduce bird mortality using already available mitigation measures. ABC and other groups are urging Congress to pass legislation initiating a permitting program that will allow companies to execute best practices that minimize incidental take. A permitting system is detailed in the Migratory Bird Protection Act, introduced last year and soon to be reintroduced in Congress.

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## Toppling Windmills

Stoic and creaky, the lonely windmill is a prairie icon. These days, though, ranch windmills provide more nostalgia than punch. More efficient and reliable solar-powered pumps are now the go-to way to move ground water to livestock troughs — and they help ranchers conserve grasses both for declining wildlife and livestock.

A pilot program is helping the windmill-to-solar conversion move along in eastern Montana. There, the U.S. Department of Agriculture’s Natural Resources Conservation Service (NRCS) partnered with ABC, in tandem with private landowners and the National Fish and Wildlife Foundation (NWWF), to develop a Targeted Implementation Plan (TIP) that removes windmills and replaces them with new solar-powered pumps.

How do old windmills stymie prairie bird conservation? During calm, hot summer days, wind speeds are usually



not high enough to keep traditional windmills turning and pumping. Forced to seek reliable water sources, ranchers may move their animals to riparian or other areas they wouldn’t otherwise graze, increasing the likelihood that grasses will be depleted. Windmills also provide perches for avian predators in a landscape normally devoid of such vantage points. This further stresses prairie bird populations, pegged as the most hard-hit bird group in a 2019 *Science* paper on bird declines since 1970.

In summer 2020, a benchmark — ten removed windmills — was reached. The newly installed solar pumps

provide a more reliable summer water supply for livestock, allowing for better management of grasslands that are home to the Chestnut-collared Longspur, Baird’s Sparrow, and other prairie birds on a collective 6,400 acres in southern Prairie County, Montana. In addition to this effort, several landowners removed other towers at their own expense.

ABC works with partners to conserve bird habitat on working ranches. Our Northern Plains team collaborates with landowners to support diverse, well-managed rangelands using livestock grazing techniques that improve soil health, enhance water quality and yield, provide forage for livestock, and meet the habitat needs of grassland birds and other wildlife species.

The project continues through 2021, and plans are being made to implement similar efforts in the northern part of the county in 2022 and 2023. Future projects could bring similar upgrades to landowners and land managers elsewhere in Montana, as well as in Wyoming, North Dakota, and South Dakota.

Chestnut-collared Longspur by Michael J. Parr

BIRDS are CALLING!

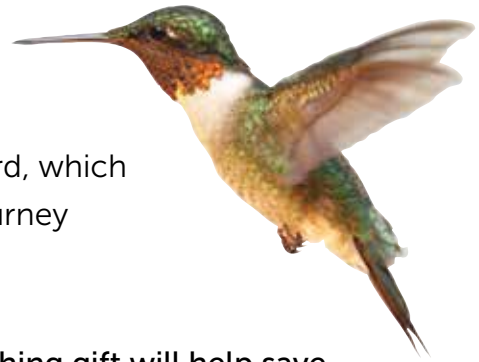


PLEASE  
RESPOND.



# ONE DAY.

That's the time it takes for the Ruby-throated Hummingbird, which weighs little more than a penny, to make the 500-mile journey across the Gulf of Mexico.



This feisty creature joins thousands of other bird species that migrate each spring. If you listen closely, you will hear their calls: migrating flocks of swans, ducks, and songbirds including warblers, vireos, and sparrows.

Along the way, birds from Blackpoll Warblers to Arctic Terns face a gauntlet of threats.

Birds navigate a world stacked against them. They must:

- Find food and shelter where habitats have been degraded or destroyed;
- Avoid tall glass buildings, wind turbines, and predators such as free-roaming cats and other invasive species; and
- Adapt to an ever-changing climate and landscape.

But with your support, we can help these species and many more overcome the daunting threats they face daily.

## You can save birds with your gift today.

Thanks to you and thousands of your friends and neighbors, bird conservation efforts are succeeding, despite many challenges.

Your support gives birds the safe passage they need to make their journey home. **Please respond to our 1:1 match today.**

## Your matching gift will help save wild birds and their habitats.

Thanks to a dedicated group of supporters, we have a 1:1 match with a goal of raising \$500,000 by June 30.

But we cannot do it without YOU. Birds are calling. Will you respond with a gift today?

Your support will immediately be used to:

- Restore nesting habitat for birds such as Snowy Plovers, by cleaning up plastics along Texas beaches;
- Plant trees, so that birds such as the Royal Cinclodes in Peru have the habitat they need;
- Save birds such as White-throated Sparrows from colliding with glass, by teaching architects about bird-friendly buildings;
- Advocate for laws, such as the Migratory Bird Protection Act; and
- Search for lost birds, such as the Santa Marta Sabrewing, in hopes that it's not too late — that we might save them for future generations.

Birds are the inspiration, and you are the means to make their conservation happen. With your compassion and action, they will not only survive, but thrive.

**Birds are calling; please act now by giving your most generous gift.**

Visit: [abcbirds.org/birds-are-calling/](http://abcbirds.org/birds-are-calling/)



# BIRDS in BRIEF

## Black-browed Babbler Rediscovered

After an “absence” of at least 172 years, the mysterious Black-browed Babbler has resurfaced in Borneo, Indonesia. Two forest workers accidentally captured an unfamiliar bird, took photos, and released it unharmed. When the photos were shared, Indonesian ornithologists were excited to confirm that the bird was indeed a Black-browed Babbler. This bird was first described in 1848 based on a specimen. Despite repeated searches over the years, it remained elusive. In fact, many researchers considered it extinct.

More than 150 bird species are considered “lost,” with no confirmed observations in the past decade.

ABC is developing a new partnership with the Cornell Lab of Ornithology, Global Wildlife Conservation, and BirdLife International to rediscover lost bird species around the world, and to help protect newly found species like the Black-browed Babbler.

## Search for Lost Bird Yields Other Treasures

Speaking of lost birds, a recent expedition to Colombia’s Alto Sinú aimed to find the parakeet with the same name, a species not seen since 1949. The area had been off-limits



Sharpbill by Rick Elis Simpson



Black-browed Babbler. Photo courtesy of Birdpacker

for decades during Colombia’s prolonged civil conflict, but in February, a team of scientists and naturalists were back, conducting the area’s first comprehensive ornithological survey. Although no Sinu Parakeets were found, the team registered approximately 30 bird species never before documented in the Córdoba Department.

Over the 11-day trip, the group counted 238 bird species. Among the best finds was the Sharpbill, a small bird only seen a handful of times in Colombia. “This expedition is a fantastic example of how searches for lost species, such as the Sinu Parakeet, can lead to a wide range of exciting discoveries and benefits for conservation,” says John C. Mittermeier, Director of Threatened Species Outreach at ABC, which helped to support the expedition.

## Philadelphia Darkens Skies for Migrants

This spring, Philadelphia joined more than 30 other U.S. and Canadian cities in turning off or dimming top-floor lights on prominent skyscrapers during peak migration nights, between midnight and 6 a.m.

Part of the nationwide Lights Out program, run by a variety of partners, the new effort brought together conservation groups, businesses, and

politicians to take steps to reduce bird-building collisions for night-flying migratory birds. Last October, after being drawn in by the lit-up skyline, more than 1,000 birds died after colliding with Philadelphia buildings.

## Interior Least Tern Veers Off Endangered List

The Interior Least Tern is now off the endangered species list after 35 years of conservation. This distinct population nests along more than 2,800 miles of river in the Great Plains and Lower Mississippi Valley. By the time it was listed as Endangered in 1985, fewer than 2,000 remained, decimated by the feather trade and habitat loss. The Army Corps of Engineers,



Least Tern by Tyler333, Shutterstock

U.S. Fish and Wildlife Service, and ABC developed a computer modeling system to track the bird’s status with and without river management. Directed river management helped the species rebound to more than 18,000 birds. Populations will continue to be monitored to ensure this tiny tern continues its successful comeback.

## Birdsong Promotes Well-Being

A study published in the journal *Proceedings of the Royal Society B* by researchers at California Polytechnic State University shows that hearing birdsong contributed to subjects’ senses of well-being. Researchers





## Remembering Gonzalo Cardona Molina

Gonzalo Cardona Molina, a champion of the Yellow-eared Parrot, was killed in January. "Gonza" was an important staff member of ABC partner Fundación ProAves. He worked for more than 20 years to save the parrot and the Quindío Wax Palm, the tree it relies upon for nest sites.

His work brought the bird back from the brink of extinction, with the population growing from just 81 individuals in 1999 to 2,895 in December 2020, when he completed his final survey.

Gonza's death is a tremendous loss to the conservation community, and he will be sorely missed.



LEFT: Gonzalo Cardona Molina amid wax palms by Fundación ProAves  
RIGHT: Yellow-eared Parrots by Tom Friedel, BirdPhotos.com

alternated between playing birdsong recordings on two sections of trails in the Boulder Open Space and Mountain Parks in Colorado and turning the speakers off. Hikers were interviewed after they passed through these sections.

Overall, people noted that the sounds increased their positive feelings, both because they were pleased to hear the birdsong and because it boosted their perception of biodiversity. This finding supports the need to improve natural soundscapes by decreasing human noise pollution.

### Snail Kites: Quick-Change Artists

A study published in *Nature Ecology & Evolution* by researchers from the University of Florida found that the federally Endangered "Everglade" Snail Kite has shown a startlingly quick evolutionary response to an invasive species. Researchers found that Florida populations of Snail Kite

Snail Kite by Owen Deutsch



developed larger beaks within only 10 years to take advantage of the invasive Island Apple Snail, which is displacing the smaller native Florida Apple Snail, the kite's main food source. In recent years, Snail Kite numbers have started to rebound in Florida.

### Purple Martins Rely on a Helping Hand

If you see Purple Martins from now to July, you can likely thank dedicated people who install and maintain hollow gourds and apartment-style boxes for North America's largest

swallow. In the East, martins now rarely nest at any other type of site. (In the West, this species nests in looser colonies or pairs, seeking tree snags, Saguaro cacti in the Southwest, groupings of individual boxes, and sometimes, as in Sacramento, California, overpasses.)

Conservationists worry that these days, fewer people take steps to welcome these declining aerial insectivores. Human assistance to martins takes on three forms: Providing nest cavities, excluding introduced House Sparrows and European Starlings, and protecting vital wetlands and open grassy areas from pesticides.

For more information on how you can help monitor and attract martins, see:

Purple Martin Conservation Association: [purplemartin.org/](http://purplemartin.org/)

American Swallow Conservancy: [purple-martin.org/](http://purple-martin.org/)



FALLING



EAGLE





A fading symbol of tropical wilderness, the mighty Harpy Eagle is no match for bulldozers and rifles. But there is hope. Targeted and enduring conservation efforts may help save this elusive raptor and its dizzyingly biodiverse habitats.

*by Howard Youth*

**E**cuator's coastal lowland forest and Brazil's tropical Atlantic Forest ... two ecosystems at different sides of the expansive South American continent. Each hosts a distinct and diverse ark of endemic species. And well more than 90 percent of each has vanished over the last century. Separated by more than 3,000 miles, the approximate width of the lower 48 U.S. states, these disparate and disappearing wild places also represent the western and eastern extremes of the Harpy Eagle's range in South America, if only for now.

Like the Jaguar, another iconic predator sharing a similar range and fate, the mysterious Harpy Eagle presents a challenge to humanity: Will we be able to sustain wilderness areas large enough and well-protected enough to perpetuate the full complement of species found there? There's much reason for doubt, given humanity's proclivity toward road-building, forest-clearing, fire-setting, and hunting without controls, yet there is still hope. Dedicated conservation efforts, recent observations, and research are helping to piece together what it will take to save the Americas' largest eagle, and which ways of working the land might lead to a brighter future for these birds.

Harpy Eagle and chick, Ecuador. Photo by feathercollector, Shutterstock

## Going the Way of the Jaguar

Weighing up to 20 pounds, with talons matching Grizzly Bear claws for size, the Harpy Eagle is the “Jaguar of raptors.” Wingspans of females, which are considerably larger than males, reach more than seven feet. Head, body, and tail stretch beyond yardstick length. Rarely seen sitting in the open or soaring, the Harpy Eagle stealthily tracks arboreal prey within the shady lowland and submontane forest interior. Favored targets include primates as large as howler and woolly monkeys, sloths, and prehensile-tailed porcupines. But Harpy Eagles can strike on the forest floor, too, occasionally preying upon young deer and peccaries. The colossal slate-and-black raptor will also grab macaws, turkey-sized curassows, iguanas, snakes, and other creatures.

As with the Americas’ largest cat, the Harpy Eagle’s range looks ample when colored in on a map. Historically, this mighty raptor was found from Mexico to northern Argentina, a broad range often cited as a reason why it will always persist. But recent models incorporating satellite imagery sharpen the view, showing how generously shaded maps belie reality — to Harpy Eagles, much of this range is no longer habitable.

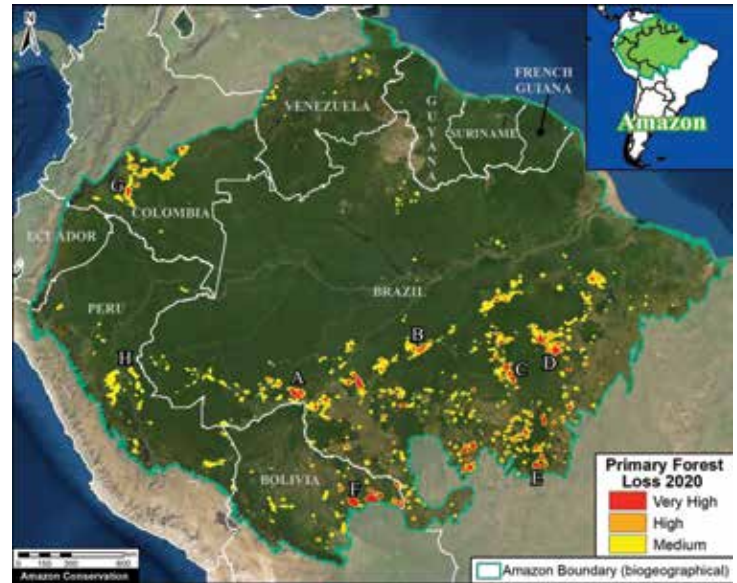
The International Union for Conservation of Nature (IUCN) currently lists both the Harpy Eagle and Jaguar as

Near Threatened, due to widespread habitat loss and hunting. Many experts say the situation for both species is more severe than

previously recognized, and that their status should be changed at least to Vulnerable. The eagle may already be extirpated from Mexico, although photos and other documentation indicate its recent presence along the country’s border with Guatemala. The species is still reported in Honduras, Nicaragua, and Belize, but only in a few remaining wilderness zones, where northern

Central America’s last large contiguous forests remain — in places like Nicaragua’s

Bosawas Biosphere Reserve and the adjacent Honduran Patuca



Chipping away: Primary forest loss in 2020 in Amazonia. SOURCE: MAAP/Amazon Conservation

National Park, which in recent years have faced large-scale incursions by settlers, along with reported shooting and capture of Harpy Eagles. The species barely hangs on in Costa Rica, with only a few sporadic reports in the country.

Even the greatest remaining forested wilderness, Amazonia, is contracting dramatically, its edges drawing inward like a great drying puddle, yielding to the advances of ranching, roadbuilding, soy and other farming, settlements, and fires that march across the drying landscape. Ragged forest fragments and edges are quickly degraded by further cutting. Guns are prevalent in the region and newly cut roads immediately facilitate subsistence hunting. The hunting winnows down both the Jaguar’s and the Harpy Eagle’s prey base, but guns are also trained on the predators as well. And Harpy Eagles provide huge, sometimes unwary targets.

Pushing aside the notion that the eagles are just fine in the core of their South American range, a study published in the online journal *PLOS ONE* in 2019 estimates that 93 percent of the Harpy Eagle’s current distribution is in Amazonia, where habitat is being lost at alarming rates. The authors write: “Our distribution range for this species represents a 41-percent reduction of what is currently proposed by IUCN.” From the south, a broad front of livestock ranges and soybean fields continues to chew into the region’s forest wilderness. This advance is already estimated to have claimed almost a quarter of Amazonia’s old-growth terra firme, or non-flooded, forests.

Jaguar by Ana Vasileva, Shutterstock



The Harpy Eagle is making a last stand in Serra Bonita, an isolated forested range of hills in Bahia State in eastern Brazil.

A University of Plymouth study published this year in *Ecology and Evolution* estimated that the bird's range is 11 percent smaller than previously estimated. This study also analyzed climate-related data, and the researchers projected that in coming years, northern South America and Panama will provide the most climatically stable refugia for the eagles and their habitat. The study's lead author Luke Sutton says, "Our study shows that predicted future climate stability will be in core areas with extensive lowland tropical forest habitat. That means habitat loss as a result of deforestation is the greatest threat [the birds] face, and conservation plans need to take all of that into account."

Compounding the shrinkage in range is the fact that the Harpy Eagle is one of the slowest breeders in the bird world. A pair raises, on average, one chick every two-and-a-half to three years. This slow reproduction means that every eagle lost impacts a population. Unfortunately, the leading known cause of adult mortality is gunshots.

Even in expansive prime habitat, these eagles are naturally scarce. In Amazonia, for example, an estimated three to six nests occur per 100 square kilometers, which converts to 38.6 square miles or 24,700 acres — more than half the size of Washington, D.C.

## Conservation and Commerce?: A Raptor's Rocky Road

A *Biological Conservation* study published in 2020 illustrates why Harpy Eagles frequently vanish when the chainsaws start screaming. The authors noted that Harpy Eagles usually place their bulky stick nests — on average, five feet by three feet — in forks of massive trees with crowns poking above the surrounding forest canopy, and that 93 percent of the tree species they favor are also prized by the timber industry. The authors write that given their finding that foresters target the same species and the largest individual trees, they question "whether large tracts of selectively logged Amazonian primary forests still provide suitable nesting habitat for this



mega-raptor." They conclude that "suitable Harpy Eagle nesting trees have been rapidly lost over the species' last stronghold...."

Throughout Amazonia, hunting eagles and other wildlife is now far easier due to the widespread availability of firearms. Eagle feathers are also used in illegally sold handicrafts that fetch high prices.

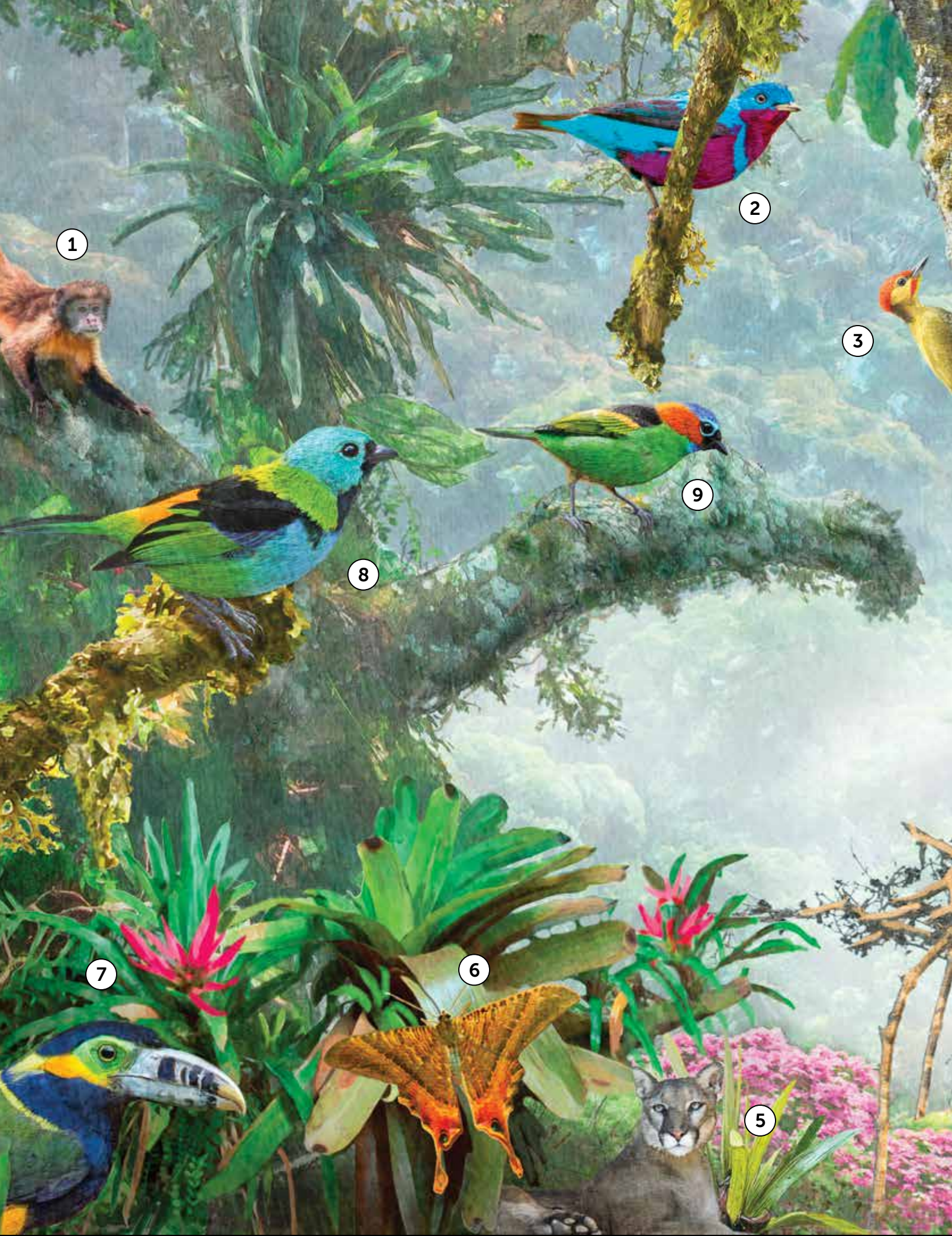
Meanwhile, resettlement initiatives and illegal forest cutting continue to push into wilderness, with guns following. How, then, might Harpy Eagle conservation be combined with human activities? Securing declared protective reserves, and buffering core areas with sustainable activities and strict eagle-hunting bans could yield results. On occasion, Harpy Eagles are found in habitats that have undergone some forest clearing. But this is far more the exception than the norm. And these "in-plain-view" birds might be vagrants or not able to breed due to lack of nesting trees.

## Pockets of Hope

Almost extirpated from tropical Atlantic Forest, the Harpy Eagle is making a last stand in a few places. One of the largest is Serra Bonita, an isolated forested range of hills in Bahia State in eastern Brazil. There, conservationists Vitor Osmar Becker and Clemira Ordoñez Souza established and have been working with partners, including ABC, to expand and maintain the Serra Bonita Complex of Private Natural Heritage Reserves, which currently spans 7,413 acres. At latest count, Serra Bonita Reserve is home to more than 1,000 vascular plant species, about 5,000 recorded butterfly and moth species, 70 frog species,

Harpy Eagle by MarcusVDT, Shutterstock





1

2

3

9

8

7

6

5



An adult Harpy Eagle with brown and white plumage is perched on a mossy branch. Below it, a fluffy white chick sits in a nest made of sticks. The background shows a lush, misty forest. A small circle with the number '4' is positioned above the eagle's head.

4

## *A Hideout for Harpies*

In southeastern Brazil, the ABC-supported Serra Bonita Reserve protects one of the largest remaining blocks of Atlantic Forest. Nesting Harpy Eagles (4) share this tropical habitat with other forest-dependent species, many of them endemic. These include: Buff-headed Capuchin (Critically Endangered) (1); Banded Cotinga (Critically Endangered) (2); Yellow-throated Woodpecker (3); Puma (5); approximately 5,000 butterfly and moth species (6); Spot-billed Toucanet (7); and Green-headed (8) and Red-necked Tanagers (9).

*Artwork by Chris Vest*





If we protect large areas of forest and balance conservation with sustainable activities, there may yet be a promising future for the Harpy Eagle.

and 400 bird species, including 70 Atlantic Forest endemics, two new to science. In all, 20 new animal species have been documented on the property, as well as 15 new plants.

Some of the protected lands are owned and managed by a nonprofit group the couple founded in 2001, called Instituto Uiraçu — using the Harpy Eagle’s name in the indigenous Tupi language, meaning “big bird.” Becker and Souza knew the Uiraçu once occurred in the area, but that it was teetering on the brink. Then, in 2010, a team of observers photographed an immature bird in the reserve, and found feathers from the species on the forest floor. In 2018, observers from the organization Projeto Harpia (of which Instituto Uiraçu is a partner) located an active nest in the reserve. “The species still occurs in Serra Bonita,” says Souza. “Although the nest

fell from its tree at the beginning of 2020, vocalizations of the species have been heard by the park rangers at the end of the year.”

Souza has thoughts on why Harpy Eagles inhabit the property. “The size of the reserve, structure of the forest, and availability of prey are adequate for [the species]. Also, other nearby reserves have records.... It is likely that the Harpy Eagle was present in Serra Bonita even before the reserve was actually created,” she says. “It is also possible that it may have dispersed from other nearby areas.” Such is the way of the Harpy Eagle, a bird rarely seen and hard to consistently monitor.

TOP: Harpy Eagle and chick on nest at the Serra Bonita Reserve in Brazil, which is managed by Instituto Uiraçu, an organization named for the bird, and supported by ABC and other partners. Photo by João Marcos Rosa/NITRO



But an important point is that effective conservation in southern Bahia seems to be allowing Harpy Eagles to persist there. A similar situation is occurring in southern Belize, which is now losing its once-extensive forests at a rapid rate. There, in 2018, the Harpy Eagle was seen for the first time since the founding of a 1,153-acre reserve and research center by the Belize Foundation for Research and Environmental Education. The property adjoins Bladen Nature Reserve and the Maya Mountains; together these areas comprise one of the largest remaining forest blocks in the region.

In the Chocó region of northwestern Ecuador, a similar scenario plays out. Extensive lowland forests rich in endemic species only persist in a few large patches. Here, too, recent Harpy Eagle sightings and the first-known nesting in ten years raise hope that the species can hang on, along with other imperiled species such as the Critically Endangered Great Green Macaw and the Endangered Brown-headed Spider Monkey.

ABC is working with Fundación de Conservación Jocotoco (Jocotoco) and other partners to expand private reserves and join them with a large national reserve nearby, creating a wildlife corridor that will ensure protection of the full range of the region's biodiversity. Among these properties is Jocotoco's Río Canandé Reserve, one of six reserves in ABC's and partner's network where this species has been recorded. (Others include another reserve in Ecuador, Serra Bonita and another reserve in Brazil, and locations in Peru and Colombia.)

Nearby, ABC is also embarking on an impact investing project with partners Verdecande and Jocotoco. The goal is to selectively harvest wood on commercial forestry land, but at a low volume, without having to take just the biggest and most valuable trees — and without adding roads to access the timber. By creating sustainable flooring and furniture products from a large mix of trees that can be moved out of the forest by cable, the forest can provide valuable timber income and associated jobs, while maintaining structural diversity including super canopy trees used by species like the Harpy Eagle and Great Green Macaw. This type of approach could provide protected acreage and areas where species such as Harpy Eagles can hunt for their food, if they were to return. To start, a study area of approximately 500 acres is being evaluated using sound meters, to record the species diversity occurring in the area before any activities occur, so the impact of tree removal can be evaluated.

Will the Harpy Eagle survive into the next century? Knowing how much and what quality habitat the eagle requires will be essential as we move forward. If current trends continue, this bird and also the Jaguar may become memories — mystical creatures of lore. But if we protect large areas of forest, and balance conservation with sustainable activities of a growing population, maybe there will be a promising future for the “big bird” and the myriad of other species sharing its amazing habitats.



*Howard Youth is ABC's Senior Writer/Editor.*

BELOW: Harpy Eagles prey on a wide variety of rainforest animals. From left: Brown-throated Sloth by Damsea, Shutterstock; Brazilian Porcupine by Davydele, Shutterstock; Red Howler Monkeys by Salparadis, Shutterstock



# Kirtland's Warbler Management Areas, MICHIGAN

*By David Ewert, ABC's Kirtland's Warbler Program Director and Conservation Specialist*

**Lay of the Land:** Kirtland's Warbler Management Areas (KWMA) comprise 23 units of about 220,000 acres on Michigan Department of Natural Resources, U.S. Forest Service, and U.S. Fish and Wildlife Service lands in the northeastern Lower Peninsula of Michigan. Known as Jack Pine plains, these areas sit on sandy soils left after glaciers receded about 10,000 years ago. They are mostly covered with Jack Pine, Northern Pin (or Jack) Oak, and scattered Red Pine. Most of the world's Kirtland's Warblers breed in the Jack Pine plains of Michigan's Lower Peninsula, but small numbers of this recently delisted songbird also nest in Wisconsin, Michigan's Upper Peninsula, and Ontario, Canada.

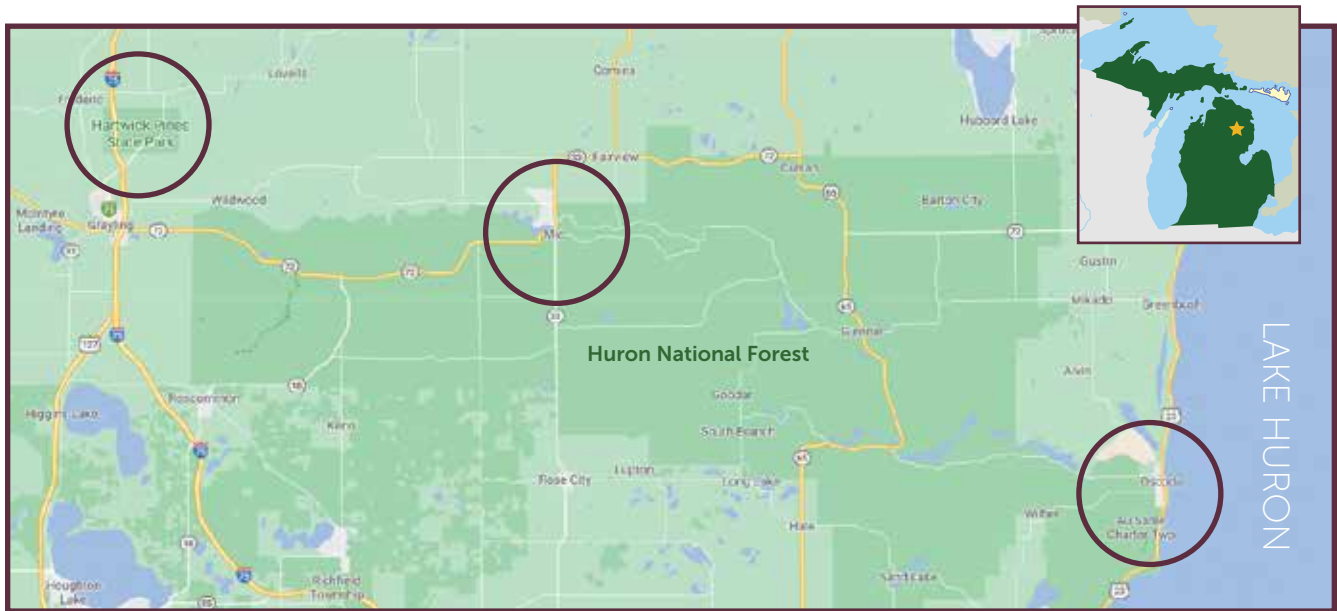
Glacial moraines, covered with oaks and Red and White Pines, border the Jack Pine plains, and both habitats are enriched by scattered wetlands and small lakes. Clear, groundwater-fed streams and rivers, lined with Balsam Fir, Northern White Cedar, and spruce, flow through the sandy soils; these conifer-dominated areas harbor breeding Winter Wrens, Veeries, Evening Grosbeaks, American Redstarts, Mourning Warblers, and many other species not typically found on the Jack Pine plains.

**Focal Birds:** While the Kirtland's Warbler is the focal bird of KWMA, many other species breed in the extensive Jack Pine plains. Common Nighthawks, Upland Sandpipers, Vesper Sparrows, and Brewer's Blackbirds can be found in the most open areas created shortly after wildfire or timber harvest. Kirtland's Warblers occupy sites where Jack Pines reach heights of five to 16 feet. In some of these areas, they are the most common bird. Nashville Warblers, Chipping Sparrows, Brown Thrashers, Hermit Thrushes, Clay-colored Sparrows, Lincoln's Sparrows, Dark-eyed Juncos, and Eastern Towhees are among the species also commonly associated with Kirtland's Warbler habitat.

Once Jack Pines reach 20 to 50 feet tall or higher, the habitat becomes the domain of the Spruce Grouse, Yellow-rumped Warbler, Pine Warbler, as well as the more widespread Northern Flicker, Black-capped Chickadee, Blue Jay, and Ovenbird.

**Other Wildlife:** White-tailed Deer, Thirteen-lined Ground Squirrel, and Red Squirrel are commonly seen, while Snowshoe Hare, Black Bear, Coyote, and American Badger are more often detected by their tracks or dens. On spring evenings, choruses of Spring Peepers and Midland Chorus Frogs may be loud. Brook Trout and other stream- and river-dwelling species benefit from the filtering effects of





Guided tours of the Jack Pine plains where Kirtland's Warblers nest start at three hubs (circled) in Michigan's Lower Peninsula. Or you can look into a self-guided tour (see Directions below).

the sandy soils. Many other species benefit from Jack Pine forest management, including rare plant and insect species like the Hill's Thistle and Secretive Locust.

**When to Visit:** The best time to visit is from mid-May through June, when Kirtland's Warblers, other bird species, and amphibians are vocalizing and most conspicuous. By mid-July, most singing has stopped. Hunting for Ruffed Grouse, Snowshoe Hare, and White-tailed Deer runs from mid-September through early December. Although access to occupied Kirtland's Warbler areas is often restricted from May through August, Kirtland's Warbler tours are provided and scheduled for the optimal times to see the Kirtland's Warbler and associated species. Tours are provided by the U.S. Forest Service and Michigan and AuSable Valley Audubon Societies.

**Conservation Activities:** In the KWMA's, large tracts of Jack Pine are intensively managed for Kirtland's Warblers. Tracts of hundreds to thousands of acres are harvested and then replanted with Jack Pine on a rotating basis to ensure at least 1,000 pairs of Kirtland's Warblers have suitable nesting habitat. Once the trees reach

approximately 50 years old, they are harvested and the process of replanting begins again. The Kirtland's Warbler Conservation Team, a group of wildlife biologists, foresters, researchers, and conservationists, including the author and other ABC staff, coordinates and implements the Kirtland's Warbler program.

**Directions:** Areas occupied by Kirtland's Warblers are constantly shifting because of the birds' specific habitat requirements. To minimize impact to this species, visitors seeking to observe Kirtland's Warblers should join a guided Kirtland's Warbler tour, if possible. Tours are typically operated from mid-May through June from the Mio Ranger District of the U.S. Forest Service in Mio, Michigan (email: MioKWTours@fs.ed.us); or contact Michigan Audubon Society regarding tours from Hartwick Pines State Park (<http://bit.ly/MAKirtlandTours>), near Grayling, Michigan; or AuSable Valley Audubon Society (<http://bit.ly/AVAKirtlandTours>), which leads tours from Oscoda, Michigan. Check the respective dates, times, and fees for tours, as they change from year to year. Each of the websites listed here provides specific information on tours and locations where tours originate. Note that tours were not available in 2020 due to the pandemic, but they are expected to resume as it becomes safe to run them. Information on local recreational activities, including a self-guided Jack Pine Wildlife Viewing Tour, is available from <http://bit.ly/HMNFKirtlandTours>.

*ABC thanks the Harry A. and Margaret D. Towsley Foundation and Lynn and Stuart White for their support of the Kirtland's Warbler program.*

Kirtland's Warbler by Jason Jablonski





# LESSONS

*from Long Point*







Restlessness  
defines the  
spectacle of  
migration  
and those  
who study it.

TOP: The author atop a bird blind at the tip of Long Point Peninsula, April 1984.

LEFT: Long Point Peninsula in Ontario, Canada, is uniquely situated for observing and studying bird migration. Photo by SF Photo, Shutterstock.

Birds in flight by TSpider, Shutterstock

by George E. Wallace

Not long after college, I found myself at Point Reyes Bird Observatory (now Point Blue Conservation Science) working in the national seashore by the same name, right on the Pacific. My comrades at the Palomarin Field Station were itinerant field biologists and birders like me. Ostensibly, we were moving from field job to field job to gain experience and build our resumé's so that we could one day get real jobs — full-time ones that, well, actually paid. Or at least this is what we told our parents, all of whom, I assure you, were concerned about our chosen career paths.

As we filled our days together netting and banding birds of the northern California coastal scrub, we'd sometimes fantasize about our next adventures. Maybe Southeast Farallon Island, just out of sight in the fog offshore; or Hawk Mountain, Pennsylvania; Cape May, New Jersey; Eilat, Israel; Falsterbo, Sweden; or Fair

Isle, United Kingdom? It seemed that we, like migratory birds, felt a certain kind of restlessness.

Again and again, Long Point Bird Observatory (or LPBO) came up. An expansive string of parallel dune ridges extending nearly 25 miles to the center of Lake Erie, Long Point is uniquely situated for witnessing and studying migration. Given its strategic position, it is not surprising that LPBO, now a program of Birds Canada, was the Western Hemisphere's first bird observatory. The place changes your perspective on migration, making it seem even more amazing. My time there helped me to better understand the nuts and bolts of this amazing natural cycle.

Of course, wherever we are, we can learn something new during each migration, but usually on a far smaller scale. In your yard or local park in spring or fall, you might see a few regular year-round residents one day, then the next the place sparkles with new bird songs. What is going on



here? My happy years at Long Point, and the career that followed, can help me explain.

## Among the Flocks

I wanted to really see migration happening. That's why I applied for and luckily landed a position as a research assistant in LPBO's Migration Monitoring Program. I hoped that Long Point would live up to its reputation and provide the kind of dramatic migration experience I craved. I was not disappointed.

In early April 1984, easing ice conditions on the lake finally allowed us to run LPBO's 14-foot skiff out to the end of the point. It was a long trip, made longer by having to skirt huge marshes en route. This put us well off shore in places, exposed to wind and chop from the south. Forested dune ridges stretched ahead of us, then we passed ever-sparsier clusters of cottonwoods clinging to the increasingly barren landscape as we approached

the apex of the peninsula, known as the "Tip." There, LPBO has a field station, near a 100-foot-tall lighthouse run by the Canadian Coast Guard.

The Tip was positively oceanic, with ice piled on the south shore and waves colliding with each other behind masses of gulls loafing on the sand. It was cold, windy, and rather bleak, but as I would realize in the coming weeks, it was paradise for someone eager to understand the unfolding of spring, with its ebbing and flowing pulses of migration. Long Point captivated me so much that I kept going back there for the next decade.

I had never been to a place where the seasonal mass movement of birds was so graphically on display. It was as if the planet was breathing — blowing thousands and thousands of birds at the point, gathering itself for a time, and then releasing another huge feathered breath, and another, and another.... There was

drama: Merlins pursuing kinglets and juncos above the waves as they struggled to reach land, and big flocks of everything from sea ducks to flickers, to jays, to shorebirds. After rough overnight weather, warblers foraged on the ground in the wrack lines next to the water. One day brought hundreds of Winter Wrens scurrying and fluttering around the Tip like little mice. During a morning census, a Brown Creeper flying through the Tip's low cottonwoods attached itself to my colleague's leg, then hitched its way up nearly to his shoulder before flying on to the next tree.

We banded ridiculous numbers of birds with business-like efficiency between hurried cups of coffee and bowls of hot oatmeal. On foggy, rainy nights, clouds of nocturnal migrants were attracted to the beam of the lighthouse, calling as the light passed over them — a problem, I hasten to add, that was thankfully largely remedied by a retrofit of the light in 1989.



Redhead  
Alan Wilson

# MIGRATION'S ORDERLY

Each spring at Long Point and elsewhere, migration follows a predictable timeline of arrivals and departures.

## LATE MARCH AND EARLY APRIL



Common Grackle  
Owen Deutsch



American Wigeon  
Owen Deutsch



Fox Sparrow  
Chris Hill,  
Shutterstock



## Migration's Orderly Procession

Among the most striking aspects of migration at Long Point was its orderly progression. It went like this:

- Late March and early April was prime time for waterfowl, early sparrows such as Song and Fox, and clouds of Common Grackles and Red-winged Blackbirds.
- By late April, Ruby-crowned Kinglets and White-throated Sparrows were really coming through and the first warblers were arriving.
- Early to mid-May was prime for warblers, tanagers, and orioles.
- Late May to early June brought Gray-cheeked and Swainson's Thrushes, flycatchers such as Yellow-bellied and Acadian, along with Yellow-billed Cuckoos.

There were more than 200 different species, so it was a complex and constantly changing mix of newly

arriving species that showed up as others tapered off and departed for points north. The procession of species marked the passage of spring as much as leafing trees, blooming wildflowers, and hatching insects. You could pretty much set your calendar by it. This type of sequencing of migration plays out similarly, though not as dramatically, across the continent. The arrival times I mention above might differ from place to place in the East, but many of the players and sequences are the same.

Why does migration proceed in this way? What factors determine the timing of migration? Joel Carl Welty, the author of one of my well-worn ornithology textbooks, put it this way: "Two urges dominate nearly all the waking activities of a bird: hunger and love." The former keeps individual birds alive in the here and now, while the latter, breeding, ensures the perpetuation of the species. Let's look at how these urges affect migration and its timing.

## The Ultimate and Proximate

Migration is complex and its timing, pace, and volume are controlled by multiple factors, some exerting their influence on migration in the "here and now," called proximate factors, while others have shaped migration behavior for each species as they have evolved over thousands or even millions of years — long-term influences known as ultimate factors. Ultimate factors act over evolutionary time to dictate the approximate dates when migrants come and go from their breeding and wintering grounds.

Proximate factors determine the specific time when migrants will make their move in a particular place and year. These environmental cues include photoperiod (length of day), temperature, wind direction, snow cover, and food availability.

# PROGRESSION



Palm Warbler  
Bruce Beehler

## LATE APRIL



White-throated Sparrow  
Mircea Costina, Shutterstock



Ruby-crowned Kinglet  
Mircea Costina, Shutterstock



Hermit Thrush  
David O. Hill



In both ultimate and proximate factors, the exact mechanisms that determine when birds migrate are still not completely understood. The interplay among a bird's genetic makeup, response to external stimuli, and its endocrine system is still being explored.

## Climate Is Key

The leading ultimate factor affecting the timing of migration appears to be climate, which can in turn affect other ultimate factors — in particular the availability of food and suitable nesting conditions. In the span of our human experience, weather can sometimes seem to vary considerably from one year to the next, but over millennia the general patterns of climate have exerted strong influences on the evolution of migratory behavior. Insectivorous species such as the Magnolia Warbler or Least Flycatcher don't want to arrive at their breeding grounds in March or they may

find heavy snow cover and no insect prey. They come in May, when the prospects are much better.

Adult males of many songbirds migrate before immature males or females. Apparently, it is worth the risk to push the weather envelope and to arrive on the breeding grounds early to secure the best-possible territories and the reward of superior breeding success that may result. Certain characteristics of breeding behavior are similarly hard wired and leave birds vulnerable to climate conditions.

Snow Geese and Canada Geese breeding in the Canadian Arctic have long breeding periods, but a relatively narrow window in which to lay their eggs and rear the chicks to fledging before snow comes again, endangering their young. This requires early arrival on the breeding grounds when the ground may still be snow covered and food scarce. However, the large body size

of geese allows them to build up considerable fat stores, so they can go without feeding during the first days or even longer on the breeding grounds. Shorebirds that nest on the open tundra such as the Red Knot and Sanderling have a different problem — unlike the geese, their small body size doesn't allow them to store large amounts of nutrients. They tend to migrate late, arriving on the breeding grounds just as conditions become suitable for both nesting and foraging.

Climate change is playing havoc with these ultimate factors, happening faster than many bird species can adapt to it. While it is true that some species such as the Black-throated Blue Warbler have actually begun to migrate earlier, they may not be keeping pace with their insect prey, which seem to be adapting faster to warmer temperatures than the birds.



American Redstart  
Agami Photo Agency



Magnolia Warbler  
Jacob Spindelov



Cape May Warbler  
FotoRequest,  
Shutterstock

## EARLY TO MID-MAY



Scarlet Tanager  
FotoRequest,  
Shutterstock



Chestnut-sided Warbler  
John Turner



Baltimore Oriole  
Brian A. Wolf,  
Shutterstock





Red Knots tend to migrate late, arriving on the breeding grounds just as conditions become suitable for both nesting and foraging.

he also noticed the phenomenon of pre-migratory restlessness — what he termed *Zugunruhe*, which in German means “migration anxiety.” Migratory birds become more active prior to migrating and when exposed to the right stimuli, restlessness peaks, and then the birds depart. But what sparks this? What’s the proximate cue? A bird may be predisposed by generations of evolution to depart for the breeding grounds at a particular time of year, but what conditions prompt it to leave on a particular day or night?

There are now multiple examples, especially from studies of European birds such as the European Pied Flycatcher, of birds moving north earlier but still missing the new peak of insect abundance. Synchronicity of the two is critically important for birds to raise young successfully.

### Zugunruhe?

Johann Andreas Naumann was an amateur naturalist living in the later 18th and early 19th centuries, and an early student of bird migration. In 1822, he noted that migratory birds fattened up before migration and

## MIGRATION'S ORDERLY PROGRESSION



Yellow-billed Cuckoo  
Mark Johnson

## LATE MAY TO EARLY JUNE

Blackpoll Warbler  
@ Michael Stubblefield



Acadian Flycatcher  
Frode Jacobsen



Swainson's Thrush  
David O. Hill



# Saving the Migration Spectacle

Spanning continents, twice-annual peregrinations lead migratory birds across oceans, vast landscapes, and country boundaries they do not recognize. These perilous journeys throw many challenges their way: storms, predators, disease, exhaustion. Humanity provides another heavy dose of trouble. But we can also help.

The 2019 *Science* paper chronicling a 29-percent drop in U.S. and Canadian bird populations since 1970 was a wake-up call. ABC collaborated on this study, and is also part of efforts working to reverse this troubling trend. We do this in myriad ways:

ABC addresses threats to all birds, including direct killing that results from collisions with glass, wind turbines, and powerlines; exposure and loss of prey due to harmful pesticides; and predation by free-roaming cats.

We also work with partners to create safe landscapes for migratory birds, on their nesting grounds, at key migration stopover sites, and where they winter.

On over 6 million acres, we work as part of Joint Ventures, coalitions of groups and agencies working together to conserve bird habitat across landscapes. Our BirdScapes approach maps out large areas important to declining birds, where we and partners work to make habitats more secure, both in protected areas and on working landscapes.

With partners, we protect over 1 million acres in reserves at 90-plus sites in 15 countries. There, endemic species, migratory birds, and local biodiversity are protected.

Since 2004, ABC has supported partners to plant more than 6.1 million trees and shrubs in the Neotropics, many in important areas for migratory birds. We also work with farmers north and south of U.S. borders to restore grasslands, both for declining prairie birds and livestock.

In managed forests, we work with partners to implement habitat improvements that help declining bird species and other wildlife.

Birds move freely across the landscape, not in safe channels we define, so our efforts must be broad-reaching and flexible, depending upon the area and species affected. For more than a quarter century, ABC has worked to help keep migration going strong. It's part of our commitment to keep the full complement of bird species thriving. And this year, in the wake of the *Science* paper, ABC is joining National Audubon Society and a coalition of other groups in a multi-pronged Bring Birds Back initiative.

It's a tall order to save migration, but a challenge worth tackling, not just to ensure that we continue to enjoy watching a rainbow of birds, but also for the sake of the natural world we share with them.



Female Cerulean Warbler by Agami Photo Agency, Shutterstock





Birds are highly attuned to the timing and length of daylight periods, which change in a regular pattern worldwide, although these changes are subtler close to the equator. The White-crowned Sparrow, often called the “white rat of ornithology,” was one of the first species studied (and subsequently re-studied) to better understand how Zugunruhe works in birds.

Starting in the early 1950s, Donald Farner and his graduate students at Washington State University began research on bird behavior and physiology during migration. They documented that in April and May, as daylight hours lengthened, Zugunruhe increased in captive White-crowned Sparrows. Other researchers have demonstrated that the intensity of Zugunruhe can even be manipulated by exposing birds to differing photoperiods. Air temperature has also been shown to trigger restlessness, via warm weather in spring and cooler weather in fall.

Photoperiod seems to affect levels of various hormones that spark the physiological responses causing

migration. Studies of the Eurasian Blackcap, a nocturnal migrant songbird, have demonstrated that as daylight lengthens, melatonin, a hormone important in regulating resting and sleep behavior, decreases at night, when nocturnal migrants are on the move.

## May the Wind Be Always at Your Back

Another key proximate factor affecting the timing of migration is weather. It is certainly easier for migrants to fly north with the wind behind them, and birds seem to be able to read weather fronts and winds that will make for energetically easier passage. These meteorological factors are among those that cause waves of migration that can be particularly dramatic during spring migration.

In North America, and elsewhere in the Northern Hemisphere, spring weather systems in which a high pressure system is followed closely by a low pressure system generate south winds that push warm air north with them. Under these conditions, waves

Birds are highly attuned to the timing and length of daylight periods, which change in a regular pattern worldwide.

of migrants take to the skies, availing themselves of the best flying conditions. In fall, lows followed by highs bring north winds that migrants can use to work their way south. Modern technology, especially NEXRAD radar, allows us to not only forecast weather better than ever — we are also getting just as good at predicting waves of birds, especially since large numbers of migrants on the move actually show up on radar. Be sure to check out BirdCast for real-time bird migration predictions (<https://birdcast.info/>).

My experiences at Long Point changed my life. I got serious about ornithology and then bird conservation, and made a career out of studying and protecting birds. That first spring migration at LPBO also changed the rhythm of my life, and I now anticipate each spring migration and experience my own version of Zugunruhe, culminating in me picking up my binoculars and venturing forth each morning to see which new species have arrived.



*George E. Wallace is ABC's Director of International Programs and Partnerships.*

# The Surprisingly Complex Science of BIRD LONGEVITY



by John C. Mittermeier

Answering questions about how long birds live can be surprisingly hard. In many cases, even the seemingly simple question “How old is that bird?” can be impossible to answer.

The reason for this is that most birds do not show signs of physical aging over the course of their lives.

As humans, we’re accustomed to using visual hints, like graying hair, to guess the age of someone or something. Birds are different. They don’t get gray; they don’t become arthritic; they don’t get bigger with each passing year; they don’t leave growth rings for us to count. In fact, once a bird develops its adult plumage, it essentially becomes impossible to age.

For researchers studying longevity, or those of us simply hoping to guess the ages of the chickadees visiting our feeders, this creates a challenge. Without physical clues, knowing how old a bird is requires knowing when it hatched, information that, more often than not, we do not have for the birds we see in the wild.

The current understanding of how long birds live in the wild comes almost entirely from bird-banding data. The theory behind this is simple: If you find a bird that was previously banded, you can confirm the time elapsed since it was first caught.

In practice, though, aging birds from banding can be complicated. Only a small percentage of banded birds are observed again, and if they were adults when first banded, their starting age is unknown.

While there is still a lot to learn about avian longevity, one thing is clear: Many birds live much longer than we might expect.

In mammals, small species with faster metabolisms, like mice, live relatively short lives. Given that birds have high metabolisms and that many of them are small, we might expect birds to also be relatively short-lived. But they aren’t.

In fact, many birds seem to live an extraordinarily long time, particularly when compared to similarly sized mammals. Under ideal conditions in captivity, a House Mouse can live up to four years. Meanwhile, the Broad-billed Hummingbird, a species one-quarter the size of the mouse, has been recorded living up to 14 years in the wild.

Barn Swallows in Europe have been found living 16 years, enough time for these prodigious travelers to have covered roughly half the distance to the moon during their annual migrations. Common Ravens are known to live to 69, more than twice as long as the oldest-known dog and longer than many elephants.

According to *Guinness World Records*, the oldest confirmed bird is “Cookie,” a Pink Cockatoo that lived to be 83 at the Brookfield Zoo near Chicago. Other birds have likely lived even longer, but given how difficult it is to age birds, and that claims of long-lived individuals are easy to exaggerate, many of these need to be taken with a grain of salt.

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The Broad-billed Hummingbird, a species one-quarter the size of a mouse, has been recorded living up to 14 years in the wild.



Broad-billed Hummingbird by Betty Rizzotti



While birds as a class of animals live a long time, there is a lot of variation in lifespan among different species. Even the longest-lived hummingbirds, for example, have much shorter lives than Cookie the cockatoo.

Interestingly, how long a bird species lives can correlate with aspects of its biology and natural history. Thus, with a little bit of background knowledge, we can begin to make educated guesses as to which of the birds around us may be living longer lives. Here are a few characteristics that often provide clues to birds' lifespans:

- Larger birds generally live longer than smaller ones.
- Longer-lived birds often have smaller clutch sizes (fewer young each year).
- Birds that take longer to reach adulthood and have multiple immature plumages are often longer-lived.
- Birds that live on islands are often longer-lived than their mainland counterparts.

An additional factor to keep in mind is that better-studied species are more likely to have records of long-lived individuals than those that are less studied. In other words, there is still a lot to learn about how long many species of birds live!

The slow-paced lifestyle of long-lived birds can have important consequences for conservation. Wisdom, a female Laysan Albatross that turned at least 70 this spring

and currently holds the record of the oldest known wild bird, has produced a minimum of 36 chicks over the course of her life. In fact, this number might be even higher because Wisdom was already an adult when she was first banded, so she could be even older than 70. For Wisdom, though, rearing those young has taken multiple decades, and she did not produce her first offspring until she was at least seven or eight years old. A female Wild Turkey, in contrast, may lay her first eggs when she is less than a year old and could potentially produce 30 or more chicks before she reaches age two.

For species like albatrosses, the survival of the population depends on individuals being able to live long lives. When the introduction of new threats — such as invasive predators or long-line fishing — disrupt that longevity, the results can be disastrous. If all goes well, though, many birds live much longer lives than we may have expected.

*Dr. Steve Austad generously offered advice for this article. His book, Methuselah's Zoo: The Natural History of Exceptional Longevity, will be published this year.*



*John C. Mittermeier is the Director of Threatened Species Outreach at ABC. He works with ABC's partners in Bolivia and helps to lead ABC's Lost Birds and Bird Trade initiatives.*

## Longevity Records for Some North American Birds in the Wild

SPECIES	AGE
American Flamingo	49 years
Bald Eagle	38 years
Sandhill Crane	37 years
Atlantic Puffin	33 years
Great Horned Owl	28 years
Mallard	27 years
Great Blue Heron	24 years

Source: Patuxent Wildlife Research Center  
Bird Banding Laboratory

Bald Eagle by cvrestan, Shutterstock





# BIRD HERO: Anne Mini

The Lower Mississippi Valley Joint Venture was founded in 1987 as a conservation partnership aimed at recovering waterfowl populations. Today, the group also works to meet conservation needs of landbirds, waterbirds, and shorebirds. ABC's Anne Mini is the JV's Science Coordinator. She works with other JV partners, turning best science into on-the-ground action for birds.

Here is some of Anne's story, in her own words:

I'm from northern California but moved 2,600 miles to Jackson, Mississippi seven years ago for my dream job. I tell people I wear three hats: I'm a cat herder, getting partners together; a conservation cheerleader, trying to keep people working toward common goals; plus, a conservation matchmaker, putting partners together to create synergy that makes good things happen.



When I think of what our partners are doing and what we have accomplished, I feel hopeful. Around 1 million acres reforested in the Lower Mississippi Valley...that's phenomenal. And waterfowl are doing really well: Wetland restoration has gone very well here in our region.



From age 12, I knew I'd be doing something in conservation. I had my eyes open to what could happen in wildlife science. In college, I went straight into a wildlife major and I was in a U.S. Fish and Wildlife Service program to promote minorities and women in the field.



In California's Klamath Basin, we banded ducks and did radio-telemetry work. That's when I fell in love with wetlands and working with waterfowl.

My Ph.D. work focused on foraging behavior and carrying capacity in wintering Dusky Canada and Cackling Geese in Oregon's Willamette Valley. It was a blast to run a rocket net to capture birds so we could radio-collar them.



My research looked at how to mitigate goose-caused damage to grass-seed farms —

and whether government incentive programs could help farmers conserve wildlife.

In those days, I realized there were not a whole lot of women in the field. There are definitely more and more now. Times are definitely changing, but it's been slow. Today, I mentor and work with some really great young women. To all those folks graduating and coming out into the job field, my advice: Keep pushing forward and eventually you'll get where you want to be.



Award-winning watercolor painter Beatriz Benavente lives in Spain, where she specializes in scientific and bird illustration. You can follow her on Instagram: [www.instagram.com/wildstories.art](https://www.instagram.com/wildstories.art)





# Keep Birds Coming Back Generation After Generation ...

Right now, waves of migratory birds are taking to the skies. Red Knots will traverse the entire hemisphere from Patagonia to the Arctic. Tiny Ruby-throated Hummingbirds will cross the Gulf of Mexico in a single day. Other birds will island-hop across the Caribbean, and millions more pour north over Central America in spring, then fan out across North America in this remarkable seasonal mass movement.

TOP: Sandhill Cranes migrating by Richard Susanto, Shutterstock

**You can help migratory birds find their way for years to come when you include ABC in your estate plans.**

If you are interested in more information on how to create your own legacy of bird conservation, or if you have already remembered ABC in your will, or as a beneficiary of a trust, IRA, or insurance plan, please contact **Jack Morrison, ABC Director of Major Gifts and Planned Giving:** [jmorrison@abcbirds.org](mailto:jmorrison@abcbirds.org) or **540-253-5780.**



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The Western Hemisphere's largest eagle faces an uncertain future.  
(Immature Harpy Eagle shown here.) Photo by Stanislav Harvančík

