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ON THE COVER
Elegant Trogon by Cathy Wasson. Cathy is an amateur photographer who enjoys photographing birds in their natural settings. She enjoys sharing the beauty of birds and hopes that others will take notice of them next time they are outside in and around Tucson.

ABOVE: Bridled Titmouse by Lois Manowitz, a sought-after species for Southeast Arizona Birding Festival participants.
A little over three years ago, I had the pleasure of serving as the Interim Executive Director of the Tucson Audubon Society. As a very casual birder, I was quickly awed by the scope of work and programs impacting our southern Arizona environment on a daily basis. Fast forward three years, and once again I have the honor of serving Tucson Audubon, its Board of Directors, its staff, and members. Tucson Audubon provides all of us with opportunities to learn and to participate! I am now an avid Habitat at Home member, having transformed my midtown yard for water harvesting and native plant habitat. I have recruited friends to engage in our community science projects by installing nest boxes for bees and Lucy’s Warblers. Nature Shop staff and volunteers have helped me refine my binocular skills which has added to my bird watching abilities. And I have marveled at the Masked Bobwhite restoration work I learned about through one of our great Zoom educational sessions.

As a nonprofit professional in Tucson for more than 30 years, I look forward to working together over the next several months to support the important and exciting work of Tucson Audubon. This organization has added so much to my outdoor life and I’m grateful. I hope that you will visit our website and social media pages frequently to find new ways you can engage with us in field trips, educational sessions, and community science. Please also feel free to reach out to me at any time if you have questions during the executive search process, or suggestions for the organization’s work.

Patti Caldwell,
Interim Executive Director

FROM THE EXECUTIVE DIRECTOR

A VERY HAPPY RETURN

A big birdy thank you to JONATHAN LUTZ for all you’ve done for Tucson Audubon!
We wish you continued success in your next endeavors!

Karin Sharp
Kim Lopez

R. Tassié
Diana Rosenthal
Paola Zuy ICE
M. Callah
Patti Caldwell
Jasmin Wilson
Taylor Runion

Dusty Raven
Kari Hanen
Emanuel
ALMANAC OF BIRDS
JULY TO SEPTEMBER

It’s fair to say that the most exciting time for bird watching in Southeast Arizona is July through September, our second spring and summer rain season. Lands and birds come to life again after the intensely hot and dry fore-summer of May and June, and bird diversity is at its highest. For this reason, our Southeast Arizona Birding Festival in August is perfectly timed to take advantage of some of the greatest birding in North America. Nowhere else do you have the chance to see Elegant Trogon, Rufous-capped Warbler, Five-striped Sparrow, and Berylline Hummingbird all in one long weekend. The Festival takes place August 11—15 this year—we hope to see you there! Register now at tucsonaudubon.org/festival.

Here are just three of the amazing birds you might encounter during our Festival.
**MONTEZUMA QUAIL**

Although the gorgeous Montezuma Quail is not rare, it is incredibly difficult to find, and once found, incredibly difficult to see well. Unlike most quail, they don’t form large coveys, and they tend to freeze in place when danger is near. You can almost step on one before it will take off straight up into the air and fly about 30 feet away and frustratingly disappear again. Once you catch your breath and find your glasses, congratulate yourself on joining the “heart attack bird” club. Luckily, Montezuma Quail aren’t spooked by vehicles and many are seen very well along Harshaw Road in the Patagonia Mountains from tour vans during our Festival. When you do finally see one, you’re treated to a riot of feather patterns not often found all on one bird. Males have a clown-like face pattern, sky blue bill, and a kaleidoscopic array of cinnamon, white, and black streaks, bars, lines, and dots on the back and breast—a written description doesn’t do it justice.

Montezuma Quail are resident in the mountain grasslands and oak woodlands of the Sky Islands here and into Mexico. They move as little as 150 feet per day as they root amongst dense bunch grasses feeding on tubers, acorns, and insects, using their powerful feet and long, curved claws specialized for digging. The species’s beauty and behavior have inspired nicknames such as Harlequin Quail and Crazy Quail.

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**LUCIFER HUMMINGBIRD**

If hummingbirds are your thing, the summer rain season is the time to be in Southeast Arizona when diversity is at its peak. A rare migrant species from Mexico, the Lucifer Hummingbird is a sought-after bird whose range barely makes it into the US here and Texas. They can be found mostly in Chihuahuan desert canyons and hillsides where agave, ocotillo, sotol, and cacti dominate. Almost a sure bet is seeing them on a Festival trip to the Huachuca Mountains and the feeders at the Ash Canyon Bird Sanctuary, long a hotspot for the species. There’s seemingly no evidence for the bird being associated with Satan. Lucifer means “light-bearing” in Latin and is the name of various figures in folklore linked with the planet Venus, the light-bringer of a personified dawn. One can assume the light being referred to in this case is the beautiful iridescent and flaring, purple gorget of the Lucifer Hummingbird. A tiny member of the group of sheartail hummingbirds characterized by narrow and deeply forked tails, the species is also identified by its strongly decurved bill.

Lucifer Hummingbirds have an interesting relationship with agaves—the plants are adapted to be pollinated by bats, but the birds “nectar rob” from the flowers, providing no pollination services because they are too small to make contact with the pollen-producing anthers. In turn, dead agave stalks are prime habitat for carpenter bees that nectar rob from ocotillo flowers, depriving the birds of a food source. Unique to all hummingbirds, male Lucifer Hummingbirds perform flight displays at the nests of females, not in feeding areas or group display sites.

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**RED-FACED WARBLER**

Many Festival attendees have the Red-faced Warbler on their must-see lists and a trip to the Santa Catalina Mountains is sure to produce this dapper little bird! Summer is the time to see them dripping from the trees in spots like Incinerator Ridge and Bear Wallow—areas with a mix of pine and Douglas fir and deciduous maple and Gambel oak usually lining a creek. Red-faced Warblers can be regularly seen lower in the forest canopy because they nest on the ground, one of only two western warblers to do so, along with Painted Redstart. The female chooses the nest site, a small depression surrounded by plant material, often with an overhanging rock, or some other feature to provide cover. Although a single pair defends their territory, both sexes routinely mate outside the pair, and almost 75% of nests contain young fathered by another male.

It’s always exciting to see a Red-faced Warbler, with its unique bright red face and upper breast, black bonnet, white underparts, nape, and rump, and cool gray body. If you saw the bird on its wintering grounds in the highlands of Mexico or Central America, you’d be treated to the same colorful sight. Unlike most warblers, the Red-faced Warbler only molts once a year—its breeding and non-breeding plumages are the same. The birds flick their tails often, possibly to aid in prey detection by scaring insects into movement. When trying to locate Red-faced Warblers, listen for their Yellow Warbler-like song in the upper forests of all the mountains in Southeast Arizona.

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Montezuma Quail, John Hoffman; Lucifer Hummingbird, Greg Lavaty; Red-faced Warbler, Hemant Kishan
CLEARLY SAFER
Window treatments let you love your backyard while keeping birds safe

As bird enthusiasts, there are few sounds as dispiriting as the dreadful thunk of a bird flying into a window. With any luck, the dazed bird can shake off the impact and fly back to safety, but for a million birds a day across the US, window strikes are fatal. And the windows most to blame are not on high rise skyscrapers, but the ones on our own single story homes and low rise offices.

Windows are dangerous for three reasons. They are transparent, fooling the birds into thinking they aren’t there. They are reflective, appearing to birds as if there’s more open space to fly into. And in the evening, with interior lights on, they look like a safe portal to a well-lit area.

Reducing window strikes is vital for the health of our bird communities and is a top priority for our Bird-safe Buildings program and Habitat at Home program. You can help by turning off unneeded interior and exterior lights, by closing blinds to reduce the appearance of a safe passage from your front yard to your backyard, and by installing bird-safe window treatments.

As a demonstration, we recently installed four different window treatments at Tucson Audubon’s Mason Center. We selected options that represent different levels of difficulty and different price points. To control one important variable, we installed the treatments onto four different north-facing windows on the same wall.

ACOPIAN BIRDSAVERS
PRICE: DIY $20–30 per 100 feet of paracord. ~$3–5 for Velcro or screws.
DURABILITY: If installed with Velcro, ~5 years. If screwed in, 20+ years.
INSTALLATION DIFFICULTY: 2/4

You can buy this option online or make a version yourself. We made ours by following a video tutorial at birdsavers.com. Paracord is available at any hardware store for $20–30/100 feet (we used 100 feet for this treatment). The final product can be adhered to the window using Velcro (see photo), or more permanently with a staple gun or screws. For the demonstration we made ours with two different colors of paracord. Consider what is reflected in the window and if light or dark paracord will stand out the most. Both will prevent strikes but the one that stands out will be most visible from a distance. This option took an hour to prepare and about 20 minutes to install.

COLLIDESCAPE FILM
PRICE: ~$30–100 per window depending on size and pattern.
DURABILITY: ~12+ years.
INSTALLATION DIFFICULTY: 3/4

These custom coverings are available online (collidescape.org) as plain colors or images of your choice. Our window of bird images by Martin Molina and Doris Evans cost $88. This method appears as an opaque surface to birds and provides privacy indoors. Installation took some time, and the end result is beautiful. From inside the building, the windows look slightly tinted, (an added benefit for those of us who live under the plentiful sun of the Sonoran Desert!), but visibility is not impacted at all.

THE ART & SCIENCE OF BIRDS
Photos by Ethan Myerson

VERMILION FLYCATCHER | Summer 2021
TEMPERA PAINT STENCILS

PRICE: Paint ~$2, Stencils $5–10
DURABILITY: Depending on rain exposure. Easily removed with window cleaner to change up the design.
INSTALLATION DIFFICULTY: 1/4

You can purchase tempera paint and stencils in any crafting store, or online. If you’re artistic, you can paint freehand, but we opted for stencils. The paint is temporary and can be removed if you want to paint something new. We wanted to make sure there were no spaces larger than 2” between painted areas. This keeps it safe for birds, but we find this window treatment to be the most obtrusive. Painting it on the window was quick and fun.

FEATHERFRIENDLY DOT DECALS

PRICE: $17/100ft. Available at our Nature Shop
DURABILITY: 12 years +
INSTALLATION DIFFICULTY: 4/4

These decals are a great option that preserve most of the view while also being visible to birds. The kit includes everything you need for installation: measuring tape, decal roll, and squeegee. Following the instructions, we carefully installed all of the dots over a period of two days. It was difficult and time consuming, but the end result is attractive and unobtrusive.

We anticipate that all the window treatments will reduce the number of window strikes. Over the next few months, we plan to estimate the effectiveness of each option by recording the actual strike events we see and hear, and by counting the number of bird impressions left on the windows following a strike event.

Olya Phillips
Community Science Coordinator
ophillips@tucsonaudubon.org
Nestled in a corner of the Rincon Country West RV Resort, you'll find an oasis for birds, butterflies, and the people who love them. The pollinator garden started just a few months ago as a dream. Kathy Hutson, a resident of Rincon Country West, wanted to enjoy monarch butterflies here in the desert, just as she did back in her home in Indiana.

Kathy, in a shirt and hat adorned with monarchs, reflects on the earliest days of what would later become known as “The Field of Dreams”: “I knew that monarch butterflies love milkweed, and Arizona has twenty-nine species of milkweed. I just wanted a place to plant some, to see if we could attract some butterflies.”

Kathy spoke with Ilona Rouda, another resident of the RV resort and a Tucson Audubon member. Together, they shared the idea throughout the community of a space for butterflies. “The outpouring of support was amazing,” says Kathy. “People helped, donated time, donated money. Every time there was a need, someone in the park responded.”

The park itself agreed to set aside a plot of land for the project, over 2500 square feet. The committee planted the milkweed that Kathy wanted—six species of it, in fact—but they did so much more as well. With the support of more of the community, they began researching native perennials. Volunteers called around to get donations of plants. The garden committee took field trips to Tohono Chul and Mission Garden, and reached out to Tucson Audubon Society’s Habitat at Home program for advice. A few trees, including a littleleaf ash, were purchased and professionally installed. What began as a place to plant some milkweed was quickly becoming a jewel in the desert.

Only a few months after the project was started, it is already a thriving garden. Bluebirds have been spotted in the shade of the mesquite tree, and hummingbirds can be seen flitting around the flowers. Members of the RV resort community come by nearly every evening to take sunset photos. And, best of all, migrating monarch butterflies have found respite among the milkweed in the Field of Dreams Pollinator Garden.

“IF YOU BUILD IT…”
IT ALL STARTED WITH A BIG VISION, AND A LITTLE MILKWEED.

FAVORITE BIRDS FROM POP CULTURE

“My favorite bird from pop culture is the Road Runner from Wile E. Coyote and the Road Runner. Born and raised in the Chihuahuan Desert, I grew up dreaming of seeing a real Greater roadrunner outsmarting a Coyote... meep meep!”

ANDRÉS ANCHONDO
BOARD MEMBER
TUCSON AUDUBON SOCIETY

“Millions were inspired by Jonathan Livingston Seagull. Coleridge taught us to be nice to the Albatross. Woody Owl shared his wisdom and told us “...don’t pollute.” Donald, Daffy, and Woody Woodpecker (ABA bird of the year) each had their moment of fame. I’ll pick the local favorite—Road Runner, a winner every time!”

JIM WATTS
VOLUNTEER
TUCSON AUDUBON SOCIETY

“In storytelling, birds are often used to add drama and symbolic meaning. I love how Game of Thrones used the three-eyed raven for a sense of otherworldliness and mystery. To me, even two-eyed ravens have a bit of this vibe!”

JENNIE MACFARLAND
STAFF MEMBER
TUCSON AUDUBON SOCIETY
ART AND BIRD CONSERVATION IN YOUR OWN BACKYARD

Creating urban open spaces and home yards full of native desert vegetation directly benefits all wildlife, especially the local birds we love. Many of us have taken this practice to heart and marvel at the variety of birds that enjoy our shared spaces when we take the time to provide the resources they need. Some people, though, have taken an artistic approach to their landscaping and have created places where art and bird conservation come together. You might choose to mimic natural environments or add artistic elements such as custom nestboxes, water features, or a bird-inspired sculpture. Either way, designing spaces to be functional and beautiful positively impacts urban birds and increases diversity—our Tucson Bird Count data shows this.

See how Habitat at Home program participants are helping local wildlife by creating places where art and science meet and birds flourish.

CLOCKWISE: Lucy’s Warbler using an artistic basket for a nest site, Gary Schaefer; Functionally beautiful rain chain, Alison Lang; Art and color come together at the Pima County demo garden, Matt Griffiths; Mimicking a natural stream, Kirk Stitt; Creative rock work of a tortoise burrow, Kari Hackney; Pima County demo garden bee box, Matt Griffiths
OFF THE WALL ARTWORK

For those who love public art, and those who love the birds and plants of Southeast Arizona, Tucson offers an unparalleled collection of murals. Here are some of our favorites.

JOE PAGAC

Joe’s work is synonymous with public art in Tucson. His unmistakable style, whimsical creatures, and bold colors can be seen all over Tucson. We fell in love with Joe’s latest mural, currently in progress at Himmel Park, and not just because it features our own mascot, the Vermilion Flycatcher.

About his work, Joe says, “I love that I can reach so many people with my art, and even though I don’t like to be heavy handed with it, most of my public art is about wildlife appreciation and conservation. I like to depict all of our flora and fauna in friendly, approachable ways… and even though I anthropomorphize and exaggerate them I also strive to be scientifically accurate. Ultimately I hope it gets people to care a bit more about them and hopefully helps push us in the right direction toward making sure the desert is a safe place for all of us to share.”

SAL SAWAKI, WAGON BURNER ARTS

Wagon Burner Arts created this mural in the Barrio Hollywood neighborhood. The hummingbirds and butterflies seem to fly right off the wall and off into the sky!

ROCK MARTINEZ AND CRISTINA PEREZ

This iconic mural, “Goddess of Agave,” is one of the largest in Tucson. It can be seen on the Tucson Warehouse and Transfer Co. building downtown.

KARLITO MILLER ESPINOZA

“Sonora,” featuring this hummingbird and a number of other local animals and plants, adorns the wall on the Historic Y, home of the Tucson Audubon Society downtown office.
While enjoying the crystal-clear and bright bird images in your binoculars, you’re sure to have wondered what goes into optics design. Here we shed some light onto how that technical piece of artwork in your hands was created.

When an optics company decides to develop a new product, the first questions are, “what is the intended use of the product,” and “what are the required features?” As the prototype develops, a number of scientific disciplines come into play that determine the product’s final form. These include optical design, glass characteristics, coating technologies, and assembly.

Based on the defined functional requirements, the optical designer works on the optimal lens layout and design, and then experiments to resolve whether the design will achieve the product’s intended use. Increasingly, designs must accommodate the varied needs of modern birders.

Take, for example, Field of View. Much of the design work here occurs in the ocular cluster, however, it is a balancing act. Increased emphasis on one aspect of optical design may impact another. The needs of modern naturalists include a wide field of view, close and fast focus, good ergonomics, and the most true-to-life images achievable at reasonable cost. The defined needs present designers with the challenge to achieve all these things without compromising any one aspect. Optical design must take into consideration the overall management of light as it passes through the lens system, how that light is affected, and the final result to the eye.

The creation of optical glass is another vast area of scientific application. There are hundreds of optical glass types, and more are continuously developed. The physical properties of the various glass types: how they work with light, their fragility and weight, are all considered when creating an optical design.

Of course, this optical glass must be formed into lenses, polished and fully multi-coated. Consider this: for a binocular with eighteen different lens surfaces, it would be akin to shaping and smoothing a disk of glass fifteen feet across until there are no imperfections higher or deeper than 1/10 the thickness of a piece of paper—not once, but eighteen times!

Finally, even rubber armoring and eyecups must be made of material that is easily washable and durable enough not to break down with heavy exposure to sunscreen or insect repellent—all while not causing a reaction in users with latex allergies. Again, science plays a role.

The science of optics is multi-disciplinary and results in the simple pure enjoyment of the wonders of the natural world around us brought closer and brighter.

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**TUCSON AUDUBON** All Together, We Are Southeast Arizona

A LEADING VOICE AND ADVOCATE FOR SOUTHEAST ARIZONA'S BIRDS AND THEIR UNIQUE HABITATS FOR OVER 70 YEARS

**Member benefits:**
- Direct support of bird conservation in Southeast Arizona
- Guided birding field trips
- 10% discount in our Nature Shop
- *Vermilion Flycatcher* quarterly magazine
- Discounts on Tucson Audubon classes and events
- Special social gatherings and Birds & Community presentations

**Become a member today:** TUCSONAUDUBON.ORG/JOIN

Lucifer Hummingbird, Peter Hawrylyshyn
BIRDATHON 2021: OUR BEST EVER!

Building off our great momentum from last year, the 2021 Birdathon smashed all expectations thanks to the dedication and creativity of all involved. Participants, supporters, and sponsors came together for a month of celebrating and protecting birds. We are grateful to you for making this our biggest Birdathon ever! The numbers say it all…

$113,049.96  DOLLARS RAISED  to support Southeast Arizona’s birds
51  TEAMS ENGAGED  34% increase over 2020
135  BIRDERS IN 7 STATES AND 3 COUNTRIES
350+  BIRD SPECIES LOGGED
780  DONATIONS RECEIVED  45% increase over 2020

My Birdathon is a personal thank you! The Tucson Audubon webcams and Zoom sessions reintroduced me to the world beyond my front window and continue to provide hours of informative distraction. I will be forever grateful!
—Nancy Bilderbeck

In our eyes, all Birdathon participants are winners, but this year these teams went above and beyond in creativity, fundraising, and of course, birding. Congratulations to all!

WINNERS

BIG DAY: TRADITIONAL
Hoatzin! Come Quick! (Dave Eshbaugh)

BIG DAY: FREESTYLE
Wrenegades (Sara Pike, Tim Helentjaris, Chris Rohrer, Celeste Troon, Jennie MacFarland, Matt Griffiths)

BRAND NEW TO BIRDATHON
Peggy Steffens

CREATIVE “HOME” PATCH
Madera Reservists (Laurens Halsey, Carol & David Vleck, David Cowan, Cathy Beck, Heidi Doman, Mike Bearce, John Pestle, & Sara Martin)

BEST BUCKS FOR BIRDS
Madera Reservists (Laurens Halsey, Carol & David Vleck, David Cowan, Cathy Beck, Heidi Doman, Mike Bearce, John Pestle, & Sara Martin)

SOCIAL MEDIA STORYTELLERS
Nerdy for Birdies (Kathy & Rowyn Balman)

BIRDATHON BEYOND AZ
Ponds Across the Pond (Nancy Bilderbeck)

MATURE BIRDERS BIG DAY
Migrant Trappers (Christine Manzey & Elliot Tramer)

GRAND CHAMPIONS
SaddleBrooke Ranch Cuckoos (Jim Hoagland, Laurie McCoy, Kathleen Williams, & Jim Bradford)

Having three Scissor-tailed Flycatchers land near us was an “Aha!” moment for Henry, an expert on dinosaurs. He was fully engaged and truly discovered these birds for the first time. Our pact is that whenever he sees one he will think of birding with me and I will do likewise. Seeing one bird that really clicked with him and sparked his curiosity was the highlight of our Birdathon.
—Clague Van Slyke with 5 year old grandson Henry

Nerdy for Birdies, Kathy Balman; Cactus Wren, Joan Powell; Green Heron, Tom Brown

BIG BIRDATHON THANKS TO OUR 2021 SPONSORS!
**FIVE-STRIPED SPARROW**  
(*Amphispiza quinquestriata*)

In this column we look at some of our Southeast Arizona borderlands specialty bird species. Birders from all over the US travel to Southeast Arizona to add birds to their life lists, and we are proud of the birds that make our region unique! But how well do you know your local birds outside of the context of Southeast Arizona? Here we take a broader look at some of our iconic species, and try to see how they fit into the larger birding landscape.

Sparrows have a certain reputation among birders: “LBJs” (little brown jobs). As a group, the members of the family Passerellidae are generally considered to be difficult to see well, challenging to identify, and a bit dull. “Was that a Song Sparrow or a Lincoln’s Sparrow that disappeared into the shadows of that brush pile?” “Did you catch that little brown job that dove down into the grassland? Was it a Botteri’s or a Cassin’s?” But then there are sparrows that defy the stereotypes of the family, and Five-striped Sparrow is one of them. Although it can be hard to see well, this sparrow is neither dull nor hard to recognize, with its stern black and white face pattern and warm rusty tones on the back.

Although it was once placed in the genus *Aimophila* along with a potpourri of other arid country sparrows, taxonomic revisions have left the Five-striped Sparrow alone with its closest relative, the Black-throated Sparrow in the genus *Amphispiza*. The resemblance of the two species is striking, but while Black-throated is widespread and adaptable to a variety of desert and desert grassland habitats, Five-striped is much more particular about where it can make its living, which lends it some special cachet among birders.

In fact, I think Five-striped Sparrow is among the upper echelon of Southeast Arizona specialty birds that birders visiting from other regions dream of seeing. Why is that? In part it has to do with the overall distribution of the species. Five-striped Sparrow inhabits the arid thornscrub and tropical deciduous forests that flank the Sierra Madre mountains of western Mexico. These habitats become less prevalent as one travels north and winter temperatures decrease, finally fading out in extreme southern Arizona. Five-striped Sparrow is best thought of as a west Mexican species, with just a small population outpost in the US.

There’s also a mystique associated with the rarity of the species in Arizona, and the sorts of locations where Five-striped Sparrows are found: steep, rugged foothill canyons that are susceptible to flash floods during the monsoon season, which is precisely when the species is most territorial and therefore most active and visible. When Phillips, Marshall, and Monson published their authoritative reference *The Birds of Arizona* in 1964, there had been just one record of the Five-striped Sparrow in Arizona. A few individuals were reliably seen in Patagonia during the 1970s, but then seemed to disappear. Over time the species was found to be a regular breeder at California Gulch, a notoriously hard-to-reach site in the mountains west of Nogales, accessed by a rugged road into the remote Pajarito Mountains. But was the species always a resident there? More recently still, Five-stripes have been found at more accessible locations in the canyons along the western and northern flanks of the Santa Ritas, the mountain range where the original Arizona specimen was taken. It does seem that Five-striped Sparrow has experienced something of an expansion in the last decade. Fortunately for those of us who appreciate knowing we can now go out and look for this handsome species without the risk of getting stranded in a remote canyon in the middle of nowhere, it now strikes the perfect balance of rarity and dependability.

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Scott Olmstead is a high school teacher, member of the Arizona Bird Committee, and occasional guide for Tropical Birding Tours.

Five-striped Sparrow, Matthew Studebaker
What is there not to like about Arizona bats? They have amazing adaptations. They are mammals that fly in the dark and can "see" with sound, but they aren't blind. They eat numerous insects and other arthropods (including hundreds of mosquitoes in an hour!), and pollinate desert plants. Arizona has 28 species of bats, 26 are insectivorous and two are nectar/pollen/fruit eaters. Arizona bats occur in the lowest desert habitats to the highest mountains. The Canyon Bat is the smallest at 6 grams (0.2 ounces), the largest is the Western Mastiff Bat weighing in at 70 grams (2.5 ounces).

Most bats either hibernate or migrate in the colder months, and Arizona is home to bats that migrate, hibernate, and remain active during the winter. The California Leaf-Nosed Bat is unique in that it doesn’t hibernate or migrate—it is dependent on warm roosts during the winter. If it gets too cold in the roost, the colony moves to another roost. Bats that migrate usually have long, narrow wings for speed and long distance travel. Mexican Free-Tailed and Lesser Long-Nosed Bats are examples of “speedsters” in the bat world that will migrate during cold periods. Most bats that “hang” around Arizona in the winter will hibernate in mines, caves, buildings, beneath bridges, and hollow trees. Hibernation is a state of torpor in which body temperature, breathing, heart rate, and other functions are reduced.

Bats also have interesting adaptations for reproduction. After breeding in the fall, some female bats can store sperm for later fertilization in the spring. Other females will breed in the fall and then fetus development is slowed so the young are born in the spring. Some bats breed in the spring and give birth in the summer. Most bats give birth to one young (pup), which can weigh 25% or more of the mother’s weight at birth. Males do not participate in the raising of the young. Pups grow very fast and usually can fly within four weeks.

Echolocation (or sonar) is the process by which most bats navigate and capture prey. Bats produce high-intensity sounds that are projected outward from the mouth, and return to the bat as echoes, providing extensive information about the objects around them. Their echolocation is so powerful that bats can detect a fine hair in total darkness. They can detect speed, direction, shape, and even how juicy an insect is. Bats see quite well, but flying in darkness requires the unique adaptation of echolocation.

Why do we need bats? Bats are the only major predator on night-flying insects and provide natural pest control. They are also important pollinators and play a key role in many ecosystems.
BIG BROWN BAT (*Eptesicus fuscus*): a medium to large-sized bat. Big browns can be found throughout the state from the deserts to mountains. They are associated with humans and are found in human-made structures such as attics, barns, and mines, beneath bridges, and in caves.

PALLID BAT (*Antrozous pallidus*): pallid bats are large with beautiful yellow/light-colored fur and large ears. This species can be found at lower elevations in desert scrub, canyons, and grasslands, but are also found in surrounding mountains in pine and oak habitat.

CANYON BAT (*Parastrellus hesperus*): canyon bats are our smallest bat species. This is basically a desert species and can be found in canyons, rocky areas, cliffs, caves, mines, and buildings. Canyon bats are usually the first bat to emerge as the sun goes down.

MEXICAN FREE-TAILED BAT (*Tadarida brasiliensis*): a common medium-sized bat. These fast flyers are the “jets” of the bat world, reaching speeds of up to 65 miles per hour. Over the summer, check out the exit flights at any large bridge in Southeast Arizona.

FRINGED MYOTIS (*Myotis thysanodes*): this small bat is the only myotis species that has a fringe of hairs on the edge of the tail membrane. Their flight is highly maneuverable and they can easily pick insects off of the surface of vegetation while in flight.

CAVE MYOTIS (*Myotis velifer*): a medium-sized bat that has a bare patch of skin between the shoulders on the back. Cave myotis can be found in desert scrub and canyons. Females form large maternity colonies of up to 15,000 bats.

TOWNSEND’S BIG-EARED BAT (*Corynorhinus townsendii*): this light to dark brown, medium-sized bat has ears that are one inch long. There are two large lumps on each side of the nostrils. Females can form maternity colonies of several hundred bats.

LESKER LONG-NOSED BAT (*Leptonycteris yerbabuenae*): a medium-sized bat with a long nose that has a leaf-like structure of skin (nose leaf) which is normal for most nectar and fruit bats. The tongue is long, with hair-like structures on the tip to lap up nectar or the sugar-water of hummingbird feeders.

HOARY BAT (*Lasiurus cinereus*): a large bat with white grizzled fur (hoary or frosted) and white wrists and shoulder patches. Fur covers the tail membranes and some of the wing. This is a tree-roosting bat that forages around open areas and water.

CALIFORNIA LEAF-NOSED BAT (*Macrotus californicus*): this bat has large ears and eyes. They can be found in Sonoran desert scrub and roost in mines, caves, buildings, and under bridges. They often fly close to the ground and can hover to locate prey.

SILVER HAIRDED BAT (*Lasionycteris noctivagans*): this bat has black fur and silver tips (frosted) on the back. The fur also extends down to the tail membrane. They can be found in wood piles, under tree bark, woodpecker holes, and in man-made structures.
FOR NOW, THE SEASON IS CHANGE

A REOPENING... FOR ALL
Not too surprisingly, as soon as the Paton Center reopened in early April, people flocked back to enjoy one of Southeast Arizona’s premier birding destinations that they’d been missing during its pandemic closure. Unusually high numbers of birds flitting about, including many rarities, greeted visitors. During my Birdathon, a Rufous-backed Robin made an appearance by the pond and a Northern Parula—a lifer for me—was singing by the streamside bench. The first Western Yellow-billed Cuckoo also showed up at the very beginning of June; a full two weeks earlier than usual.

While the arid-foresummer (our unique season after winter rains finish until the onset of monsoons) began cooler than usual, the lack of rains this past winter and 2020’s ‘non-soon’ have created dry surroundings. This makes the still lush and green banks of Sonoita Creek an irresistible attraction to creatures large and small from the surrounding countryside. They also come to take advantage of human-provided resources, including the feed and surface water found at the Paton Center.

THE PATON CENTER GROWS
Tucson Audubon had the winning bid to purchase the parcel that lies immediately downstream, between the Paton Center and The Nature Conservancy’s Patagonia-Sonoita Creek Preserve. Patagonia posted notice of the sale of the parcel, a portion of which is already within the Paton backyard fenceline via a 99-year lease. The preservation of this roughly 5-acre parcel as wildland is a linchpin to the ongoing habitat value and draw for birds at the Paton Center itself. We immediately performed an on-site evaluation of the opportunities and constraints of the parcel and sought funding to make a competitive bid possible.

The parcel contains amazing vegetation: multiple giant overstory Fremont cottonwoods, dense patches of hefty netleaf hackberries providing winter berries, and thick snaggles of Mexican elder trees covered in twining milkweed vine. It even has numerous Arizona walnuts, a priority species in quality cuckoo habitat! Another fantastic feature are ready-made natural viewing blinds to provide discrete viewing access of “the seep,” the outflow from the Town’s wastewater facility across the creek which regularly brings in amazing birds. The purchase of this parcel creates an 8-mile contiguous area of protected land along Sonoita Creek that stretches from Patagonia Lake to the northern end of our Cuckoo Corridor.

Once the final survey is done and the purchase is completed, anticipate opportunities to engage with this amazing parcel, including some serious invasive plant control of vinca and numerous Siberian elms, the creation of new off-street parking, a new trail, and the seep-viewing blinds.

BUILDING UPDATE
“Like you, we really like the ‘L’, but it exceeds the flood envelope. The ‘T’ lets the water flow around better.” —DUST

“The offset edges with a uniform roofline—I love it” —Bob Hernbrode

Cryptic-sounding comments like these filled the Mason Center classroom as the Paton Building Committee recently met with DUST, our consultants working to design the new Paton Center. DUST’s Jesús Robles quickly drew and visually demonstrated the impacts of suggestions and options under consideration—realtime design collaboration and evaluation. Soon, the overall shape and functional considerations were nearly set. These new plans will keep the Paton Center functional and safe long into the future.
Like Ring-necked Duck or Red-bellied Woodpecker, Rufous-winged Sparrow is named for a fieldmark that is difficult to see, if one sees it at all. The rufous lesser coverts of the wing for which this bird is named are often concealed. This small to medium sized sparrow is more easily identified by a combination of marks which includes pale rufous crown stripes, finely streaked back, short bill, unmarked grayish breast, and most distinctive, the dark lateral throat-stripe. The sweet, clear song notes, either an accelerating series of chips, or a tip tip tee trrrrr may be heard year around but is heard most frequently during monsoon season during which this species primarily nests.

The Rufous-winged Sparrow was first described in 1872, making it one of the last birds documented in North America. Still uncommon and local, this species can only be regularly found in the U.S. in Southeast Arizona. Rufous-winged Sparrow numbers have declined in some areas due to grazing and development, but there does appear to be a steady range expansion eastward—there are now records in extreme southwest New Mexico.

Depending on the season, this species can be quite inconspicuous at the Paton Center. Rufous-winged Sparrows sometimes visit the seeded brush piles that are strategically placed around the yard, and one might be able to get great views of this Southeast Arizona specialty by staking out one of these piles. Rufous-winged Sparrows hold territories throughout the year and pairs remain mated for life. In addition to being seen and heard at the Paton Center, and along the creek that borders it, Rufous-winged Sparrows also inhabit the adjacent Tucson Audubon-owned Cuckoo Corridor. During monsoon and after one learns their song, this species can be quite easy to detect, and you can track down this subtle stunner and find it singing from atop conspicuous perches.
ARE YOU EXCITED TO EXPERIENCE SOUTHEAST ARIZONA’S BEAUTIFUL BIRDS IN PERSON AGAIN?

The Southeast Arizona Birding Festival offers expert-guided birding, wildlife, and cultural field trips; photography and bird-ID workshops; free nature presentations, vendors, and activities.

• 230 bird species seen in 2019!

• Visit iconic birding hotspots like the Paton Center for Hummingbirds, Madera Canyon, Mt. Lemmon, California Gulch, and many more

• Small group birding with professional birding guides: choose from “meet on-site” trips or 15-passenger van trips with 8 participants

• Meet birding legends like Richard Crossley and be inspired by Birdability founder Virginia Rose

• Experience the breathtaking monsoon season, colorful Red-faced Warblers, Montezuma Quail, Elegant Trogons, and much more

• Workshops and free events at the Nature Expo

• Photography events with Lee Hoy, Kevin Loughlin, Lisa Langell, Maresa Pryor-Luzier, Krizstina Scheeff, and more

• Try out gear from Hunt’s Photo & Video, Zeiss, Kowa, Swarovski Optik, Tamron, and Vortex

• Join Tucson Audubon in our commitment to inspire people to protect and enjoy the birds we all love
WELCOME OUR FEATURED SPEAKERS

RICHARD CROSSLEY

Richard is an internationally acclaimed birder, photographer, and award-winning author of The Crossley ID Guide series. Born in Yorkshire, he also lived in Japan, and birded worldwide before settling down in his beloved Cape May, NJ. Richard also co-founded the global birding initiative Pledge to Fledge, Race4Birds, and The Cape May Young Birders Club.

HOLLY MERKER

Holly has co-authored Ornitherapy: For Your Body, Mind, and Soul along with Richard Crossley and Sophie Crossley. Holly has a background in art therapy, but today employs birds and nature toward the same goals in her work as an environmental educator. Holly spends every possible moment practicing Ornitherapy, which she credits helping her defeat breast cancer, and restoring her health mentally and physically.

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Vermilion Flycatcher by Bryan Calk/Macaulay Library
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**ZEISS Victory SF 32**

There is no room for compromise when it comes to bird identification – you must recognize fine details within seconds for accurate and reliable identification. The ZEISS Victory SF 32 has maximized optical performance with an improved UFL Concept, delivering the utmost resolution and color fidelity. This allows the user to master the most demanding of bird-watching scenarios, ensuring every precious moment is captured with absolute clarity.

[zeiss.com/morediscoveries](http://zeiss.com/morediscoveries)
As naturalists, and bird lovers, it is our responsibility to pass on our passions to future generations so we can confidently entrust our planet to competent, nature-loving individuals. How can we accomplish this when screen-time is often more abundant than nature-time? Over the past eight months, I have worked with the Arizona Trail Association within their Seeds of Stewardship Ambassador internship program to find solutions and learn what it means to be a naturalist and outdoor educator. During the program, I visited four locations on the Arizona Trail in Southern Arizona, including Cienega Creek, Douglas Spring, Madera Canyon, and Gardner Canyon. We spent weeks exploring and creating lasting relationships in each location. It was within these wild spaces that I learned what kind of outdoor educator I want to be while designing lesson plans about different topics, and why educating in the outdoors is so important to preserving our environment.

The flora and fauna of each landscape we explored played a big role in our expeditions. We saw rattlesnakes, coatimundis, horned toads, deer, cattle, and of course, birds. Birds quickly became one of the focal points of the internship, as they never ceased to amaze and captivate us on the trail. From day one in Cienega Creek Natural Preserve, we watched the woodpeckers in the majestic cottonwoods, a young Cooper’s Hawk bathing in the water, and a Gray Hawk with a small mouse in its talons flying overhead. At Douglas Springs, a Western Screech-Owl flew right over our heads in daylight. We saw the skeleton remnants of its past meals below its concealed nest. In Madera Canyon, rare hummingbirds and wild turkeys were a highlight. Birds became one of my favorite parts of the internship. Whenever someone spotted a bird, I would instantly stop and have my binoculars ready in a flash.

It was not until I was asked to design a lesson plan on bird behavior that I realized the real depth that birds have as families and individuals. It was through information such as the Gambel’s Quail using different sounds and behaviors when mourning the death of a loved one that I discovered how I want to pass on my passion for the natural world, especially birds. In order to connect children with the natural world, we have to give them a reason to want to do so. Using the science of bird behavior, such as their familial bonds, desires to protect one another, intelligence, and amazing physical feats, allows children to make an emotional connection to the natural world because they see its parallels to their own lives. Remember, humans evolved alongside the rest of the natural world, so it only makes sense we have similarities. By providing this often overlooked information, we can begin to once again bring kids outside where they belong. We are a part of the landscape, and finding a balance between the natural and virtual worlds is key. We can only do this by passing on our passion.
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EXCLUSIVELY FOR YOU: EXPLORE NATURE WITH MINDFULNESS WEBINAR
Wednesday, July 21, 1:00 p.m. PT • Call (520) 405.8782 to register!
Tucson Audubon would like to thank Charlene Westgate and Westgate Garden Design for being a member of and supporting our Birds Benefit Business Alliance for four years. In addition to this membership, Westgate has been a valuable partner on several Habitat at Home projects that focus on creating sustainable and resourceful spaces for birds and all wildlife.

As a permaculture landscape design firm, Westgate Garden Design’s work dovetails perfectly with Tucson Audubon’s goal of creating and enhancing bird, pollinator, and wildlife habitat in urban landscapes, one backyard at a time. Charlene is a big fan of the Habitat at Home program, “It’s totally awesome to have a program in Southern Arizona that gives homeowners the tools to create wildlife habitat in their own backyards!” Thank you Westgate for supporting Tucson Audubon!
Tuesday, July 13, 10–11 am
EXPLORING VIRTUAL EVENTS WITH TUCSON AUDUBON WHILE WATCHING HUMMINGBIRDS WITH LUKE SAFFORD
Let’s “visit” the Paton Center for Hummingbirds together and see what comes to the feeders—maybe a Violet-crowned Hummingbird! While watching the feeders we’ll discuss the future of virtual events with Tucson Audubon and what you’d like to see in 2021-22. As we begin to do more in-person events, we want to purposefully provide the right mix of virtual events for those of us who cannot gather together because of proximity or other reasons. Your feedback is valuable to us and we see this as an opportunity to make what is good, even better.

Wednesday, July 21, 1–2 pm
PARTNER PRESENTATION: EXPLORING NATURE WITH MINDFULNESS WITH PAULA LEDBETTER AND SPLENDIDO AT RANCHO VISTOSO
Register by emailing Splendido’s Community Relations Manager, Nancy Boyle at nboyle@splendidotucson.com
As a birder, we bet you probably have a favorite park and enjoy being out in nature. It just feels good. Being in nature—pausing in it, sitting with it—brings a sense of calm and renewal. It also can stoke our curiosity and creativity. At this virtual event, learn mindfulness practices to deepen your sensory and intuitive experiences of the natural world and experience a short guided meditation.

Monday, July 26, 7–8 pm
BIRDS ‘N’ BEER–RARE & INTERESTING BIRDS IN SOUTHEAST ARIZONA WITH LUKE SAFFORD

UPCOMING IN SEPTEMBER
Thursday, September 9
BEETLES OF WESTERN NORTH AMERICA WITH ARTHUR EVANS, THE AUTHOR OF THE UPCOMING BEETLES OF WESTERN NORTH AMERICA FIELD GUIDE

Wednesday, September 22
ALASKA, BIRDING ON THE EDGE WITH BRIAN ZWIEBEL AND HUNT’S PHOTO
Get ready for the adventure of a lifetime as you join Brian at the five far-flung destinations he has visited in Alaska.

WELCOME YOUR NEW VOLUNTEER AND ENGAGEMENT COORDINATOR, TAYLOR RUBIN!

I’m originally from Washington DC. After graduating from the College of William & Mary, I moved to Argentina where I worked as a research assistant studying tufted capuchin monkeys. I fell in love with biological field research and got my master’s degree in neuroscience & animal behavior from Emory University. While I was a graduate student, I had the opportunity to participate in the Roots & Shoots program, which pairs scientists with local elementary schools to give students hands-on lessons about ecology and conservation. Wanting to continue conservation education, I started working in the education department at Zoo Atlanta. Eventually, I moved into the Bird Department as a keeper and was able to learn a ton about avian biology, behavior, husbandry, and conservation.

I recently moved to Tucson from Atlanta with my husband, cat, and dog, and I am so excited to explore the southwest while working with the wonderful Tucson Audubon Society community and combine my love of birds, conservation, community engagement, and education in my new role. My goal for the next year is to produce some new volunteer resources, such as a new handbook and new orientation classes, as well as to re-open some volunteer programs and start up some new ones! I also want to create some volunteer-only events as a thank you for everything that volunteers do for Tucson Audubon Society. Thanks to all of the staff, volunteers, and members for such a warm welcome, and I look forward to working with you all!
INVASIVE PLANTS BEWARE!

Pima County Natural Resources, Parks & Recreation has just awarded Master Agreements to Tucson Audubon, and another to our collaborators at RECON Environmental Inc., for invasive plant control in backcountry areas that are part of the County’s Conservation Lands System and Parks System. This award, up to $250K annually, demonstrates the County’s commitment to protecting natural areas, and their faith in Tucson Audubon’s qualifications and reputation for ensuring such treatment work is done well in the most environmentally friendly manner possible.

WOO HOOT! BIRDY NEWS BITES WORTH CELEBRATING

GIFTS IN HONOR OR MEMORY OF

In honor of Lexie Bivings from Carol & Don Eagle
In memory Alice Johnston from Nancy Bushroe
In memory Becky Ben from Kathy Ben & Scott Wilbor
In memory Blake Britton from Sheilah Britton
In honor of Deb Vath from Jill & Fred Vath
In memory Donald Finch from Leonie Batkin & Ronald Thorn
In honor of Emma Jean Neal from Ann Peterson
In memory Eris & Frank Vidoni from Stephanie Hartung
In honor of Fernande & Marcel Boulay from Maryline Boulay & Jacques Mauger
In honor of Gloria Webb from Martha & Chuck Mc Clausgherty
In honor of James FitzGerald from Karen Howe & James FitzGerald
In memory Jean Mitchell from Tamara Mitchell
In honor of Jim Hoagland from Sharon Pucelik
In memory Kenneth J. Higgins from Maria Astaire
In honor of Luke Safford from Cindy & Gerry Theisman
In memory Maribelle Lackey from Nancy Johnson
To Marie Getz from Richard Getz
In memory Marie Tsaguris from Patti Finfrock
In memory Marie-Josèphe & Édouard Mauger from Maryline Boulay & Jacques Mauger
In honor of Marvin Kaminsky from Molly Siefert
In memory Matt Baccary from Kevin Buck
In memory Nancy King from Robin Mason
In memory Pat McTarsney from Marie Lintner & Carole Carlman
In memory Ralph Van Dusseldorp from Marilyn Johnson
In memory Tom Howell from Yvonne Howell

Arizona Woodpecker, Mick Thompson
I’ve lived in Tucson for over 20 years, so the sight of a Curve-Billed Thrasher shouldn’t really be cause for excitement. But as I walked through my backyard, camera in hand, I was starting to see things that I’ve never seen before. Or, more accurately, I was seeing things I’d never thought to look for before. I was photographing the birds of my home patch as part of my first ever Birdathon.

For me, connecting with birds is pretty new. But so many of our readers have been connecting with birds for years. And through birds, you’ve connected with each other, sharing your exciting finds, meeting up for a walk along a birding trail, and going to festivals, workshops, and field trips together. Last year, many of those connections had to be put on hold. We sheltered, we isolated and distanced, and we waited.

But now, together, we are reconnecting, reopening, and rediscovering. Our Paton Center for Hummingbirds has reopened, and visitors are once again flocking to experience the wondrous variety of birds with whom we share that space. Volunteers are reconnecting with our work in a myriad of ways. And most excitingly, after a year of virtual conferences and online events, bird enthusiasts can once again rediscover—in person!—all there is to see and do at this year’s Southeast Arizona Birding Festival.

As thrilled as I was to see that Curve-Billed Thrasher in my backyard, I’m much more excited about seeing all the birds (and birders!) at this year’s festival. Soon you’ll see the Summer Appeal letter in your mailbox. When you put your check in the envelope to show your support for Tucson Audubon, I’d love it if you would also take a moment to include a brief note about what you’re most excited about.

Ethan Myerson
Development and Communications Manager
emyerson@tucsonaudubon.org
CATCH UP ON YOUR SUMMER READING!

Love birds? Love books? The Nature Shop has a terrific selection of books for people of all ages who love nature, because we all need to spend more time doing the things we love.

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By Joe Harkness
$16.95

**What It’s Like to Be a Bird**
By David Allen Sibley
$35.00

**Field Notes from an Unintentional Birder**
By Julia Zaharik
$24.95

**Birds**
By Peter Schoen
$14.99

**Diary of a Young Naturalist**
By Una McLeod
$25.00

**The Robin Knows**
By Jon Young
$14.95

**Tiny Bird**
By Katherine E. Seiders & Whitney McPherson
$18.99

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