ID TIPS: RUBY-THROATED & BLACK-CHINNED HUMMINGBIRDS

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AUGUST 2023

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Treetop treasures

Wilson's Warbler is one of several songbird species researchers are tracking in a groundbreaking study.
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LOUISIANA'S GRAIL BIRDS

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FEATURES

UP FRONT

COVER PHOTO
Wilson's Warbler
by Kerry Hargrove/Shutterstock

FROM THE EXPERTS

More to read on BirdWatchingDaily.com

CONSERVATION
The U.S. Fish and Wildlife Service recently said it will protect the California Spotted Owl under the Endangered Species Act. The move comes after more than two decades of advocacy by environmental groups to protect the owl and its habitat.

SCIENCE
Bald Eagles and dairy farmers exist in a mutually beneficial relationship in parts of northwestern Washington state. A new study reports that as climate change has affected eagles' traditional winter diet of salmon carcasses, the birds have shifted to finding food on farms.

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Ryan Kalinowski/U.S. Forest Service; Michelle Lancaster

Keep looking up!

THIS ISSUE MARKS THE 135TH AND FINAL EDITION of *Birder's World/BirdWatching* that I had a hand in creating. I joined the editorial staff in late 2000, moved with it when Madavor Media purchased the magazine in 2012, and became editor in 2017. This job has been an absolute privilege and honor, and I hope that our work has helped you, our reader, enjoy, attract, find, identify, and understand birds more than you would have without this publication.

I'm indebted to our late founding editor and publisher, Eldon Greij. Without his passion for birds and for educating the birdwatching community, none of this would have been possible. I miss his wisdom and good cheer.

Eldon sold the magazine in the late 1990s to Kalmbach Publishing in Wisconsin, and I'm grateful to its management and all my former Kalmbach colleagues who worked on the magazine for the decade-plus it was in the Badger State.

Madavor's purchase of *BirdWatching* would not have happened without Susan Fitzgerald, the company's long-time COO. Susan's interest and belief in the publication kept it going at a critical time in its history. Tragically, we lost Susan to cancer in 2018, gone much too soon.

I'm especially thankful to my predecessor and friend, Chuck Hagner, our editor from 2001 to 2017. He made the magazine relevant, compelling, and fun, and I tried to carry on that tradition in the years since.

At this point, I'm not sure what's next, but if you want to keep in touch, I'm on Twitter (@mdmendenhall) and at mattmendenhall.journoportfolio.com.

Stay well, and good birding!

Matt Mendenhall, editor
mmendenhall@madavor.com

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BIRDING BRIEFS

SCIENCE • CONSERVATION • NEWS • EVENTS • LETTERS

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New study: Bird and bat deaths at wind turbines

A study recently published in PLOS ONE collected data from 248 wind turbine facilities — across the United States — to examine bird and bat fatalities. Conducted by the Renewable Energy Wildlife Institute, the authors analyzed daily carcass counts between 2009 and 2021 for nearly 4000 birds and more than 10,00 bats killed at turbine sites.

"First and foremost, this study helps us understand why certain species of birds and bats are more likely to collide with wind turbines than others," said John Lloyd, the lead author. "But it also highlights the power of collaborative research — our analysis, and the patterns that it uncovered, was only possible because we could draw on data from hundreds of different studies conducted across the United States and compiled in the American Wind Wildlife Information Center."

Most US facilities are in the prairies and plains of the central and western states, where many species of grassland birds are present year-round and are consistently exposed to collision risk. In contrast, woodland birds are only affected by these facilities during their long-distance migrations and showed two peaks in fatalities, corresponding to spring and fall migrations. Regardless of ecoregion, bat fatalities peaked in the late summer and autumn, with elevated numbers of bat fatalities from mid-June to mid-November.

CRC hosts emergency efforts to help save California Condors

Recently the Carolina Raptor Center (CRC) became home to 28 Black Vultures that are part of an emergency use vaccine authorization, a program dedicated to protecting endangered California Condors from Highly Pathogenic Avian Influenza (HPAI).

The emergency use authorization was approved by the U.S. Department of Agriculture (USDA) as part of a nation-wide collaborative study and initiated after at least 17 condors – confirmed positive for HPAI — died in March and April, in Arizona.

CRC was chosen as the host for this trial because of its unique facilities and expertise in the field of raptor rehabilitation and care. "Rescuing and rehabilitating up to 1,000 injured and sick raptors every year requires a team of expert staff as well as large holding facilities to care for birds as they recover," says President and CEO Erin Katzner. "We're fortunate to have the space and skill set to care for these incredible vultures in support of their critically endangered relatives – the California Condor. Although this disease has been devastating to condors, we appreciate the opportunity to contribute to conservation by taking part in this critical and cutting-edge research effort. CRC is proud to collaborate with so many impressive partners to save one of the most iconic birds in North America."

The Black Vultures arrived at CRC on May 3, with the help of North Carolina Department of Agriculture and Consumer Services (NCDA&CS), North Carolina Wildlife Resources Commission, Tennessee Department of Agriculture, the Tennessee Wildlife Resources Agency, American Eagle Foundation, and the USDA. The first dose of vaccine was supervised by the NCDA&CS State Veterinarian and administered to 20 birds on May 16 by veterinarians from the USFWS, USDA, and CRC. The team was assisted by scientists from USGS and Zoetis, and CRC Staff. This was the first time an HPAI vaccine has been administered to any bird in the United States outside of development trials. A second dose was given to 10 of the birds on June 6; the remaining eight birds serve as a control group for the trial.

CRC Director of Avian Operations Kristin Dean reports, "The vultures are all doing well. They're strong, healthy, and behaving like vultures – which means eating a lot of food!"

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The results of the Black Vulture study will help guide the next steps of trial implementation on 25 captive California Condors. "We are thankful to our partners at the Carolina Raptor Center for assisting with this effort to help address HPAI in condors. The initial results of healthy Black Vultures following vaccination is already informing our planning in a meaningful way," said Ashleigh Blackford, USFWS California Condor Coordinator.

Initial costs for implementing the trial were covered by USFWS, but CRC is requesting donations on their website (carolinaraptorcenter.org) to help support the additional costs of food, supplies, and health monitoring the vultures will require.

"We would also love to encourage everyone to come visit us this summer," says Katzner. "While the vultures in the study are not available for viewing, we have a number of resident vultures at the center. You may even have the chance to meet Nebari a Black Vulture who is one of our Avian Ambassadors and participates in daily special programming – he's trained to fly over guests' heads and offer nose-to-beak experiences. It's hard not to love a vulture once you've met one."

Bird city network launches

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American Bird Conservancy (ABC) and Environment for the Americas (EFTA) announced a partnership in June, launching the Bird City Network (birdcity.org), a bird conservation program connecting cities in North, South, Central American, and the Caribbean, in a unified effort to expand the conservation of birds.

"Many people do not like what they see happening to wildlife in the world around them and would like to make a change but do not know where to begin," said Dr. Bryan Lenz, ABC's Bird City Network Director. "Bird City is their guide. Recognizing that local partnerships are the heart of meaningful long-term change, the Bird City model seeks to empower relevant grassroots actions where neighbors work together to improve the spaces they share."

The Bird City Network is designed as a platform to help promote sustainable urban planning, create bird-friendly communities, and raise awareness about the vital role people play in supporting bird populations.

"With more than 50 percent of the global human population living in urban areas, it is essential that we recognize the critical role cities and other communities like towns and villages can play in protecting bird populations. By uniting cities across the Americas, we can create a powerful force for avian conservation," said Michael J. Parr, President of ABC.

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Hopeful Red Knots migration

The annual survey of Rufa Red Knots migrating through the Delaware Bay to Artic breeding sites in the spring totaled in the realm of 22,000, a dramatic increase from 6,680 red knots recorded in 2021.

Dr. Larry Niles, an independent biologist, told the *New York Times* that warm ocean waters allowed for a robust spawning of horseshoe crabs, whose eggs are a key food source for the Atlantic coast subspecies.

"What I think is happening is that the birds first found there were no eggs, and stayed away," Niles said. "Then they found there were eggs and they came back. I was elated to see 22,000 birds this year."

In the 1980s and 90s, the shorebird population was, on average, in the range of 90,000 birds. The steep decline has been correlated with the overharvesting of horseshoe crabs.

Dr. Niles told the *NYT* that the density of crab eggs on the New Jersey and Delaware beaches increased to approximately 10,000 per square meter during this year's migration in May, up from a recent low of around 5,000.

EYE ON CONSERVATION

Grey-breasted Parakeet pair

A promising sign for an endangered parakeet

By Rachel Fritts, American Bird Conservancy

This spring, more than 20 wild-hatched Gray-breasted Parakeets took flight in a private reserve in the Aratanha Mountains in Brazil — likely the first fledglings of the species in this location in decades.

Gray-breasted Parakeets are small, social parrots with green bodies, white cheeks, and bright red tail feathers. While they were once widely distributed across mountain forests in eastern Brazil, their numbers dwindled beginning in the late 1800s due to deforestation and the European pet trade. By 2007, only a single viable population of less than 100 individuals remained, and the species was listed as critically endangered on the IUCN Red List.

In 2009, Brazilian conservation organization Aquasis embarked on an urgent mission to save the last remaining individuals from extinction. They put up artificial nest boxes to substitute for hollow cavities in old-growth trees where the parakeets preferred to nest and began an education campaign to combat poaching.

After a period of trial and error, Aquasis's efforts, supported by American Bird Conservancy, were a remarkable success: Hundreds of chicks have fledged from the nest boxes. In 2017, the species was downlisted from critically endangered to endangered, and Aquasis began to think about the second phase of their plan to save the gregarious parakeets — reintroducing family groups to protected areas in regions where the species once thrived.

After several years of careful planning, conservationists moved more than 30 parakeets to the first reintroduction site in the Aratanha Mountains in stages between late 2021 and 2022. The birds quickly took to their new home and found the nest boxes Aquasis had put up in the trees surrounding their release site. This February, the first batch of chicks born at the site fledged, and more soon followed on their first flight.

This milestone seemed impossible just over a decade ago, when the species was on the cusp of extinction in the wild. Now, however, Gray-breasted Parakeet recovery is a shining example of what conservationists can achieve in a relatively short amount of time with the right resources and community support.

Rachel Fritts is writer/editor at American Bird Conservancy.

Photos by Fabio Nunes

At its own pace

Convivial Cedar Waxwings remain in summer mode well into fall

By Laura Erickson

LATE EVERY SUMMER and into the fall, when I'm ambling down a country road in northern Wisconsin, watching raptors at Duluth's Hawk Ridge, birding along Lake Superior, or sitting in my backyard, I'm drawn to Cedar Waxwings.

Many of them sit on bare branches rising above leafy trees. Now and then, one flutters out to snatch a flying insect but, even then, takes its time about it. Waxwing flight looks unhurried and leisurely, and the sleepy, sibilant calls ("like tiny mice snoring," explained an ornithology professor) contribute to the Zen-like relaxation and peacefulness that wash over me whenever they're near. Even migrating flocks appear not to rush. Individual birds continually change position, so the flock seems to swirl gently as it moseys along. As you and I get down to business at the start of the school year, Cedar Waxwings remain in their lazy, hazy mode of summer vacation.

Except when individuals dart out and back after an insect, they mostly sit still, as if conserving energy is their highest priority. Waxwings are easy to recognize by their crested head, erect posture, and soft demeanor.

Berry bushes and fruit trees also harbor waxwings. We can often approach close to a flock in fruit-eating mode. The young of the year still have streaked breasts and bellies, and their secondary feathers lack the bright red, waxy tips that give the

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species its name. Developing such signals of maturity doesn't seem all that urgent; each bird grows them at its own pace.

Few people leave snags and dead branches alone in their backyards, and even when we do, we can't guarantee that waxwings will show up. Planting fruiting trees and shrubs may draw the birds to our yards. Birdbaths, especially models that look like natural water features, can also work.

Unfortunately, what goes in eventually comes out. Waxwing droppings frequently contain the seeds of exotic invasive plants. As fast as conscientious land stewards can remove buckthorn, for example, Cedar Waxwings replant it, with help from robins, catbirds, orioles, and other fruit-eaters. Birds are functionally illiterate; we can't explain that the shrub crowds out native plants that are more nutritious and provide food over a wider part of the annual cycle.

"Even migrating flocks appear not to rush."

The other problem associated with fruit-eating birds begins when the sugars in the fruit ferment. Waxwings that eat them can become intoxicated. Researchers discovered decades ago that waxwings have a sense of smell and may detect the odors of aromatic hydrocarbons in the air about fermented berries. Unfortunately, during freezing conditions, fermented berries don't exude many smells; that's when waxwings start having difficulties. While intoxicated, they grow disoriented and lose muscular coordination. In this state, they often collide with windows and cars. It's best to plant fruiting plants away from windows and roads.

Waxwings compensate for the few problems they cause by bringing us contentment and peacefulness that only such quietly convivial, lackadaisical birds could inspire.

Laura Erickson, the 2014 recipient of the American Birding Association's highest honor, the Roger Tory Peterson Award, has written 12 books about birds and hosts the long-running radio program and podcast "For the Birds."

Bonnie Taylor Barry/Shutterstock

Canada Goose goslings snuggle under the wing of a parent.

At home with Canadas

Reflections on a lifelong love affair with a common bird that not long ago wasn't so common

By Pete Dunne

AS READERS OF this column probably realize, wife Linda and I spent last winter and early spring in California with her parents. Our return drive the first week in May was uneventful and spiked with birds not seen during our trip out in December — multiple Swainson's Hawks, Scissor-tailed Flycatchers, and other gems. And while the bird riches of California's Central Coast do not lack for abundance or charm, it was only on our first morning home that I realized that I had been deprived of the resonant two-note honk of the Canada Goose for five months.

I'm not saying California is goose impoverished. Far from it. But this oh-so-common New Jersey resident bird was absent in the wine country where my in-laws reside. Here in New Jersey, they occupy every county park, golf course, and corporate office park. They stop traffic when adults lead young across busy highways, and in recent years, they have even taken to nesting in salt marshes.

So common is the bird that a special early hunting season is held, intended to target the resident population without impacting northern geese that winter here. The early season hasn't even cut into the birth rate, which suits me fine. I love Canada Geese and count the call of migrating Canadas as one of the most evocative sounds in nature.

The sound you hear now is the conjoined wail of 10,000 golf course grounds management crews who would sell their souls to be rid of the hordes of geese that consider the artificial mix of short-grass fairways and water hazards home. It is ideal goose habitat, so how can you blame the birds?

It wasn't always this way in New Jersey. In the first half of the 20th century, Canada Geese were rare in the state. Ornithologist Charlie Urner, who

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conducted 20 Big Days in the 1920s and '30s, tallied Canada Goose only twice — and it's certain those birds were stakeouts. By the time I was doing Big Days, 50 years later, Canada Goose was typically the first bird we tallied at midnight in the Great Swamp National Wildlife Refuge, one of the many goose hatcheries maintained by the U.S. Fish and Wildlife Service, which features the bird on its emblem.

There was a time, and it wasn't long ago, that the sight of a high-flying V of migrating geese would stop people stop in their tracks and bend their gaze skyward. Strangers would smile at strangers, knowing that they had just shared a precious moment. And despite the birds' manifest presence now, I still thrill to the sound of Canada Geese, including the resident pair that greeted Linda and me our first morning back in New Jersey.

And while I needed to catch up with many other local birds — Prothonotary Warbler, Yellow-throated Warbler, Purple Martin, and more — it was the wake-up call of Canada Goose that first morning that made my day.

Among my collection of working decoys are two Canada Geese carved in the Barnegat tradition — halved and hollowed, with inset weights and artfully carved heads, birds that hark to a time when Canada Geese were prized. If we ever have a house fire, the geese and the first-edition Peterson field guide will accompany us out the door.

My love affair with geese goes back at least as far as 1960, when I was 9 and a pair of them nested on a small island in the Third Brickyard Pond, near my parents' home in Whippany, New Jersey. I wrote the governor, asking him to close the hunting season that fall so that geese could become established. He didn't oblige, but as New Jersey's thousands of domestic geese attest, the birds had the situation well in hand.

Several years later, as a sophomore in high school, I penned this poem as part of an English class assignment. I don't pretend to be a poet, but I was happy with the result and, from one goose lover to another, I don't mind sharing it with you.

'There was a time, and it wasn't long ago, that the sight of a high-flying V of migrating geese would stop people stop in their tracks and bend their gaze skyward. Strangers would smile at strangers, knowing that they had just shared a precious moment.'

As the Wild Geese Go By (circa autumn 1967, from memory):

It's not quite night
but it's not quite day,
The sky is afire in crimson array.
The reeds and grasses like waves
do sway,
then the north wind dies,
and the world is hushed.

If you listen hard,
you, too, shall hear,
beyond the dimensions of darkness
and fear.
The pounding of wings, their trumpeting clear.
Then the world will dim as your eyes
grow tears,
as the wild geese go by.

But, then, there are some
who can't understand
this age-old bond between God
and man,
As Aaron trudged on to his promised land,
the wild geese go by.

Now into the sunset,
still higher they climb,
their song of freedom,
fading, will die.
Then, turning homeward,
you pause and sigh,
for the wild geese have gone by.

I don't remember how the poem was graded, but I do recall Miss Eisenberg asking why I chose to cast "darkness and fear" as "dimensions." She was also curious to know why I referenced Aaron and not Moses.

Anyway, that's the poem. Grade it as you will. And now, excuse me, but the geese are calling me out to play.

Pete Dunne is the author or co-author of many books about birds, including *Bird Families of North America, Hawks in Flight, Gulls Simplified, Tales of a Low-Rent Birder, Prairie Spring*, and others. He founded the World Series of Birding and was the first official counter of the hawk watch in Cape May, New Jersey.

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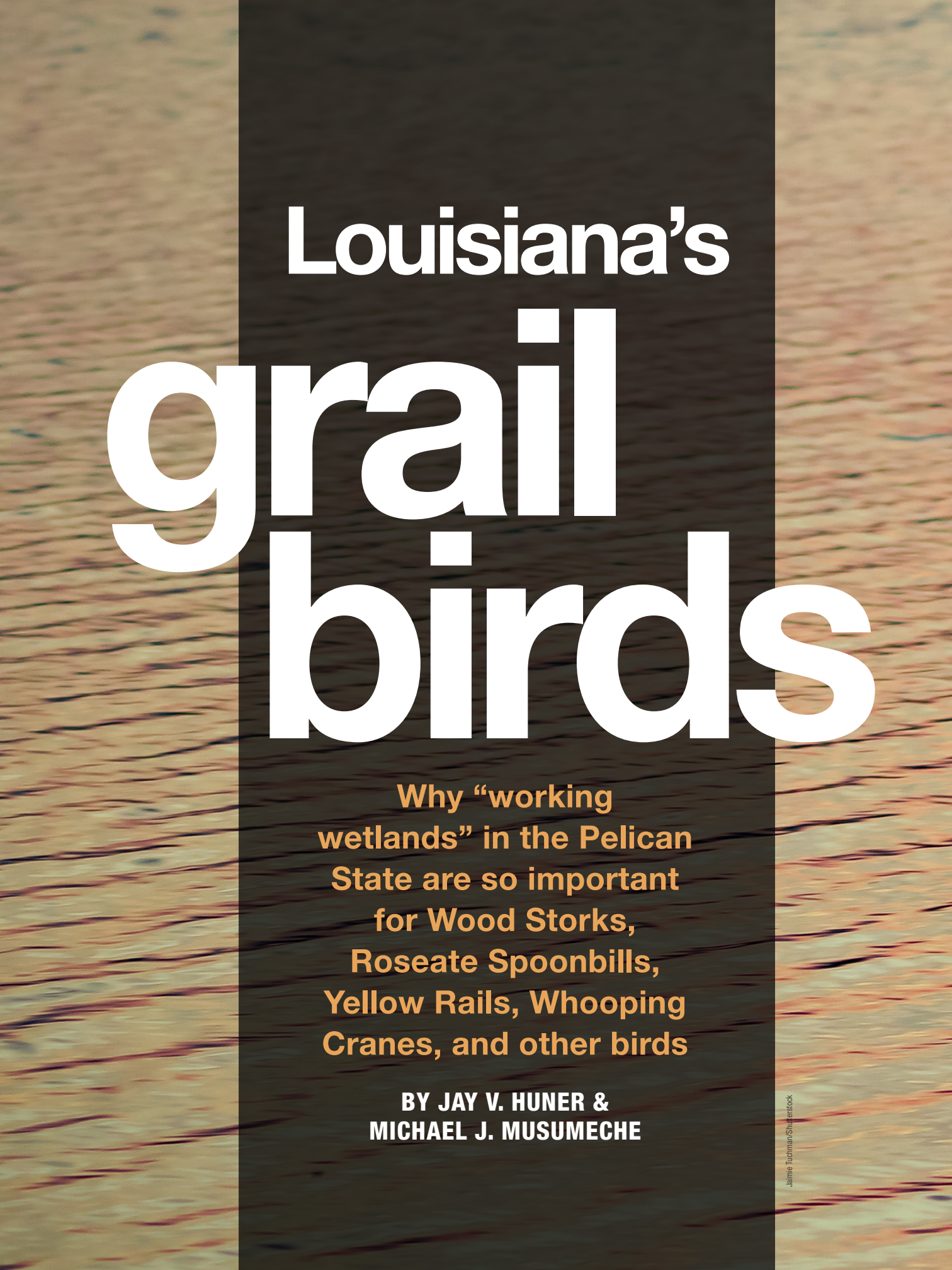
Louisiana's grail birds

Why "working wetlands" in the Pelican State are so important for Wood Storks, Roseate Spoonbills, Yellow Rails, Whooping Cranes, and other birds

BY JAY V. HUNER & MICHAEL J. MUSUMECHE



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Little Blue Heron

Fifty years ago, Wood Storks and Roseate Spoonbills were uncommon in south-central and southwestern Louisiana. Yellow Rails were likely present in southwestern Louisiana but not detected. Non-migratory Whooping Cranes had been extirpated over 35 years before. Today, in the proper season, all can be encountered. The four species are ones most birders want to record on their life lists.

So, why the change? The simple answer is that crawfish became a component of the region's 460,000-plus acres of rice-growing "working wetlands." The broader answer is that economic development sometimes can benefit birds or other wildlife. The rice-growing regions of Louisiana are proof.

Over the last several decades, Wood Storks adjusted their annual post-breeding dispersal to the Lower Mississippi River's drying swamps and marshes. The species migrated primarily from the Yucatan to the southern U.S., and secondarily from Georgia and Florida to the west, to "flock" to a new wetland area, arriving in late spring and early summer. Similarly, Roseate Spoonbills as well as all native wading birds expanded their populations dramatically in the region.

Alert birders in Jefferson Davis Parish in the early 2000s watching farmers harvesting second-crop rice in the fall became aware of large numbers of Yellow Rails flushed by rice combines. Federal and state agencies and nonprofit groups reintroduced Whooping Cranes in the area around 2010 to re-establish a resident, non-migratory flock of the endangered birds. By the following year, the crane's beautiful bugle call was again being heard in the area. The birds began to nest in crawfish ponds and rice fields in early to mid-spring. Currently, the state's flock numbers approximately 81 Whooping Cranes.

Great Egret perched on a crawfish trap

Bonnie Taylor Barry/Shutterstock

Wood Storks

Chris Klonowski/Shutterstock

Birds drawn to crawfish

The region was dominated by coastal prairie and cattle prior to the early 1900s, when it was converted to field agriculture by enterprising Midwest farmers who came to the region lured by land-company entrepreneurs. It was well suited to rice farming with hydric soils and available water. Cattle were pastured in fallow fields. Red swamp crawfish (*Procambarus clarkii*) was present in the area and readily invaded rice fields from adjacent marshes and swamps.

Some crawfish were always harvested for local use. However, farmers gradually learned to stock crawfish into rice fields in late spring and reflood them in the fall after the summer rice harvest. The crawfish burrow in levees where they spawn and emerge with young when the fields are reflooded in the fall at a depth of 12-18 inches. Crawfish grow quickly in the food-rich ecosystems fueled by decomposing plant material. Harvest began, depending on how mild the fall and winter were, as early as late November but no later than February. It continued into spring and early summer when fields were drained.

Crawfish are harvested with pyramidal-shaped mesh traps that extend above the water's surface, between 10 to 20 per acre. They have plastic red or white tops with handles.

Rice fields provide grain and weed seed, invertebrates, and small vertebrates for many bird species, especially waterbirds. The crops generate a cornucopia of animal prey, especially crawfish! The increased biomass of such food resulted in a dramatic increase in omnivorous and predaceous waterbirds (waterfowl, marsh birds, coots, wading birds, shorebirds, pelicans, cormorants, grebes, gulls, and terns) using the area.

Rice fields provided shallow water and moist soil habitat from mid-spring into early fall. The addition of crawfish to the mix assured that some shallow water and moist soil habitat was present year-round. Of special note is bioslime. It comes from the draining and drying of the crawfish ponds that is especially sought after by shorebirds, particularly during "fall" migration that begins in late July and early August.

How many birders reading this report seek out marshes, swamps, and sewage lagoons to find waterbirds? Currently, about 460,000 acres of such habitat is present year-round in south-central and southwestern Louisiana. The 250,000 acres of crawfish ponds situated in the landscape prompted the National Audubon Society to declare it an Important Bird Area of Hemispheric Importance.

Seeing a spectacle

Envision a shallow impoundment covered with stately pink, white, gray, and blue storks, egrets, herons, ibises, and spoonbills. Many shorebirds, including Black-necked Stilts and American Avocets with their odd-shaped bills, scurry around. Pied-billed Grebes and gallinules can be seen paddling about. Add Mottled Ducks and whistling-ducks to the mix and, depending on the time of year, include

LOUISIANA'S WHOOPING CRANES

Whooping Cranes are special birds that came close to extinction in the 1940s. Now they are successfully breeding in southwestern and south-central Louisiana wetlands, and at least half of their nests are constructed in crawfish ponds. A reintroduction program began in 2011, when 10 young birds were brought to Louisiana from the Patuxent Wildlife Research Center in Maryland. Cohorts of young birds have been acclimatized to Louisiana conditions annually (except for 2020) at the White Lake Wetlands Conservation Area, which is where Whooping Cranes last nested in Louisiana in 1945.

The oldest Whooping Cranes in the reintroduction program began nesting attempts several years after they were released. According to the Louisiana Department of Wildlife and Fisheries (LDWF), the state's non-migratory population stands at 81 birds (41 males, 34 females, and six "unknown sex"). The birds of unknown sex haven't been caught and sampled yet. Seventeen of the 81 birds were hatched in the wild, 13 from Louisiana and four that hatched in Florida before being translocated to Louisiana.

So far, the best year for reproduction was 2022, when eight colts fledged out of 15 that hatched. The eight fledglings represented the highest ever for any previous or ongoing Whooping Crane reintroduction effort. Seven of the eight colts were naturally produced and raised by their biological parents. The eighth and youngest colt resulted from swapping an egg from captivity into a renest of a pair that had proven to be excellent parents but whose own eggs never hatched.

In 2023, 19 pairs of Louisiana Whoopers built 31 nests. Twelve of the pairs hatched 14 colts, six of which were still alive in mid-June and three of which had already fledged. Two nests remained active in mid-June, including one from a pair that hatched and fledged a colt earlier in the year.

All adult Whooping Cranes are equipped with geolocators. Fledged birds receive the devices when captured to check health and sex. LDWF requests that people encountering the birds report the location to the agency but to *not* report locations on social media, including eBird. This is to minimize interaction with people who might harm the birds.

Top: Castle Creations/Shutterstock
Right: Karel Bock/Shutterstock

Roseate Spoonbills, a White Ibis, and a grackle winter in a Louisiana marsh.

Bonnie Taylor Barry/Shutterstock

teal, shovelers, and pintails. Suddenly birds flush and scatter as a Bald Eagle makes a pass seeking a meal.

Waterbirds are present in Louisiana's working and adjacent wetlands year-round. The best time to see spectacles of these birds in working wetlands is from late May to late August. This is when most crawfish ponds are either being drained or are being intentionally allowed to dry. Large numbers of wading birds are present then.

Local populations of herons, egrets, night-herons, ibises, and spoonbills are nesting and collecting food for their nestlings in the shallow food-rich ponds. The fledglings then leave their rookeries and follow parents to the pond systems. As the summer progresses, Wood Storks arrive in dramatic numbers. In recent years, many non-breeding American White Pelicans can be found in some areas. Resident Neotropical Cormorants can be abundant and are joined by a few summering Double-crested Cormorants.

At times, adult and fledgling Pied-billed Grebes can be in numbers that require eBird "justification." As summer progresses into late July and early August, large flocks of many shorebird species impress visiting birders and challenge their abilities to separate species. Peeps and plovers concentrate along the mucky shores. Greater and Lesser Yellowlegs, Solitary and Stilt Sandpipers, Wilson's Phalaropes, dowitchers, avocets, and others spread out, separated by height and bill lengths.

The annual crawfish cycle

Birds concentrate where food is readily available. As crawfish ponds are flooded from September into November, water is shallow. Terrestrial invertebrates are forced upward on the emergent vegetation, and aquatic invertebrates, especially crawfish, and small vertebrates like tadpoles, are present in large numbers. As these animals grow, they become desirable food for foraging waterbirds, especially waders and marsh birds. Unharvested rice attracts waterfowl and coots. Traveling on secondary and tertiary roads in the region can provide opportunities to find these birds.

Emergent vegetation dies back in winter, exposing more open water and making waterfowl and marsh birds more visible. Beginning in January and continuing into the spring, large flocks of gulls will concentrate on crawfish ponds to feed on molting crawfish. Crawfish must shed their shells every 7-14 days to grow. They climb to the surface on emergent vegetation during the day to molt. Gulls may feed on them heavily. Flocks of terns, cormorants, and American White Pelicans can concentrate in some areas. Wading birds will forage wherever water is low enough, especially around pond levees.

Pumping water into crawfish ponds is a major expense. During periods of low rainfall, ponds can lose enough water to make them especially attractive to wading birds. Large flocks of White Ibis and *Plegadis* ibis numbering in the hundreds can be found across the landscape.

Economic conditions may dictate that farmers abandon crawfish ponds that are not providing harvestable crawfish crops. A common problem is water flooding

Roseate Spoonbill

Trio of White Ibises

into ponds. This can contaminate ponds with hardy bullhead and green sunfish that consume small crawfish. Farmers will cease to add water to maintain normal depth. They may drain water into waterways and pick it up downstream to add to economically viable ponds. Even though abandoned ponds have fewer crawfish, many invertebrates as well as small fish and tadpoles are present that attract omnivorous and predaceous birds.

Rice management and shorebirds

Rice is planted as a crop as early as March and as late as June. Where rice is planted by plane into an inch or so of water, the water is drained immediately and the rice sprouts on the surface. Where rice is drill planted into the ground, it sprouts from below the surface. Regardless of planting method, as soon as the rice has permanent leaves, it is flooded with a few inches of water. This is ideal habitat for wintering and migrant shorebirds.

Birders can find fields covered with many sandpipers and plovers, often leading to bird-identification challenges. However, bright rufous, black, and white Ruddy Turnstones stand out against the gray mud substrate. A Ruff is always possible, and Red-necked Phalarope and Curlew Sandpiper may be somewhere in the mix. Flocks of handsome Hudsonian Godwits arrive in April.

A common rice management practice is referred to as "water buffaloing." Large rollers are dragged back and forth in shallow flooded fields to redistribute the substrate, especially where ruts have been created by crawfish-harvesting operations. The thick mucky solution clogs the gills and breathing structures of small vertebrates and invertebrates, including crawfish, in the fields. Many species of shorebirds converge on such ponds, joined by the expected compliment of wading birds.

Finding the birds

The bulk of Louisiana's working wetlands are in an area bordered by Alexandria to the north, Breaux Bridge to the east, New Iberia to the south, and Lakes Charles to the west. The eastern area is situated in the historic Atchafalaya Basin with heavy-clay sedimentary soils. The western area is situated in the higher plains with hydric soils.

You can find the working wetlands by traveling back roads throughout the region's agricultural landscape. eBird reports for the various parishes (listed as counties by eBird) in the area will provide daily information on where birds are being reported. The Gulf Coast Bird Club Facebook page is especially useful in locating birds in working wetlands. The bird trails described by the Louisiana Department of Culture, Recreation and Tourism provide a general guide to the area. And *A Birder's Guide to Louisiana* from the American Birding Association is an excellent source of guidance.

'ENVISION A SHALLOW IMPOUNDMENT COVERED WITH STATELY **PINK, WHITE, GRAY, AND BLUE STORKS, EGRETS, HERONS, IBISES, AND SPOONBILLS.'**

The Louisiana Department of Wildlife and Fisheries coordinates a Wood Stork and Wading Bird event from late July into August each year at the South Farm of the Sherburne Wildlife Management Area (where Interstate 10 intersects the Atchafalaya Floodway in Iberville Parish). This area was once cleared for soybean farming and was subsequently converted to crawfish ponds. The site was subsequently acquired with public funds and now is managed specifically for waterfowl and generally for waterbirds.

The Avian Events Organization has sponsored an annual Yellow Rails and Rice Festival (yellowrailsandrice.com) for the past decade in late October and early November around Jennings in Jefferson Davis Parish. This year, it's slated for October 25-29. No participant has missed a Yellow Rail at the event.

Conflicts with farmers

Do waterbirds cause crawfish production problems? Anecdotal observations suggest that this can be an issue during the harvest season, especially when large flocks of wading birds, ibises, gulls, American Coots, and American White Pelicans focus on ponds. The coots aren't generally considered to be crawfish predators but do destroy impoundment vegetation critical to generating successful crawfish crops.

Birds do use crawfish traps for perches and remove crawfish from them. The major problem is that they turn traps over, leading to the loss of the crawfish in them.

It should be noted that crawfish production acreage has increased from around 50,000 acres in the 1980s to 250,000 acres in 2022. Bird-crawfish interactions have not inhibited this development. While there may be localized issues, the carrying capacity of the habitat to support birds apparently has not begun to be reached.

It's worth noting that Louisiana's nearby coastal wetlands continue to decline. More than 1.5 million of those wetlands have disappeared in the last half century. As a result, the state's working wetlands have become that much more important for the conservation of North American waterbirds.

Jay V. Huner is the retired director of the Crawfish Research Center at the University of Louisiana at Lafayette. His crawfish work and related interests in crawfish-bird interactions have taken him to Europe, Canada, Central America, China, and Australia. He writes a monthly bird column for the southern regional *The Piney Woods Journal*. Michael J. Musumeche is a retired biology teacher with 36 years of experience. He earned advanced degrees in ornithology from the University of Louisiana at Lafayette and has birded extensively in 18 countries.

Top: Elliotte Rusty Harold/Shutterstock, Bottom: William A. Morgan/Shutterstock

treasures in the canopy

300 feet above an Oregon forest, biologist Nina Ferrari uncovers the secrets of warblers, juncos, and other treetop songbirds

BY MARINA RICHIE

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From my perch high in a 200-foot-tall

Douglas-fir, I listen to the lone chord of a Varied Thrush sugaring upwards from the understory. *Chip chip chip* calls signal a flock of Red Crossbills rippling through the mid-canopy. Close by, a Pacific-slope Flycatcher whistles an uptick *Hap-PY*?

Secured by a rope and climbing harness, I gaze over a treescape like none I've ever witnessed. Gray spires—the tops of living and dead trees—rise like ship masts above a sea of textured Douglas-fir, western cedar, and western hemlock. No spire is the same. Some are straight, others forked. Everything has a signature. The sky on this early August morning is the blue of a Steller's Jay in flight. The rushing sigh of Lookout Creek breezes up on windless air. A western swallowtail butterfly wafts past my hand as I touch a lichen-draped branch. Embraced by the centuries-old tree, I am not afraid.

I hear, too, the metallic jingle of carabiners as bird biologist Nina Ferrari ascends on the second rope. At 27, she's the first to climb trees for a study of breeding forest songbirds in three dimensions. Some of the Douglas-firs she scales are close to 300 feet tall, rivalthe redwoods in height.

As Ferrari pops into view, we exchange grins. A wisp of dark curly hair escapes from beneath an orange climbing helmet. A few specks of bark spangle her shiny cheeks. Her eyes remind me of the golden-brown plumage of the Pacific Wren, a dweller here of moss-cloaked fallen trees, upturned roots, and a song like a trickling brook.

We linger in the crown of the tree she has affectionately dubbed "Traverse." Suspended in deep time, we are free from

Nina Ferrari

Hugh K Telleria/Shutterstock

Oregon Dark-eyed Junco

Anatoliy Lukich/Shutterstock

the pell-mell motion of daily life often quickening toward the next task. I ask her what word describes her feeling up in the canopy.

"Serene," she says without hesitation. "You are small and insignificant yet connected and swaying with this huge tree you trust to keep you alive."

Strong, cheerful, and capable, she lives up to her race-car last name. On one day she clambered up six study trees. In her first field season of 2022, she summited her chosen 14 Douglas-firs more than 50 times. That was the easy part. At 10-meter intervals up each trunk she had secured an audio unit for recording birds, and sensors logging temperature and humidity. Retrieving the data took acrobatic maneuvers on the single rope, which is not close to the trunk for most of the way up.

At the H.J. Andrews Experimental Forest, on the slopes of Oregon's western Cascade Mountains, her graduate project takes pivotal climate and bird research within ancient forests to an elevated level. Ferrari's quest is to track songbird movements within the breeding season as temperatures swing ever more wildly, a result of human-caused climate change. Her hope is to identify the vertical habitat qualities birds seek for refuge in a warmer future.

She chose Douglas-firs as the most common conifer in the Andrews and also for consistency. Seven of the 14 firs are giants within a dynamic forest shaped by wind, storm, flood, and fire. The oldest trees date to about 500 years of age. The tallest of Ferrari's selected trees is 300 feet, only five feet shy of the Statue of Liberty. The widest trunks at the base are close to six feet in diameter.

The other seven firs, also within the Andrews, grow within 60- to 80-year-old plantations. They range in height from about 90 to 135 feet tall. The 15,800-acre experimental forest is a mix of logged stands, and the 6,400-acre core of old forest—dedicated to ecological studies—has lasted centuries.

Commonly called "old-growth," the timber term falls short of describing the thousands of years of natural processes forming forests of wondrous complexity and species diversity—brimming with

'We're finding that old-growth forests can help keep birds cool as the Northwest heats up, and this has positive effects on populations.'

Tree Star! Nina Ferrari studies birds in three dimensions–scaling trees as high as 300 feet.

towering old trees, standing dead snags, downed logs nourishing new life, and multi-layered canopies filtering sunlight to understory leafy plants. I prefer the term "ancient forests." After more than a century of logging, the remnant forests are more precious than ever.

When I learned of Ferrari's sky-breaking research, I knew at once I wanted to write a story and climb a tall tree in a wild forest. Admittedly, I've had a recent craving to return to my childhood joy. One summer at age 12, I spent days up in the bower of a maple reading the *Lord of the Rings* trilogy. Now in my early sixties, why wait any longer? But I was a tad naïve.

This was my third trek with Ferrari over the course of three months. In June, I was stymied by rain and cold, but learned the basics of gear—more daunting than anticipated. I fumbled with simple equipment, like the double-locking carabiners designed for safety. Ferrari handed me one to borrow in July after our second hike to the most massive of her study trees, called "Wolfy." There, I'd twirled on a rope about 15 feet up, but we were thwarted by the set-up of the second rope, which jammed on a high limb.

"Now I know you're coming back to return the carabiner and try again," my patient climbing instructor said. For the next month, I carried the D-shaped metal ring and practiced pressing the locking mechanism upward, turning clockwise, pushing the opened hinge down, pretending to press a rope into place, and then letting the carabiner snap back.

At last, on this day I'm merging with firs, hemlocks, and cedars gathering sunlight to photosynthesize for energy. In the process? The trees are scrubbing the overladen atmosphere of carbon dioxide. The bigger they are, the more carbon they store within their vast trunks and roots. When trees die, they continue to store carbon and nurture biodiversity—essential for a livable planet.

Ancient forests also know the companionship of indigenous peoples whose legacy is one of belonging and knowledge gained from detailed observations over the millennia. Today, traditional ecological knowledge and western science are starting to braid together to inform forestry practices honoring reciprocity.

Far below on the forest floor, Ferrari's advisor Matthew Betts of Oregon State University waits for us. Earlier in the season, he'd reveled in his first tall tree climb. Betts is the leader of Long-term Ecological Research at the Andrews Forest. He's also the author and a co-author of several research publications linking bird survival to old forests in a rapidly changing climate.

I picture Betts among the huckleberries, rhododendrons, and ferns pondering another strand to follow in the never-ending web of questions. Perhaps he peels back and then replaces a strip of moist, fragrant cedar from an emerald mossy nurse log, a haven for salamanders. Always the naturalist, Betts has a gentle mannerism that belies his competitive background as a national-level cyclist.

"Birds have long been considered indicators of environmental change," Betts says. "Now, we're seeing massive declines in bird populations across North America. We're finding that old-growth forests

David Herasimtschuk

can help keep birds cool as the Northwest heats up, and this has positive effects on populations."

He compares the high biomass of these forests to a swimming pool—coolest in the deepest waters. The latest bird science at the Andrews, led by Hankyu Kim for his 2022 Ph.D. dissertation, showed Hermit Warblers, Wilson's Warblers, and Chestnut-backed Chickadees finding relief in the natural air-conditioning of microclimates within a deep, layered forest.

Ancient forests help nesting birds in other ways, as Kim's study illustrated. A warmer climate is leading to earlier plant leafing and caterpillar emergence in spring, which is a potentially deadly timing mismatch for migratory birds unable to adjust their nesting for chicks to hatch when caterpillars are at their peak. However, within forests of high diversity, insect diversity is also high. Each kind of caterpillar has a unique life history, including time of emergence. Some will pop out later in spring and summer. Voila. The birds can find food for their chicks for longer periods.

Kim conducted his eight-year study from the ground. The next step? Climb into three dimensions. But there was a hitch. What graduate student would be able and willing to endure long demanding days of monkeying up mammoth trees in a temperate rainforest known for mists, showers, storms, winds, and mosquitos?

When Betts met Ferrari—a rock climber—he broached the subject. Without hesitation, she said yes. She'd chosen Oregon State specifically to learn from Betts and study at the renowned Andrews Forest. After graduating from the University of Vermont in 2016, Ferrari tracked birds for field studies in remote northern Maine, on Mount St. Helens, and in the Sierra Nevada before pursuing her master's degree.

Growing up with scientist parents, Ferrari had that enviable childhood where a muddy face and hair tangled in leaves marked a good day. Her mother worked as a volcanologist for the U.S. Geological Survey and her father as a plankton biologist for the Smithsonian Institution.

"I was the kid who'd put a slug on her face," she said earlier when we'd hiked into the forest in July. As a small girl in northern Virginia, she'd pull her red flyer wagon down the street collecting caterpillars and bringing them home. Once, her bedroom reeked from collecting jars jammed full of dead cicadas. That's when her mother put her foot down.

Despite Betts' confidence in Ferrari, he had a few qualms. "I was excited; but sending someone up a tree close to 300 feet tall made me nervous, too."

Ferrari learned tree-climbing skills at Oregon State from the legendary ecologist Eric Forsman. His Spotted Owl studies in the 1970s showed the birds were threatened with extinction from the widespread logging of old-growth forests. Protecting owls under the Endangered Species Act in turn shaped protections of some threatened forests under the Northwest Forest Plan in the 1990s. Now in his 70s and an expert trainer of research climbers, Forsman helped Ferrari tailor some of her gear

Chestnut-backed Chickadee.

Bob Pool/Shutterstock

Birdiegal/Shutterstock

Yellow-rumped Warbler

Cape May Warbler

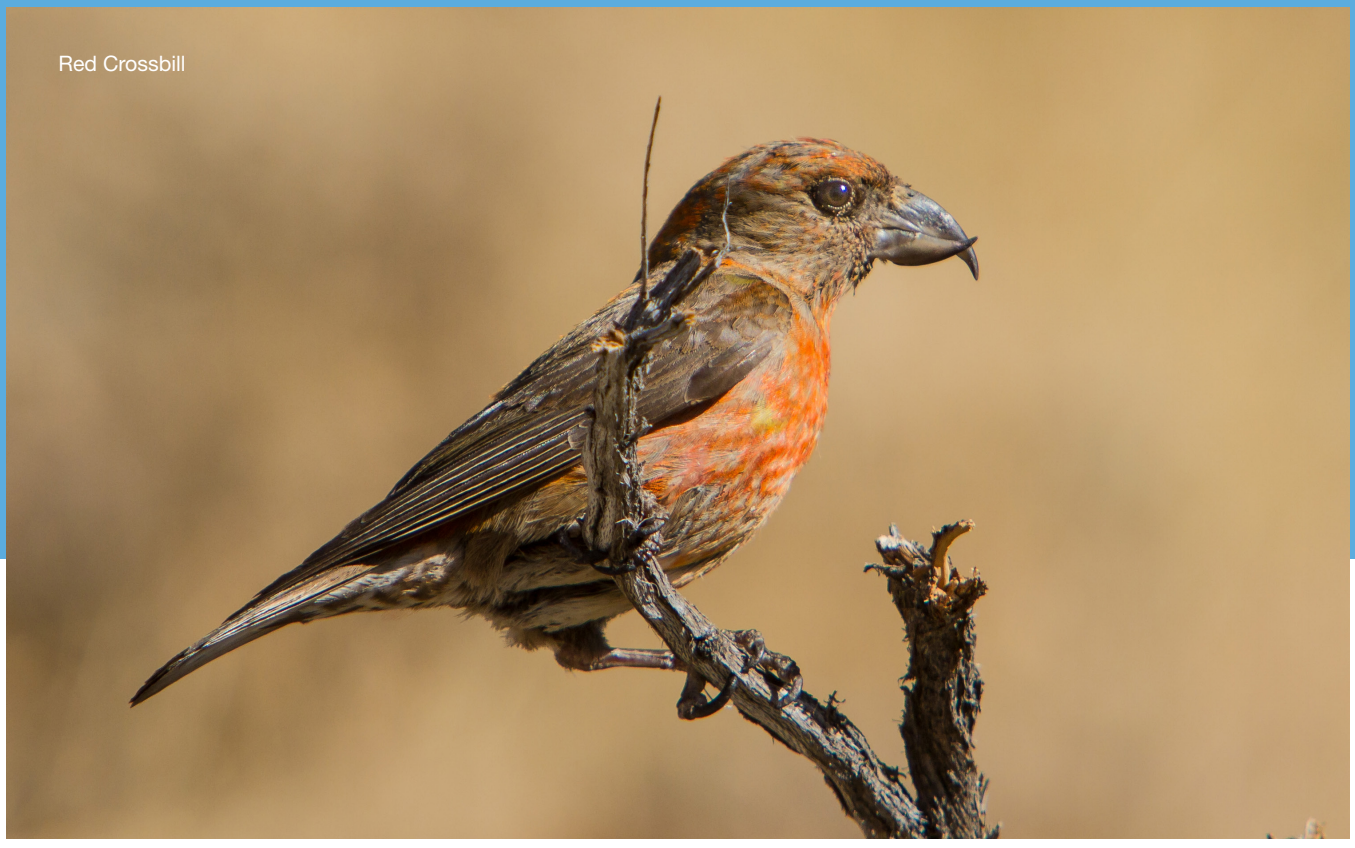
Bay-breasted Warbler

A. Vikuetsky/Shutterstock

Paul Sparks/Shutterstock

Black-throated Green Warbler

Mike Truchon/Shutterstock



Red Crossbill

Bob Pool/Shutterstock

for an unusual task.

Forsman co-taught the class with James (Jimmy) Swingle, wildlife biologist with the Pacific Northwest Research Station. He summits tall Douglas-firs in search of red tree voles nesting on platform-like branches and sipping dew from needles that are their only food. The secretive voles are the prey of Spotted Owls. Both are increasingly rare as ancient forests continue to dwindle.

Andrews Forest Director Mark Schulze took Ferrari under his wing, too. She relied on his strength and skills when they rigged trees for ropes and fastened the audio-recording units and temperature loggers to the trunks. That task was like putting a belt around an elephant. Schulze does plenty of his own climbing to reach treetop cameras capturing the timing of cone ripening.

While Ferrari's ascents are mostly solo, her field crew of three undergraduate students help lug the heavy packs on steep terrain and assist from the ground. Safety is paramount.

"I'm rarely scared, but I'm aware of the risk and that can invoke fear," she said. "Sometimes I feel like I'm not strong enough. Then, I remind myself I'm right for this study for reasons beyond physicality."

Earlier on my big climb morning, I'd faced the grand tree with heart pounding and silently asked Traverse for permission. I would be a two-legged spider laddering my way up via a system arborists call "rope walking," which requires three ascender devices—one for your hand, one for your right foot, and one for your left knee.

The rhythm was tricky. Gradually, I took bigger steps as I pushed the hand ascender up the single rope. About 30 feet off the ground, I paused to take in the enormity of tree columns in every direction. Close by, a shaggy-barked western red cedar flexed limbs bearing needles like pressed ferns.

Clambering up the sky ladder ever higher and closer to the trunk, I breathed harder in a rhythm of ascension. At about 90 feet, I reached the first branches—sturdy, shortened, and bearing a trove of papery, crusty lichens waiting for rain after a scorching week-long heat wave. Progress slowed as I navigated past limbs and grazed my fingers over curtains of fir needles. I pondered who lives in this Lilliputian world. So far, scientists have identified more than 3,100 invertebrate species alone in the Andrews Forest—from insects, spiders, and millipedes to slugs. When I reached the highest point, I placed one hand in reverence upon the resolute trunk.

Now with Ferrari, our hushed conversation shifts to questions. On the lookout for patterns, she points to the small hemlock cones spilling from uppermost branches of nearby trees. Why are there so many this year? We contemplate their bounty, which will soon attract Red Crossbills extracting seeds from cones with their exquisitely adapted beaks.

Dark-eyed Juncos are trilling. Chestnut-backed Chickadees chitter in camaraderie. Once while climbing at great heights, Ferrari came face to face with a hovering Rufous Hummingbird inspecting her bright helmet as if finding an exotic wildflower.

Several questions guide her study. How are the birds dividing up vertical space in a time of accelerating climate change? Can birds adapt quickly enough to take advantage of microclimates? What about

competition among species seeking food and shelter? Where are those cool places located within the secretive recesses of a forest replete in branches, limbs, trunks of almost infinite variety? How do birds fare within a tree plantation in comparison?

To simplify, are the birds like high-rise apartment dwellers sticking to their given addresses? In an emergency, what options will they have to move? Will they compete or cooperate?

Back in 1958, Robert MacArthur changed the course of ecology with his classic study of five warblers—Cape May, Yellow-rumped, Black-throated Green, Blackburnian, and Bay-breasted. Prior to his research in a northeastern conifer forest, ornithologists assumed the warblers flew randomly about tree crowns seeking insects. For his Ph.D. dissertation, he tested whether this premise was true.

MacArthur documented where the warblers liked to dine and linger. He found they are choosy. For example, Cape May Warblers fed on the outer tips of branches at the tops of spruce trees. Bay-breasted Warblers plucked insects off the needled branches in the middle of lower limbs. The birds specialized, too, in their capture techniques—from upside-down gleaning to hovering and hawking (hunting on the wing). Called "niche partitioning," this divvying up of a forest canopy assures there's enough food to go around without competition.

Until Ferrari's project, no one had tried to replicate MacArthur's brilliant research in a comparable Pacific Northwest forest across multiple trees. The sheer height of the firs, hemlocks, and cedars alone obscures the view from the ground. One distinct advantage today is LIDAR (Light Technology and Ranging), a technology applying lasers to generate three-dimensional maps, now available for the entirety of the Andrews Forest. That means Ferrari does not have to describe the unique layered branches of every tree as part of her field work.

When she finishes her second field season this year, Ferrari will trade climbing gear for hours at the computer analyzing her final data set unlike any ever collected before. She's now pursuing a PhD, reflecting the complexity of the research, her enthusiasm for science, and a desire to keep leading the way into unexplored realms. Each study at the Andrews adds height and depth to our understanding of forests in a time of climate emergency. Birds are leading biologists to their havens—safety nets that could save them from extinction. Ferrari inspires other budding scientists to follow their passion, to say yes, and to enjoy the journey no matter how challenging.

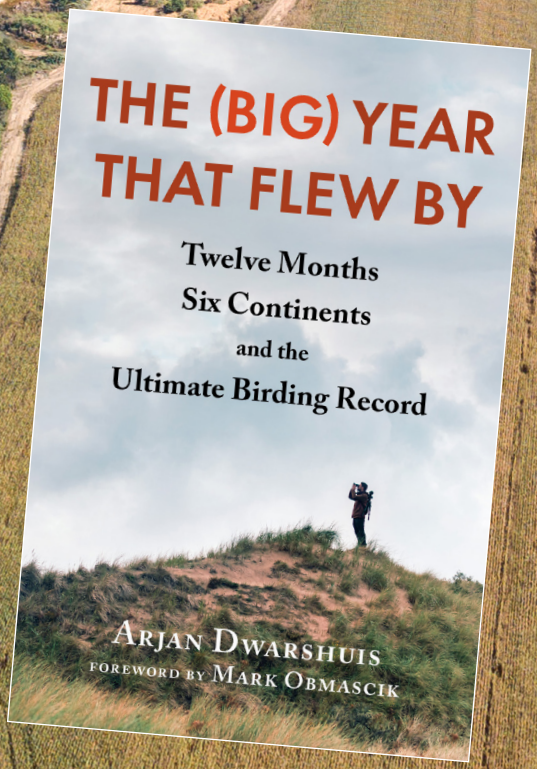
Returning to my luminous morning high in the treetops and secure in a climbing harness, I am wildly exuberant. All I lack are feathers, hollow bones, and wings. When the Pacific-slope Flycatcher next calls *Hap-PY*? I whistle back.

Marina Richie is the author of the award-winning book Halcyon Journey: In Search of the Belted Kingfisher (Oregon State University Press, May 2022). She is a frequent contributor to BirdWatching, and her work has appeared in National Wildlife and other magazines. She lives in Bend, Oregon, and pens a bimonthly blog on her website, www.marinarichie.com.

birds, the amazon, and human

A Big Year birder visiting central Brazil spots hundreds of amazing bird species while facing the sad reality of deforestation carving up the Amazon rainforest

BY ARJAN DWARSHUIS



GREED

Throughout 2016, Dutch birder Arjan Dwarshuis spotted 6,852 bird species around the world, breaking a record that Noah Strycker had set the year before for the highest Big Year tally ever. Dwarshuis published a book in 2019 about his Big Year in his native language, and now its English translation has been published in North America by Chelsea Green Publishing (paperback, $22.95).

The (Big) Year That Flew By **is about birds and birding and Dwarshuis' attempts to raise awareness for critically endangered species. In addition, he writes about overcoming mental challenges, extreme physical danger, environmental degradation, and human competition. On the following pages, we present an excerpt from the book about one stop during Dwarshuis' epic year: Alta Floresta, in central Brazil, which he visited with fellow Dutch birder Ies Goedbloed. This excerpt is printed with permission from the publisher.** ***—the Editor***

PARALAXIS/Shutterstock

When I look down from the airplane window, I notice the enormous clear-cutting. This used to be a tropical rainforest; now I can see only logging plains. It makes me sick. An area of about ten football fields of Amazon rainforest is cut down every single minute. That is thousands of square miles every year.

We are on our way to Alta Floresta, a town in the northern part of the state of Mato Grosso, which is located in the middle of one of the most vulnerable parts of the Amazon region. Originally, the boundary between rainforest and dry savanna—cerrado—was about 300 miles south of Alta Floresta, but as a result of continuous clear-cutting, that boundary has slowly shifted to the north. From the coastal town of Belém, a 300-mile-wide and more than 1,200-mile-long belt of deforestation now runs all the way to the state of Rondônia on the Bolivian border. This huge area is also known as the Arc of Deforestation.

Unlike what many people think, the Amazon rainforest is not a uniform whole. On the contrary, it is immeasurably complex. The Amazon River and its eighteen largest tributaries—sometimes miles wide—act as ecological barriers. Many animal and plant species occur on one side of a river but not on the other side. In fact, this area is a kind of gigantic inland archipelago, where the "islands" are separated from one another by rivers instead of the sea.

The logging industry and the Brazilian agricultural sector are eager to tell the outside world that the Amazon is a big, homogeneous pizza of forest and that if you remove one slice, there will be more than enough left. But you should rather see it as a kind of a super complex quattro stagioni pizza: If you eat one slice, a unique taste will be lost forever.

Due to deforestation, we not only lose precious nature, but the last "free humans" are also in danger of extinction. There are still about a hundred uncontacted tribes in the world, the vast majority of which live in the Amazon region. These are communities that have never had contact with the outside world. While we are at home in our easy chairs in front of the television, there are people who still live in the Stone Age, oblivious to the existence of the modern world. I find this

'When we are enjoying a beer a little later, an Amazonian Pygmy-Owl calls from the edge of the forest. I'm already enchanted by this place, even though we haven't even started birding yet.'

—ARJAN DWARSHUIS

Frisq Boven

Blue-and-yellow Macaw

Arjan Dwarshuis

almost inconceivable, comparable to the infinity of the universe or the origin of life on earth. These people remind us of who we really are and where we come from. The real human. Without restrictions from society. Without greed, in perfect harmony with nature.

A few years ago, I saw photos of such an uncontacted tribe, taken from an airplane above the remote border area between Peru and Brazil. These photos show men and women covered in red ocher, firing wooden arrows at an unknown object in the sky. They might have mistaken the plane for an evil spirit that descended on them from heaven to destroy them. And ironically, that is exactly what modern humanity threatens to do to these peoples.

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Alta Floresta is located in the middle of one such slice of rainforest, bounded north by the Amazon River, west by the Madeira River, east by the Tapajós River, and south by cerrado. This area is home to a number of bird species that cannot be found anywhere else in the Amazon region. In this area, new species are still being described on a regular basis.

At the airport, we are welcomed by Carlos, the son of the owner of the Rio Azul Jungle Lodge, and Bruno, our guide. Bruno is a Brazilian ornithologist who studies the evolution of birdsong in the Amazon rainforest. He knows the sounds of this area better than anyone else.

The lodge is located along the Azul River, right on the boundary of largely cleared private ranches and a huge, continuous block of Amazon rainforest. Prior to our visit, I looked at satellite images, which clearly showed that, south of the Azul River, there is an increasing number

Alta Floresta

Max v Waasdijk

Fire-tailed Myzornis is a high-altitude species that the author saw in Asia.

of bare, rectangular areas, and on the other side of the river there is a large patch of green, which extends more than 60 miles to the northwest.

From the ground, the clear-cutting is at least as disheartening as from the plane. Driving north in a taxi, we pass the wooden skeleton of a 130-foot-tall mahogany tree, standing in the middle of a bare felling plain. This is all that remains of the diverse Amazon rainforest that covered this area until a few years ago. Thousands of different animal species used to live here. Now, we can see only a flock of Black Vultures, perched on top of the lone dead tree, in the blazing afternoon sun.

The bare plains sometimes abruptly change into forest, only to change into felled plains a few miles farther down. Such an isolated patch of rainforest appears intact at first glance, but appearances are deceiving; in reality, only a fraction of the original animal life has remained. The miles-wide logging plains form the same kind of barrier as a large river. Birds and other animals simply cannot make the crossing, and without a fresh supply of life these forest islands will be sterile within ten years.

The forest, in its turn, is completely dependent on animal life: Birds and monkeys eat fruits and defecate the seeds; peccaries—a type of pig—and tapirs keep the undergrowth open; and insects, bats, and birds take care of the pollination of plants. You can think of the forest as a house and the animals as the inhabitants who take care of it. After years of vacancy, the house slowly turns into a ruin.

According to Greenpeace, more than half of the timber coming from Mato Grosso is illegally harvested, while in the state of Pará, this amounts to almost 80 percent. The number of inspectors for a given area, typically several times the size of the Netherlands, can be counted on one hand. Therefore, detecting illegal practices is like looking for a needle in a haystack. Illegally harvested timber is "laundered" and comingled with legally harvested timber by corrupt government officials, who provide it with a CITES or FSC certification (international certificates for responsible forest management) in exchange for bribes. Ranch owners receive astronomical amounts for the hardwood on their land, and the more forest that is cleared, the more livestock they can graze. And what's more, the chance of being caught is very small.

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When we arrive at the lodge toward the end of the afternoon, the sun is already low in the sky. We'd spent more than three hours in the car, bouncing over dusty dirt roads. As I stretch my aching limbs, I take in the environment. The lodge, which was built in the middle of a small clearing in the forest, consists of a wooden dining room and two sleeping quarters. Through the trees, I can hear the river flowing, and every few seconds I hear the vibrating, whistling song of a Little Tinamou, a smallish ground-dwelling bird that lives a hidden life on the forest floor of the rainforest.

The Rio Azul Jungle Lodge is a family business, and that is how we are received, as if we were guests of the house. We receive a warm handshake from the owner. His wife hands us each a glass of freshly squeezed passion fruit juice to recover from our long journey. That evening we are served a delicious dinner, which she has prepared herself using local products. When we are enjoying a beer a little later, an Amazonian Pygmy-Owl calls from the edge of the forest. I'm already enchanted by this place, even though we haven't even started birding yet.

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There are two recently described bird species with a small geographical distribution south of the Amazon River, and the area


Resplendent Quetzal
Arjan Dwarshuis


Max v Waasdijk
Brown Sicklebill


Cryptic Forest-Falcon
Arjan Dwarshuis


Wattled Broadbill
Max v Waasdijk

in the vicinity of the Azul River is the best place to see them: the Tapajós Hermit, described in 2009, and the Bald Parrot, described in 2002. In the morning, we decide to go and look for the parrot, the rarer of the two.

We've taken a boat and bob downstream on the Azul River. There is no wind, and patches of morning fog hang over the river. A morpho butterfly lands on the foredeck of the boat. Rhythmically, it opens and closes its wings, its upper wings glowing fluorescent blue in the first rays of sun. We hear several species of antbirds, trogons, and woodcreepers sing from the forest along the banks, and every now and then groups of Blue-and-yellow and Scarlet Macaws fly over our heads with a lot of noise. The deforestation we saw yesterday seems very far away for a while. Suddenly we see a large, gray-brown mammal with a long snout climbing out of the water. It is a lowland tapir, the largest land mammal in South America. Before disappearing into the forest, it defecates in the water to cover its tracks for any hungry jaguar.

Shortly thereafter, a group of parrots flies toward us, squawking loudly. Bruno shouts, "Bald Parrot!" He has recognized the calls of the birds from afar. As they get closer, we can see the bright red underwings and their striking bare, orange heads. Ies and I are the first Dutch birders to sight this species in the wild.

In order to see the Tapajós Hermit, we have to position ourselves near a row of flowering heliconia plants behind the lodge. This hummingbird species loves the nectar from the heliconia's striking orange-red flowers. It takes a while, but then the little green-and-orange hummingbird suddenly appears in front of us. Its forehead is yellow with pollen, and its wings—beating more than fifty times a second—make a buzzing sound as it flies from flower to flower.

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We conclude our stay at the lodge in the way we started: with a boat trip on the Azul River. As the sun slowly sets and we float quietly downstream, Bruno suddenly shoots to his feet.

"Do you hear that?"

We hear a soft "Ooh" from the edge of the forest, repeated every few seconds.


Rose-bellied Bunting

Arjan Dwarshuis

The sound reminds me a bit of the song of a Little Bittern.

"That's a Zigzag Heron," Bruno says. The excitement in his voice is clearly audible.

We steer the boat to the side of the river, and Bruno takes out his speaker. It is now getting dark. We remain in absolute silence while he plays the sound. Nothing happens for quite a while, but then Ies sees from the corner of his eye a small, dark shadow flying toward him. He quickly grabs his flashlight. And there it is, in the middle of the beam, sitting on a bare branch: South America's rarest heron.

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During our four-day stay at the Rio Azul Jungle Lodge, we see more than 250 bird species, which speaks to the unimaginable biodiversity of this area. Worryingly, just a few miles away, there is a desolate no-man's-land, created by human greed, where life is nearly impossible. The contrast to the Amazon rainforest could not be greater. Will we be able to protect the richest rainforest in the world? Or will the Azul River in the near future be an island of forest, where the songs of the Zigzag Heron and many other unique bird species will fade away over time?

Arjan Dwarshuis, a professional bird guide, writer, and lecturer, holds the current Guinness Book World Record for observing the largest number of bird species in a single year. In 2016, he launched his global Big Year and ultimately observed 6,852 of the world's roughly 10,700 bird species, setting a record that stands to this day. His yearlong adventure raised nearly $50,000 for the BirdLife Preventing Extinctions Program. Arjan also starred in the award-winning documentary Arjan's Big Year and appears regularly on radio, television, and podcast programs in the Netherlands and beyond. He is a columnist for several magazines about nature, and as the ambassador for the IUCN NL Land Acquisition Fund, he is committed to the protection of birds across the globe.

Welcome TO Portugal

A new festival aims to raise the profile of birding in southeast Portugal

BY JOÃO JARA

The Iberian Peninsula (Portugal and Spain), occupying as it does the southwest corner of Europe, is a special bioregion within the continent. Its spectacular landscapes are home to some of Europe's most varied avian communities and include several endemic species.

Portugal offers a fantastic diversity of habitats and consequently of birds in a relatively small area, so that it is possible to plan visits to a variety of species-rich locations while avoiding the need to travel long distances.

Mértola is a small and charming town, full of history and archaeological remains, perched along the Guadiana River, in southeast Portugal. The town is located inside the Guadiana Valley Natural Park, a protected area rich in Mediterranean habitats (holm oak and stone pine woodlands, olive tree groves, escarpments, bluffs and hills, Mediterranean scrub, rivers, stream valleys, reservoirs, dams, and urban areas). This area, together with the nearby rolling plains of Castro Verde (the most important zone in Portugal for steppe bird conservation and recently declared a UNESCO Biosphere Reserve), constitute a wonderful and special birding and wildlife destination, all year round.

Eurasian Hoopoe

Birds like Great and Little Bustards, Common Crane, White and Black Storks, Cinereous and Griffon Vultures, Spanish and Bonelli's Eagles, Montagu's Harrier, Black-bellied Sandgrouse, European Roller, European Bee-eater, Iberian Green Woodpecker, Lesser Kestrel, Iberian Magpie, and Eurasian Golden Oriole, just to name a few, can be confidently expected here. The region is also the very best in Portugal to see the elusive Iberian lynx, one of the most endangered cats in the world. The whole area is home to fantastic biodiversity.

The Mértola Bird & Wildlife Festival is going to run around every second weekend of February, starting in 2024. This is a great time to visit, as spring here starts early. Many resident birds (bustards, raptors, etc.) are busy with their displays and preparing the breeding season; some of the African migrants start to arrive in February, including the first Lesser Kestrels, which nest in the town; and many wintering species are still around, including charismatic birds like the cranes. Besides, this is the best time of the year to see the Iberian lynx, and the first Mediterranean flowers start to bloom, creating a beautiful landscape.

The festival will run for five days in which participants can enjoy an extensive number of field trips. Organized extensions will be offered to the Lisbon Estuaries and to the Algarve, which are other key areas for birding in Portugal. In practical terms and assuming an arrival to (and departure from) Lisbon, you can enjoy a wonderful birding experience near the Portuguese capital for a few days, then enjoy the festival in Mértola, and finish visiting the Algarve, before returning to Lisbon.

Several nature conservation activities are linked to the festival and participants can play an active role helping to conserve this endangered region. You can expect all of this and the beautiful countryside, fascinating history, lovely food, great wine, and a guaranteed warm welcome! I hope to see you there.

João Jara operates Birds & Nature Tours Portugal and is an organizer of the Mértola Bird & Wildlife Festival. He is the co-author of *Where to Watch Birds in Southern Portugal* (2021) and was a board member of BirdLife in Portugal (formerly the Portuguese Society for the Study of Birds).

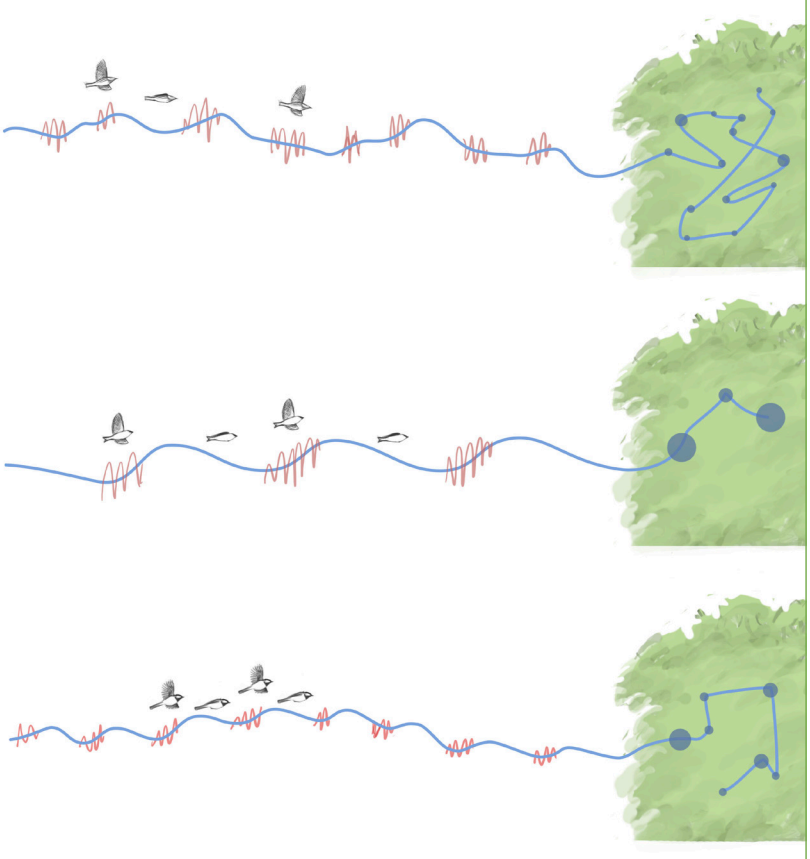
Kestrel

Great Bustard

Flight clues

How a bird flies and moves in foliage can help you identify it

Art and text by David Allen Sibley



VARIABLE FLIGHT BEHAVIORS: From top to bottom, the movements of a warbler, goldfinch, and chickadee showing the typical flight path, with bursts of wingbeats, and then movements through the foliage. Larger dots indicate more time on that perch.

IDENTIFYING SMALL SONGBIRDS is always challenging, so any clue that helps narrow the possibilities can be valuable. One very common experience is seeing a small bird fly across an opening and then into a tree or shrub, where it is hidden by leaves. Is it just another chickadee, or is it worth following to try for a better view? The way the bird flies and the way it moves in the foliage offer some subtle but simple clues that can help answer those questions and put you on the path to identifying it more quickly.

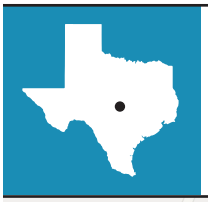
How does it fly? All small songbirds fly with alternating short bursts of rapid wingbeats and very brief glides with the wings closed against the body. This is the same pattern that gives woodpeckers and finches their strongly undulating flight path, and all small songbirds have more or less undulating flight. In woodpeckers and finches, the "glide" phase is relatively long, so they descend more, and the pause in flapping is more noticeable. In other songbirds, the glide phase is shorter, so they have quicker and shallower undulations. Warblers tend to swerve from side to side as they fly.

What is it doing in the foliage? Once a bird lands, how it moves in the next minute or two can be a clue to its identity. Insectivores like warblers and kinglets are very active, and generally don't sit still for more than a few seconds at a time. Even when they stay on the same perch, they are flicking their wings or tail, or turning from side to side. Seed-eating birds like sparrows, or gleaners like chickadees and vireos, tend to sit still for longer periods, and they are less "jumpy" when they sit.

These are subtle differences, and they depend on weather conditions, the bird's motivation, and other variables, so your identifications based on these clues will never be certain. But as a quick assessment to put a bird in a general group, it can be useful, and watching for these differences will reveal other subtle clues and increase your understanding of variations in bird flight and behavior.

David Allen Sibley is the author of *The Sibley Guide to Birds, Second Edition, What It's Like to Be a Bird*, and other books. In our last issue, he wrote about how sketching birds can help you learn their songs.

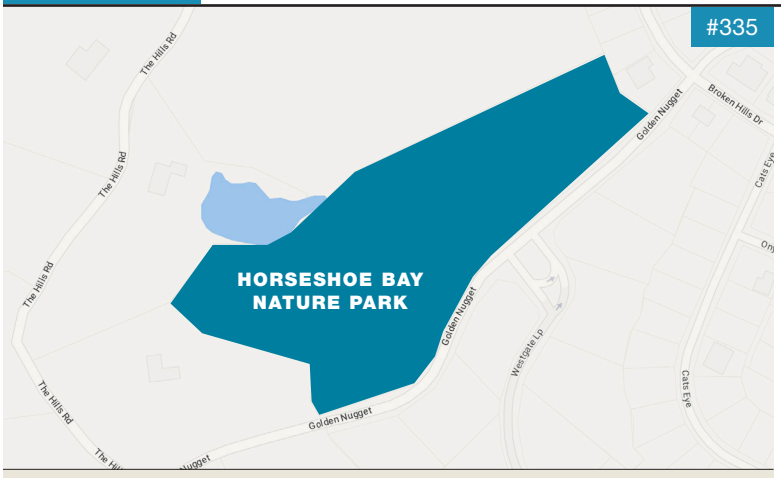
HOTSPOTS NEAR YOU



HORSESHOE BAY NATURE PARK

HORSESHOE BAY, TEXAS

30°32'17.2"N 98°24'53.6"W



While leading the design development and construction of Horseshoe Bay Nature Park, an 11-acre, community-founded park west of Austin, I discovered a love for birds. Our design team consulted with birding experts, ranging from representatives of the local Audubon chapter to amateur and professional wildlife photographers, on the placement of bird-friendly features and found their excitement and enthusiasm contagious.

Horseshoe Bay Nature Park opened in 2021 and was uniquely designed to support wildlife. An observation deck stands at the center of the park and a bird blind, where visitors can spot waterfowl such as Black-bellied Whistling Ducks and Green Herons, overlooks a neighboring pond. Fallen trees and standing snags are preserved to provide habitat for cavity nesting birds like the Black-crested Titmouse, broken branches create brush piles for cover and a wildlife watering station provides hydration. Prairie restoration areas protect the endangered habitat of ground-nesting grassland birds like the Eastern Meadowlark. There are also two Chimney Swift towers and nesting boxes for Eastern Bluebirds and Eastern Screech-Owls.

The nature park's varied habitat, in addition to its many wildlife-supporting features, attracts a wide range of bird species. These include year-round and migratory visitors drawn by the open prairie, wooded areas and brushy cover, as well as multiple food sources and nesting sites. In the summer, migrants like Bell's Vireos, Painted Buntings, Scissor-tailed Flycatchers and Summer Tanagers are easily spotted. Birds of prey, such as the American Kestrel, are especially common in the winter. Lucky visitors might catch a glimpse of the elusive, ground-foraging LeConte's Sparrow, a grassland species in decline.

The nature park's easy walking trail and numerous observation sites welcome long-time enthusiasts and beginning birders alike. *—Sarah Yant*

Sarah Yant is a new birder and the principal at Twistleaf Land Design, the Austin-based land design + build firm behind the construction of Horseshoe Bay Nature Park. She discovered a love of birds while participating in the founding of the nature park.

AT A GLANCE

WHEN TO GO, ACCESS

Year-round. Free and open to the public daily from sunrise to sunset (check the park website for closures). Parking is available on-site. Stay on trails at all times.

AMENITIES

Parking, a portable toilet, drinking fountain and dog waste stations. The Horseshoe Bay Nature Park website lists species observed during a survey with the local Audubon chapter, a link to the park's eBird hotspot and printable activities for young birders. There is an observation deck, wildlife watering station, a bird blind overlooking a neighboring pond and benches throughout the park.

TIPS

Bring a hat and dress comfortably with closed-toed shoes for walking on the half-mile trail. No scope needed.

HABITAT

Mixed tallgrass and shortgrass prairie, woodland and neighboring pond.

TERRAIN

Rolling upland prairie. A relatively flat, half-mile walking trail with only two sets of steps.

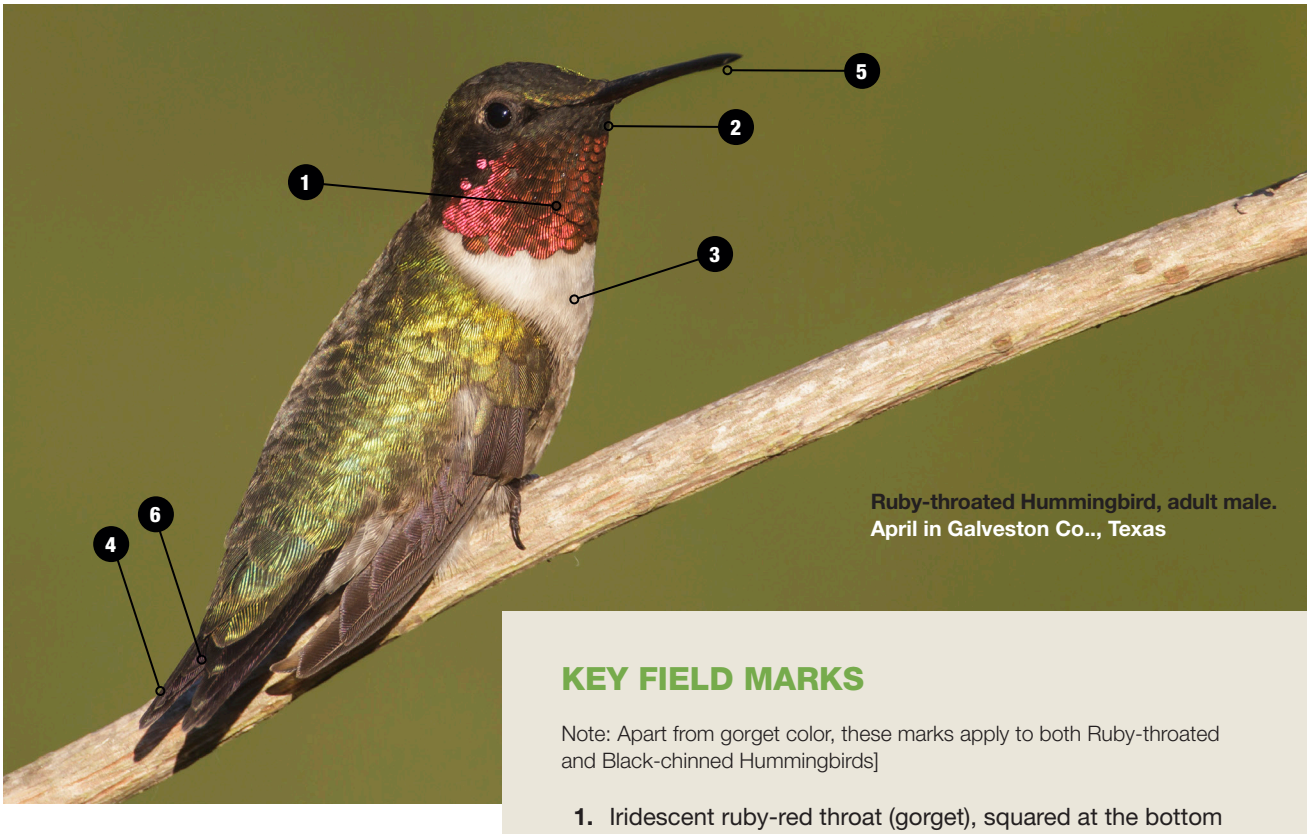
BIRDS

Year Round: Black-crested Titmouse, Red-tailed Hawk, American Kestrel, Field Sparrow, Eastern Meadowlark, Eastern Bluebird, Black-bellied Whistling Duck, Bewick's Wren **Warmer Months:** White-eyed Vireo, Scissor-tailed Flycatcher, Bell's Vireo, Painted Bunting, Summer Tanager, Orchard Oriole, Chimney Swift **Winter:** Gadwall, American Goldfinch, Yellow-rumped Warbler, Ruby-crowned Kinglet

FOR MORE INFO

Horseshoe Bay Nature Park, https://www.hsbpark.org/

ID TIPS: Ruby-throated and Black-chinned Hummingbirds



Ruby-throated Hummingbird, adult male. April in Galveston Co., Texas

By Kimball L. Garrett
Photographs by Brian E. Small

IN MY BIRDING YOUTH IN CALIFORNIA, the second edition of Roger Peterson's *Field Guide to Western Birds* (1961) was my go-to source for bird identification. But, in hindsight, hummingbird identification was in a primitive state in those days. Field identification of males was all about the color of the gorget (iridescent throat patch shown by males of most species) and a few other plumage characters. Females? Forget it. Of the female Black-chinned Hummingbird, Peterson simply said "cannot safely be told in field from female of Costa's or Ruby-throat." Identification of the Ruby-throated Hummingbird was easier since it was the "only eastern hummingbird." In 1966, Chan Robbins' *Birds of North America* came along, but things hadn't advanced much. Again Ruby-throated was the "only hummingbird east of Great

KEY FIELD MARKS

Note: Apart from gorget color, these marks apply to both Ruby-throated and Black-chinned Hummingbirds]

1. Iridescent ruby-red throat (gorget), squared at the bottom
2. Black upper chin, extending back through the eye
3. White chest contrasts with green-washed sides
4. Deeply notched folded tail forms "double point"
5. Bill straight (longer in females than males)
6. Inner six primaries much narrower than the outer four

WHAT TO LOOK AND LISTEN FOR

- **Flight feather shape:** Inner primaries narrower than outer ones; shape of outermost primary differs in the two species
- **Tail shape:** Perched males show distinct fork in tail (deeper in Ruby-throated); tail projects beyond wingtips when perched, especially in Ruby-throated.
- **Bill:** Fairly straight, longer in females than males and longer in Black-chinned than Ruby-throated.
- **Gorget color:** Chin black in both species (narrower in Ruby-throated); remainder of gorget red in Ruby-throated, violet in Black-chinned
- **Underpart color:** Females clean off-white below with a touch of buff on the flanks; males show broad white chest band contrasting with greenish sides
- **Sounds:** Squeaky 'tchew' or 'hew' notes and excited sputtering; dry wing buzz, more prominent in Black-chinned.

Plains, except Rufous which is rare…" And once more female Black-chinneds and Costa's were considered inseparable.

We know a great deal more now, even about the tricky identification of females and immatures of closely similar species. Key characters include many structural features such as primary shape, tail feather shape, and length of median wing coverts. None of these characters were in field guides prior to the 1980s. The modern suite of diagnostic features emerged in excellent guides published between 1997 and 2002 by Peter Pyle, Sheri Williamson, and Steve Howell, as well as Kenn Kaufman's 2011 *Field Guide to Advanced Birding*.

Our knowledge of status and distribution has grown appreciably as well. We know that Ruby-throated Hummingbird shares the East, especially the Gulf Coast in late fall and winter, with many hummingbird species. Could Roger Peterson have predicted that fourteen hummingbird species would be found in Louisiana, or twelve in Florida? Black-chinneds are regular in winter in the Gulf Coast states and reach the Atlantic coast rarely in fall, with records north to Nova

Ruby-throated Hummingbird, adult male in flight.
April in Galveston Co., Texas

At this lighting angle the red gorget of this male Ruby-throated Hummingbird is more subdued, and at certain angles the gorget can appear entirely black. The combination of the red gorget, black patch from the lores back through the eye, distinct white "collar" contrasting with both the gorget and the greenish sides, and the blackish tail (with a fairly deep fork that is not visible at this angle) identify this as a Ruby-throat. The tenth (outermost) primary is hard to make out, but close inspection would reveal it to be narrower than the corresponding feather of a Black-chinned Hummingbird.

Black-chinned Hummingbird male in flight.
September in Brewster Co., Texas

This male Black-chin shows the characters of the genus *Archilochus*, including the forked tail and the broad outer primaries contrasting with narrower inner primaries. Unlike Anna's and Costa's Hummingbirds (genus *Calypte*), the iridescent gorget of male *Archilochus* is squared off, not elongated at the sides, and the gorget color contrasts with the green crown; note also how the white chest band contrasts sharply with the green sides. The more extensive black chin and purple (rather than red) gorget distinguish this Black-chin from Ruby-throated. More subtle characters include a slightly longer bill, slightly shorter and more shallowly forked tail, and very broad outermost primary (which would be much narrower and more pointed in Ruby-throated).

COMPLEX COLORING

We delight in the glittering plumage of hummingbirds, those iridescent colors produced by the nanostructure of the feathers' flattened barbules with tiny air pockets. But, frustratingly, the colors we perceive depend on the triangulation of the bird, light source, the observer. The apparent color of a hummer's gorget can change with changing angles of light, often appearing all black. Rose or violet colors can look iridescent green or gold at some angles. Furthermore, individual hummingbirds may vary slightly in gorget feather nanostructure, resulting in slightly different iridescent shades – such as an "orange-throated" Ruby-throated Hummingbird.

These complex colors aren't just there to delight and befuddle us humans. Hummingbirds, like other birds, have a fourth color cone in the retina, sensitive to ultraviolet wavelengths. They can distinguish colors – particularly non-spectral colors that combine ultraviolet with reds, greens and yellows – and therefore perceive differences in each other (as well as in the flowers they seek for food) far better than we can. Elsewhere in the hummingbird's plumage are other feather specializations that produce sounds in flight in the form of modified wing or tail feathers.

Given their dazzling colors, it is counter-intuitive but well-documented that the closest relatives of hummingbirds are the swifts, which has long been known, and the intricately marked but certainly not colorful owlet-nightjars of Australia and New Guinea.

Ruby-throated Hummingbird, female in flight.
April in Galveston Co., Texas

This female Ruby-throated Hummingbird differs only subtly from a female Black-chinned. General *Archilochus* characters include the distinct white spot behind the eye and contrasting dark lores, clean whitish throat and breast (an immature male would show lines of small dark spots on the throat), hint of buff on the flanks, and narrow inner primaries. The green iridescence on the crown, dark flight feathers, and relatively narrow outermost primary appear to confirm this as a Ruby-throated; it was photographed on the upper Texas coast where Ruby-throated is common and Black-chinned is a rare migrant. Vocalizations of the two species are similar, and while both species can wag their tails when hovering and maneuvering, Black-chinned tends to do so much more vigorously.

Black-chinned Hummingbird female in flight.
May in Cochise Co., Arizona

Female Black-chinned Hummingbirds are closely similar to female Ruby-throateds, and not all individuals are identifiable in the field. Evident in high speed photography and sometimes visible on perched birds in the field is the broad and blunt outermost primary feather (narrower and more pointed in Ruby-throated). The crown is duller (often dusky or grayish) than the brighter green crown of Ruby-throated, but there is much overlap. The bill of Black-chinned averages longer (recall that females of our hummingbirds have longer bills than males). Additional "in hand" characters, sometimes discernable with close views of perched birds, involve subtle differences in the shape of the tail feathers and inner primaries. Both species show a variable patch of buff on the flanks.

Scotia. Conversely, we now know that Ruby-throated occurs, albeit rarely, in western North America (there are nearly 30 records for California). The two species regularly co-occur around the 100th meridian in Texas and Oklahoma and, seasonally, over much of Mexico. Nearly all Black-chins depart the U.S. in fall, wintering mainly in the volcanic belt of Mexico. Ruby-throateds winter in Mexico and northern Central America, but also in the Gulf states and locally elsewhere in the East.

Here we'll look at general features of the genus *Archilochus*, which includes only the Ruby-throated and Black-chinned Hummingbirds, and review characters separating those species from each other and from other similar hummingbirds.

Not evident in the photos are aspects of behavior, such as strong tail wagging by Black-chins and, to a lesser extent, Ruby-throats. Both species give similar calls (a squeaky 'tchew,' or 'hew' and a sputtering series) that easily tell them from non-Archilochus hummers but not from each other. Both also fly with a distinctive dry wing buzz, stronger in Black-chinneds, that I liken to a fishing reel. Such sounds are often the best and quickest way to identify a hummingbird.

Kimball Garrett is the retired ornithology collections manager for the Natural History Museum of Los Angeles County, an author, and a past president of Western Field Ornithologists. Brian E. Small is a nature photographer whose photos illustrate many books.

Broad-tailed Hummingbird male in flight.
May in Cochise Co., Arizona

This male Broad-tail is superficially much like the slightly smaller Ruby-throated. It lacks the Ruby-throat's blackish chin and mask; instead the rose-red gorget extends right up to the bill, and the feathering around the eye and behind the gorget is pale. The outermost primary is very narrow (it can produce a distinctive cricket-like trilling sound in flight), and just visible in this photo is the thin rufous outer edge to outer pairs of tail feathers, lacking in *Archilochus*. Females show extensive pinkish-buff throughout the sides and flanks, unlike *Archilochus*. A bird mainly of western mountains and wintering primarily in Mexico, the Broad-tailed Hummingbird is a very rare but regular winterer in the Gulf states, thus potentially overlapping with Ruby-throats.

Costa's Hummingbird female.
April in Riverside Co., California

Females of this hummer of arid southwestern habitats are closely similar to female Black-chinneds and often occur in the same areas. They normally do not overlap with Ruby-throateds, though Costa's occurs rarely east to Texas and there are records of vagrants east to Michigan and the Florida Panhandle. Unlike *Archilochus*, Costa's (and related Anna's) hummingbirds have relatively broad inner primaries. The tail is rather short and rounded, so the folded wingtips reach the tail tip on the sitting bird. The slightly decurved bill is shorter than in any female *Archilochus*. The pale spot behind the eye continues as a thin line around the rear of the gray ear patch. The soft 'pit' notes of Costa's are quite unlike the nasal 'tew' and sputtering chatter of *Archilochus* hummers.

▼ OLYMPUS OM-D E-M1X, 300MM F/4.0 IS PRO LENS

JOE MCDONALD/ SHUTTERSTOCK

Black-browed Albatross

An adult Black-browed Albatross preens its fuzzy chick on a nest in January 2020 on Saunders Island, one of the Falkland Islands east of Argentina. Saunders is an Important Bird Area that is home to 11,000 pairs of Black-browed Albatross, four penguin species, caracaras, and other birds. The Falklands archipelago hosts 70 percent (500,000 pairs) of the global Black-browed Albatross population. Pairs produce one egg a year, which hatch after about 70 days of incubation; a little over four months later, the chick fledges. Professional photographers Joe and Mary Ann McDonald have been visiting the Falklands for nearly 30 years, and the site where this image was taken, known as The Neck on Saunders, is one of their favorites.

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