

VERMILION FLYCATCHER

TUCSON AUDUBON

Fall 2020 | Vol 65 No 4



SCALING UP
SOLUTIONS FOR
A DESERT
IN DISTRESS

TUCSON AUDUBON SOCIETY

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Fall 2020 | Vol 65 No 4

MISSION

Tucson Audubon inspires people to enjoy and protect birds through recreation, education, conservation, and restoration of the environment upon which we all depend.

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VERMILION FLYCATCHER is published quarterly.

Call 520-629-0510 for address changes or subscription issues.

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ON THE COVER

Red-breasted Nuthatch by Brad James. Brad is a wildlife photographer from Newfoundland & Labrador, Canada. He hopes to inspire others to get out and enjoy the world around them through artistic images of wildlife that highlight the beauty of nature. See more of his work at bradjameswildlifephotography.com.

ABOVE: Gilded Flicker, Laura Stafford

NOW THAT'S A GOOD IDEA!

INCLUSION, EQUITY, DIVERSITY, AND ACCESS AT TUCSON AUDUBON



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A social justice revolution is taking place in the birding and conservation worlds. The experience of black birder, Christian Cooper, put the spotlight on a historically white-led conservation movement that does not reflect the diverse make-up of our nation. **We feel it is our responsibility as members of a community-based bird conservation organization to act with greater intention in removing barriers and welcoming diversity.** We must fight until all of our Black, Indigenous, and People of Color (BIPOC) friends and colleagues, the LGBTQ+ community, and all other marginalized and socially-oppressed individuals feel safe in their pursuits and in our public spaces. We are meeting this demand with self-reflection, humility, willingness to learn, and a passion for equity.

We know that the crises facing birds are the same crises facing people—we cannot effectively address habitat loss and climate change without addressing the issues of human injustice and inequity as a significant factor in each of these.

A series of Tucson Audubon staff meetings held in July 2019 has culminated in the organization-wide adoption of a new initiative: **IDEA**—systematically bringing **Inclusion, Diversity, Equity, and Access** considerations to our organizational culture, programming, and goals. This year we've seen the following developments:

- A self-selected committee of three staff members from different departments meets regularly to address **IDEA** concerns across the organization. The goal is to facilitate staff taking ownership of organization-wide implementation of IDEA principles and initiatives.
- **Birdability**, the national movement to bring birding to mobility-challenged individuals, has been engaged through a partnership with Arizona Adaptive Sports and a volunteer-based assessment and documentation of accessibility for local birding hotspots.
- Tucson-based **Equity, Diversity, and Inclusion consultants, Ragland & Wilhite**, have been hired to facilitate the best possible evolution of IDEA principles and practices within the organization and our community of participants and supporters.

As an organization, we seek to reflect and serve our diverse Southeast Arizona community, and **we are committed to educating ourselves about what perpetuates systemic racism and all strains of social inequity within our own organization so that we can change.** If you would like to know more about our newly formed IDEA committee or have any questions, please email us at idea@tucsonaudubon.org.

CONSERVATION CAN BE YOUR LEGACY

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Over the years you have supported Tucson Audubon's mission: *inspiring people to enjoy and protect the birds of Southeast Arizona.* When you include us in your estate planning, you join many others as a member of our **Vermilion Society**—and you gain peace of mind, knowing that your values will continue to become action on behalf of birds and their habitats, far into the future.

There are many types of Planned Gifts to explore: gifts left by bequest in a will or trust, charitable remainder trust, beneficiary designations for your IRA, 401K, or life insurance.

We sometimes receive bequests from people whom we have never had the opportunity to thank. If you include us in your estate plans, we hope you will let us know. We value the opportunity to thank you, and your gift can inspire others in their legacy planning.

For more information, please contact:
Keith Ashley, Development Director, 520-260-6994.



SOUTHEAST ARIZONA ALMANAC OF BIRDS

OCTOBER THROUGH DECEMBER



This year's Bighorn Fire has caused a lot of us to wonder about the effects of wildfires on the birds we love. While we may fear worst case scenarios of birds unable to return to the burned forests of Mt. Lemmon until they are fully "recovered" many years from now, the reality is much more encouraging. Many bark-foraging birds respond positively to a mosaic of burn intensities, especially in the west where wildfires are a natural part of the ecosystem. We may even see the abundance of nuthatches, woodpeckers, and aerial insectivores such as the Buff-breasted Flycatcher increase in the years following major fires.

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BUFF-BREASTED FLYCATCHER

The classic example of a bird species responding positively to wildfire in Southeast Arizona is the Buff-breasted Flycatcher. This is the smallest and most easily identifiable *Empidonax* flycatcher in the US, sporting a wonderful cinnamon color as opposed to the dull green of the other birds in the genus. It is also one of the rarest—only a handful of pairs are found every year in pine-oak woodlands of the mountain ranges in the region.

It is thought that the population of Buff-breasted Flycatchers was historically much larger, but was diminished from the 1800s through the 1970s, possibly due to fire suppression and grazing practices. More recently, and after some major fires in the region, their numbers have rebounded—it is now relatively easy to find these birds in most of the Sky Island ranges. Wildfires may provide access to understory vegetation making it easier for these flycatchers and other aerial foragers to move through the habitat in search of food. After a low-intensity 1976 fire in Carr Canyon of the Huachuca Mountains, the Buff-breasted Flycatcher population increased substantially over the next 7 years, and other research suggests that they prefer forests that have been burned more frequently in the last 30 years. Will we find more flycatchers in the Santa Catalina Mountains soon? Time will tell!



RED-BREASTED NUTHATCH AND BROWN CREEPER

Nuthatches are weak cavity excavators and need soft and decayed wood to create their nest holes, while creepers nest almost exclusively in the bark crevices of dead trees. Populations of Red-breasted Nuthatch and Brown Creeper are most abundant in diverse forests of old growth trees mixed with standing dead trees, like those created by wildfires. In the Pacific Northwest, creepers responded positively to severe post-fire forests and were the dominant breeding bird the first three years after the fire. Dead trees also attract the insects that both species forage for, and they should be left standing to be utilized by a number of bird species. Red-breasted Nuthatch is unique among North American nuthatches in that it regularly undertakes irruptive winter migrations in search of food—this occurred in Tucson in 2017. Depending on the resources available on Mt. Lemmon this winter, will the fire cause another large movement of this beautiful forest species into urban Tucson?



WOODPECKERS

The Black-backed Woodpecker of northern boreal forests and the American Three-toed Woodpecker that inhabits parts of northern Arizona are both well known for their dependence on frequently burned landscapes. These species actually thrive in areas that have experienced severe stand-replacing fires because they feed on the bark- and wood-boring beetles that colonize the dead trees of burned forest. Fire suppression and salvage logging have been shown to be detrimental to the habitat available for these species.

Closer to home, these aspects of fire and forest management affect local species such as the Hairy Woodpecker and Northern Flicker. Hairy Woodpeckers rely on dead trees and insects to a lesser extent but may still benefit from locally abundant insect outbreaks resulting from natural disturbances such as wildfires. Northern Flickers feed mainly on ants in the soil and rarely forage on tree trunks and branches. They tend to forage along forest edges and prefer bare ground and short grass when searching for ants. Frequent fires can help facilitate these habitat characteristics, and Northern Flickers in Southeast Arizona forests have reacted positively to areas that have burned in the last three years.

Buff-breasted Flycatcher, Matthew Studebaker; Brown Creeper, Greg Lavaty; Hairy Woodpecker, Mick Thompson

HOW DID YOU CONNECT WITH BIRDS AND TUCSON AUDUBON IN 2020?



BETH ACREE

I participated in the **Tucson Bird Count** for the first time this year. I was hesitant at first, concerned that my skills weren't good enough. However, the program is very well organized and gives you all the information you need. I learned a lot through this experience and will do it again! I appreciated getting to be a part of a citizen-science program that is helping to sustain a diverse bird community.

I also joined in the **Birdathon** fundraiser this year. Since we couldn't participate in groups due to COVID, I counted the birds in my neighborhood for a month when I was out walking. One day when I was birding at Rio Vista Natural Resource Park, I stopped and realized a couple of hours had passed. I had been totally immersed in my exploration and received two hours of respite from the weariness of sheltering in place.

The online classes and social events have also been a beacon for me during the pandemic. I've learned a lot and have enjoyed having the continued community with my fellow bird watchers. I'm very grateful to Tucson Audubon for all the effort that they have put into developing such creative and informative programs.

Participating in programs and field trips are very enjoyable, but it is also so satisfying to see birds in your own backyard. I was treated to some Vermilion Flycatchers in the neighborhood this spring breeding season. Every morning I got to see and hear the male out hunting for food as he fluttered over my backyard.

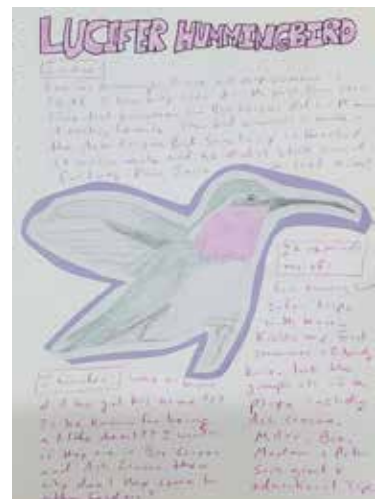


HOLLIE MANSFIELD

We moved to Tucson in August 2016 and joined Tucson Audubon the next year to learn about birds. I was in awe of the number of birds all around, and since I wasn't a birder, I could only identify a few common birds that I knew from growing up in Illinois. After joining Tucson Audubon, I bought a pair of binoculars and signed up for every field trip that I could attend. I decided to be a volunteer for the festival that summer because I wanted a way to give back for the awesome education I had received on the free field trips. Joining Tucson Audubon has been the best decision I have made since moving to Tucson.

This year I had booked trips to Panama and to the Spring Chirp festival in Texas and was hoping to do several weekend trips with Tucson Audubon. Of course, all those trips were rescheduled or cancelled, and I have mainly birded at home, in neighborhood parks or close by at Madera Canyon or Canoa Ranch. I have added several new feeders to my yard and have planted lots of pollinator and native plants in my yard to attract more birds and butterflies.

I took the opportunity of being at home more to learn a new hobby that has also helped me become a better birder, nature journaling. I have found myself journaling about the erratic flight patterns of the Lesser Nighthawks in my backyard and drawn comics about the silly things doves and other birds do on my feeders in my front yard.



Nature journaling a Lucifer Hummingbird by Hollie Mansfield



SHARON FREEMAN-DOBSON

I joined Tucson Audubon in October of 2013 because it is a diverse group concerned with birds, and that essentially means the environment in Arizona. I connect with birds in my environment every day from the feeders in my backyard to taking a bike ride along the Canada del Oro Wash. I would say I have watched more bird cams this year than ever before. I find them soothing. Birds give me hope that things are continuing and will be okay—they live on and so will we. With all the uncertainties during the pandemic, birds are a stable, good thing.

Hooded Oriole, Martin Molina



MARY AND DAVID DUNHAM

We have been coming to southern Arizona to bird for over thirty years and connected with Tucson Audubon shortly after purchasing our home here in 2008. We have loved the online classes, particularly, “Birding the Calendar for June, July, and August” since we are snowbirds and normally not in Arizona those months. It has been great to see all the nesting activities this summer.

What we appreciate the most about Tucson Audubon is its extensive conservation work. We have been involved in the **Lucy’s Warbler nestbox program** since its inception and have found that to be particularly rewarding.



DAN WEISZ

I enjoy being a member of Tucson Audubon for the educational opportunities, the birding trips offered, and being a part of the local birding community. 2020 changed much of my birding life. Zoom birding groups replaced in-person lectures and classes; group birding trips became a thing of the past, and I went birding alone more often than I ever did. In fact, because my calendar was remarkably empty I actually ended up going birding more often than I would have otherwise. I also spent more time repeatedly birding and photographing birds from the same locations. Birding in 2020 has brought me peace and calm during an otherwise very different year.



“A friend of a friend let me know about a nesting Lesser Nighthawk just outside their backyard wall. It was a fascinating opportunity to observe the nighthawk and her chick from the “blind” of the wall. The chick would open its mouth wide every evening well after sunset as a signal to the parent that it needed to be fed. Once the chick did this, the mother would fly off within a minute. This was also accompanied by the chick’s nibbling at the parent’s beak. These birds have big mouths!”

—Dan Weisz

FIRE ON THE MOUNTAIN... AND IN THE DESERT





On many days late this summer the sun rose a beautiful but eerie orange-pink. It stayed that way for hours. Wildfires are on everyone's minds right now. From the massive local fires early this summer, to the numerous megafires along the west coast, the reality of wildfire is inescapable. It's a friend—it maintains the habitat patchwork that numerous species require. And it's a foe—at the wrong scale or in the wrong place it can cause ecosystem collapse.



Jonathan Horst
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Many of Southeast Arizona's premier birding areas, and some of the region's most important habitat, have burned in recent history: the South Fork of Cave Creek and Rustler Park (Chiricahuas), Mt. Graham (Pinalenos), Gardner Canyon and the springs along it (Santa Ritas), and this year, a huge portion of the Santa Catalinas... again.

Indirect impacts downstream of burns can be just as damaging. The incinerated roots of burned vegetation no longer lock the soil in place. The next thunderstorm then sweeps massive amounts of sediment into drainages. This causes two problems: First, our mountain tops and foothills are normally the region's sponges, absorbing and then releasing rainfall slowly through time which creates the amazing habitat along our mountain streams. When the mountains aren't absorbent, more intense downstream flows and increased flooding result. Second, the sediment that accumulates in our managed lowland rivers has to be removed to maintain human safety against flooding. The sediment removal process unfortunately takes with it the rare and high-value lowland riparian habitat that develops in these areas.

The impacts above result from unnaturally intense fires burning in areas where fire normally occurs and maintains ecosystem balance. Fueled by fire-adapted invasive plants, especially grasses, fires now spread into the Sonoran and Mojave Desert uplands, habitat types not meant to burn, and where long-term impacts to birds can escalate quickly. The buffelgrass-fueled Mercer Fire in the Santa Catalinas last year and last month's brome-fueled Dome Fire in Joshua Tree National Park were clarion calls to the region.

In the pages that follow, regional experts weigh in on the positive and negative aspects of fire, discuss where it does and does not belong, and describe specific impacts on birds. We hope their words both instill the gravity of the situation and inspire insight regarding the way forward to protecting the integrity of our regional ecosystems.

LEFT: The Bighorn Fire rips through the lower slopes of the Santa Catalina Mountains, James Capo; ABOVE: The aftermath of the 2019 Mercer Fire that was fueled by invasive buffelgrass, courtesy Arizona-Sonora Desert Museum

SCALING UP SOLUTIONS FOR A DESERT IN DISTRESS

Since its founding, Tucson Audubon has fought to protect the desert and Sky Island mountains and the species that depend on these unique habitats. We've controlled erosion, replanted native plants, and restored habitat. We've educated, advocated, and litigated. We've researched, mitigated impacts, and innovated new strategies. All to help birds and other wildlife cope with a rapidly changing environment.

But now we're taking our conservation efforts to a whole new level.

For the desert, a year of prevention is worth 200 years of saguaro-maturing cure. Controlling fire-adapted invasive plants may be the most effective tool to prevent catastrophic, long-term losses to many of our most threatened and unique birds that rely on healthy desert habitat and saguaro cactus for nesting.

INVASIVE PLANT STRIKE TEAMS

Tucson Audubon is proud to announce a new invasive plant program and the inauguration of two invasive plant strike teams in 2020. In February we launched our federal-lands team as a collaborative effort with the National Park Service, Fish & Wildlife Service, and Saguaro National Park. The **Collaborative Audubon Inventory and Treatment Squad (CoATIS)** focuses on the highest-priority lands at wildlife refuges, national monuments, and Saguaro National Park. Their specialty is Early Detection-Rapid Response, identifying and addressing the leading edge of plant invasions while eradication and complete control in an area are still achievable goals. Their work extends throughout Arizona and New Mexico, often living on-site in remote areas for extended periods of time to get the job done.

At the beginning of September we launched our second strike team. Our **In-house Strike Team** will work, on contract, with local municipalities, HOAs, federal agencies, conservation organizations, and local landowners with a primary focus on ecologically high-value areas. They're currently treating buffelgrass to protect saguaros in Tucson Mountain Park for Pima County and on Ironwood Forest National Monument for the Arizona Native Plant Society. SaddleBrook2 HOA has recently contracted us to create an invasive plant management plan and rid their HOA of buffelgrass.

We have effectively treated invasive plants on our own lands and projects for years, from Simpson Farm to Esperero Canyon to the Cuckoo Corridor at the Paton Center, but Tucson Audubon is now elevating its efforts to a regional scale and is fully licensed to control invasive plants on a contractual basis throughout Southeast Arizona—the only local conservation organization able to do so.

EL CORAZÓN SIN FUEGO

The confluence of the Rillito River and Cañada del Oro Wash with the Santa Cruz River is the heart of the lower Santa Cruz, and is an area of particular local concern for hazardous fuels and urban fire—as well as an area with significant unmet habitat potential. Perennial effluent flow upstream has increased vegetation in the river channel and has led to a 27-acre patch of highly flammable salt cedar surrounding what was formerly a major birding hotspot. The whole system is a fire waiting to happen, with the potential to spread fire up each of the connected waterways and into adjoining infrastructure.

With partners Pima County Flood Control and the Northwest Fire District, we submitted a successful proposal to Arizona State Forestry to perform a pre-emptive strike to **prevent fires from occurring in this urban area by removing potentially hazardous fuels from the landscape**. The project will create 13 fire breaks along 4.2 miles of the channel and remove the salt cedar patch. These actions will improve firefighting access and reduce connectivity limiting fire's ability to spread. Each group added their relevant expertise to the proposal and has been active in ongoing discussions of river and floodplain management resulting in a reconciliation ecology-driven plan that achieves significant human safety goals while maintaining biodiversity.

Invasive plant removal is often the first step in ecosystem restoration projects; this project is no different. While fully worthwhile as a standalone effort, this project also paves the way for a suite of future large scale riparian restoration projects at the site as envisioned by many partners and led by Pima County Flood Control.

INVASIVE SPECIES MAPPING IN SABINO AND BEAR CANYONS

Before being able to effectively control invasive plants on the landscape scale, one must know where and how pervasive they are in relation to priority habitat areas. High-quality spatial data make possible the strategic decision-making necessitated by limited resources. Late this summer, the National Forest Foundation awarded Tucson Audubon a contract **to inventory and map invasive plants** occurring on 1888 acres of Sabino and Bear Canyons in the Catalina Mountains on the Coronado National Forest. Four invasive grasses are the highest priority targets: buffelgrass, fountain grass, natal grass, and giant reed. However, our crew is also on the lookout for 16 other invasive plant species likely to occur in the two canyons, and identifiable during the project window, and will be mapping them all.

Inventorying such a large area is a daunting task, especially when the goal is to pinpoint all occurrences to guide future treatment. On areas that can be physically traversed safely, our crew works as a team systematically surveying the area search and rescue style. For cliff sides and areas too steep to walk, we use spotting scopes to survey areas block by block. We record precise, geospatial data every step of the way directly into our GIS system where the results can be analysed and shared readily by all project partners.

Tucson Audubon is also helping to standardize the regional protocol for mapping invasive plants. While there are countless ways to achieve and record the desired data, we opt to use the same system as our partners in the Sonoran Desert Network of the National Park Service. This ensures that data we collect for the Forest Service can be used for decision making across agencies, especially as Saguaro National Park is next door. We use the same process and data format for private parcels we map and are actively encouraging additional partners to adopt the same system for a landscape scale understanding of the invasive plant problem and treatment efforts underway.

Tucson Audubon is and will remain on the cutting edge, taking concrete and innovative steps to create a better future for birds and people in Southeast Arizona on all fronts: research, advocacy, and implementation.



Fire burning through a 25-acre stand of buffelgrass and saguaro cactus in the front range of the Santa Catalinas during the Mercer Fire, August 22, 2019; courtesy of David Rankin



Scoping and mapping invasive plants in Sabino Canyon, Keeley Lyons-Letts; The CoATIS on assignment in Grand Canyon National Park

THE BIGHORN MEGAFIRE: A NEW NORMAL?

The Bighorn Fire explodes on the upper slopes of the Santa Catalina Mountains, courtesy InciWeb

On the evening of June 5, 2020, lightning struck multiple locations in the Santa Catalina Mountains, as it has for thousands of years. One of these strikes, near Pima Canyon, ignited dry fuels—grasses, small shrubs, as has also happened for thousands of years. The weather was unusually hot, dry and windy, and fire began to spread. A spreading fire is a chain reaction, where one patch of burning fuel initiates the combustion reaction in adjacent fuels. The transfer of heat to unburned fuels is facilitated by wind and low humidity, and fires are strongly propelled upslope because the hot gases and heat radiated by the fire strikes the upslope fuels and sets them afire. In a matter of hours, the ignition that had started at a point on the landscape had turned into a flaming front in remote country.

Over the next month, the Bighorn Fire roamed, and sometimes raged, over nearly the entire extent of the Santa Catalina Mountains. For the first few days, the fire spread moderately, less than 1000 acres per day. But with extreme fire weather in rugged mountains full of combustible fuels, the fire began to spread rapidly. On June 17, the fire nearly doubled in size, burning more than 12,000 acres in a single day, followed by almost two weeks averaging nearly 7,000 acres per day. By the time the fire was under control, the Bighorn Fire had burned over almost the entire combined perimeters of all the previous fires that have affected the Santa Catalinas in 18 years. Megafires, like this one, burning entire mountain ranges in a single event are a phenomenon influenced by our management of the forest. Grazing and fire suppression led to the near elimination of natural,

frequent fire from southwest conifer forests in the 20th century, and forests grew more dense. Hot, dry weather pushes extreme fire behavior, and combined with dense fuels, megafires result.

Much of what burned during the early days of the Bighorn Fire were desert grassland, Madrean oak grasslands and woodlands, and interior chaparral—vegetation types that are thought to be fire resilient. As the fire progressed, it moved into pine forest and mixed conifer forests at higher elevations. Some of these old-growth stands are many hundreds of years old. Fire moves differently through these denser forests, because in addition to the fuels near the ground, fire can spread through the tree canopy—a crown fire. While some conifers can withstand or recover from crown fire, most cannot and mortality can be very high. An exception is our unique Chihuahuan pine, which can resprout even after being top-killed, but this is a rare adaptation among conifers.

Even large fires like the Bighorn leave behind a complex mosaic of burn severity, the term used to describe fire impacts on vegetation and soils (Figure 1). The areas of most concern are those that burn at high severity, which means extensive soil damage, tree mortality, and high potential for soil erosion. These areas are likely to remain impaired for years or decades, meaning that they may take the longest to recover. In the past, severely burned patches tended to be smaller, and could be reseeded by trees in nearby stands that were less damaged.

Bighorn Fire Severity (dNBR May 29 - Jun 30, Landsat 8)

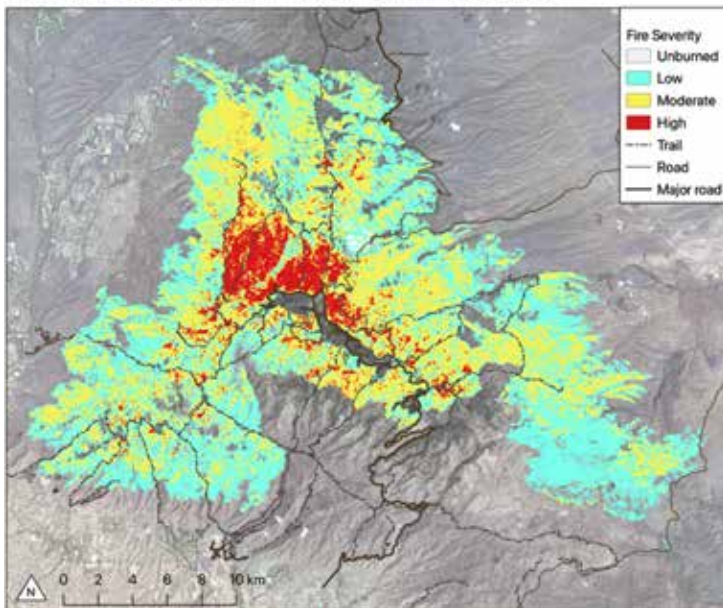


Figure 1. Bighorn Fire Severity. Prepared by Dr LA Marshall, University of Arizona.



Bracken fern returning to severely burned areas of the Bighorn Fire, Don Falk

After a gigantic event like the Bighorn, what constitutes “recovery”, especially in an era of climate change? Dense, overgrown forests and extreme weather mean that severely burned patches can be much larger, leaving thousands of acres without trees. Conifer seeds tend to not travel far from their parent tree, and so recovery of the forest is difficult as shrubs and grasses take over the open gaps. In our increasingly warm and dry climate, it is unlikely the forest will go back to what it was at the beginning of the 2000s, before large fires burned over the mountains repeatedly.

There are three major potential pathways the forest might take for recovery. Given the mosaic nature of fire, each of them might play out in different areas on the mountains. The first is a return to conifer forest, but with a less dense structure and a more open and diverse understory, supporting habitat for many different species. This outcome could be closer to what the forest looked like in the 1800s, when frequent low-severity fire burned through the upper elevations every ten years or so—the natural, adapted relationship with fire in southwestern pine forests.

The other options for recovery come into play in the large severely burned patches, and elsewhere if the remaining trees fail to produce surviving seedlings as can happen in drought. In mixed pine-oak woodland, oak will sprout from the roots and recover from severe fire faster than pines can move back in, resulting in dense shrubfields of oak and ceanothus. Aspen, another root sprouting species, will also come back quickly after

fire. These all fall into the second post-fire pathway, a switch from forest to shrub-dominated landscape. A final possibility is a switch to grass, should conifers seedlings fail and root sprouters be absent. Though fire can burn a mountain range in a matter of days to weeks, recovery along any pathway happens on much longer time scales.

In the end, what lessons do we learn from the Bighorn Fire? Perhaps the most important lesson will be the time that ecosystems need to recover, particularly given the added stresses of climate change. Climate change is also making fire seasons longer and more intense, suggesting that there may be more megafires in our future in other mountain ranges throughout the West. With megafires threatening to destroy ecosystems on a massive scale, we need to support the proper management of our public lands, and fight to slow down the pace of climate change every way that we can.

Professor Don Falk and Dr. Laura Marshall
School of Natural Resources, University of Arizona

MIGRATORY BIRDS NEED BUT BEWARE TOO MUCH

The beautiful woodlands and forests blanketing the mountains surrounding Tucson provide increasingly critical and rare habitat to a diverse array of Neotropical migratory birds. Many of these species follow forested corridors of the rugged mountain ranges spanning the length of the Central and Pacific Flyways from Oaxaca to Alaska. The Sky Islands of our Madrean Archipelago provide stepping-stones for migrating forest birds connecting Mexico's Sierra Madre with the Rockies, Sierra Nevada, and other wooded mountains of the US—thousands of birds stopping just to rest and refuel before they continue their journeys. Imagine, weighing about as much as four pennies, a Black-throated Gray Warbler aptly foraging among the flowering oaks of Madera Canyon may only be halfway along its 2,000-kilometer voyage.

While the catastrophic fires of recent decades can be devastating for us to witness, it is critical we recognize that wildfire is a natural, even essential part of migratory bird habitats. Indeed, fire is perhaps the primary force of ecological disturbance shaping biodiversity and habitat mosaics from Mt. Lemmon to Mt. Rainier. The plants and animals, and the cultures of the First Peoples of our continent's west, evolved with wildfire and adapted to the environmental and habitat conditions it fosters. Even extremely destructive, high severity fire is an essential part of natural wildfire dynamics. It is not the occurrence of wildfires, but rather the recent

increases in their severity and extent beyond what plants and animals have adapted to over evolutionary time that is the problem. Wildfire effects on birds during their breeding season have been studied for decades, yet there has been virtually no research of fire at stopover habitats during migration. My work with Dr. Charles van Riper III of University of Arizona and the USGS Sonoran Desert Research Station on Mt. Lemmon and other Madrean Sky Islands examines the use of burned woodland and forest habitats by migrating songbirds during spring stopover.

While the Bighorn Fire may be foremost on our minds, Mt. Lemmon is no stranger to large, severe wildfires. In 2002 and 2003, the Bullock and Aspen fires burned roughly 100,000 acres of the Santa Catalina range. Ten years later, I surveyed migratory songbirds in the recovering pine-oak woodlands and mixed conifer forests there and in burned areas of the Santa Rita and Huachuca Mountains, comparing areas with different burn severities and fire ages. For part of our analysis, we categorized birds into two groups or "guilds" based on their diet and foraging behavior. From all the birds we detected during surveys, we first separated the primarily insectivorous species. Next, we identified those species as either foliage-gleaners, birds that primarily hunt by plucking their prey from plant surfaces (warblers, vireos, and kinglets), or aerial insectivores such as flycatchers, which mostly seize prey on the wing by flycatching.



The complex fire mosaic of the Huachuca Mountains looking north from the summit of Miller Peak, Jherime Kellermann



Cordilleran Flycatcher, Tom Benson

D WILDFIRE, H OF A GOOD THING

Foliage-gleaners were most abundant in more high severity burn areas within highest elevation montane conifer forest, while flycatchers were more abundant in low and moderate severity burns of mid-elevation oak-juniper woodlands. Among the most important prey items for foliage-gleaning insectivores during migratory stopover are herbivorous larvae and caterpillars, which can be more abundant in post-fire successional habitats. Foraging success of warblers and other foliage-gleaners is closely associated with fine-scale foliage structure, such as leaf petiole length, which affect birds' ability to physically reach prey and may be associated with post-fire vegetation communities and structure. In contrast, flycatchers primarily capture insects in-flight, requiring relatively open woodland understory. Current research by Dr. van Riper suggests that in response to the Bighorn Fire, breeding Cordilleran Flycatchers packed into the remaining unburned habitat at twice the normal density, all had failed nests, and may have departed for fall migration over two weeks early.

Wildfire may benefit migrating birds before they even land at a stopover site by providing "road signs" of good rest stops to refuel. Wildfire can affect the timing or phenology of plant flowering, budburst, and fruiting which is seasonally driven by temperature and moisture. In turn, the emergence and growth of plant-eating insects has adapted to coincide with plant phenology. Migrating birds could use visible differences in plant

phenology such as spring flowering like billboards advertising the best refueling stations. This means that birds like warblers and flycatchers may look for different "road signs", since they eat prey at different phenological stages (e.g. larvae vs adults). We have barely scratched the surface of understanding the role wildfire plays in the complex ecology of Neotropical songbird migration.

Rapid climate change, land use and development, and invasive species are all interacting to alter the wildfire regimes bird migration has adapted too. We desperately need more research on the effects of wildfire on habitat condition and selection at a wide range of spatial and temporal scales and across the awesome diversity of bird species and ecological communities in the Sky Islands and throughout the western migratory flyways.

Jherime L. Kellermann, PhD
Associate Professor
Environmental Sciences Program Director
Natural Sciences Department
Oregon Institute of Technology



Black-throated Gray Warbler, Matthew Studebaker



March snowfall in 2010 on Mt. Wrightson within the 2005 Florida Fire in the Santa Rita Mountains, Jherime Kellermann

A SECOND CHANCE FOR THE SAGUARO-PALO VERDE FORESTS OF THE SANTA CATALINAS

The Bighorn Fire brought sudden and drastic change to the Santa Catalinas. In a matter of weeks we lost untold acres of pine and mixed conifer forests. In the decades to come, some of the forest may return, some may instead become shrubland.

In contrast to this rapid change that took place in our higher elevation forest ecosystems, a slower change has been occurring over the course of the past three decades in the desert ecosystem at the base of the mountains. On the southern front range of the Catalinas, below approximately 4,000 feet, lie our saguaro-palo verde forests. Here you'll find a relative newcomer to the Catalinas, a plant native to the savannas of Africa that has made itself at home in our desert: buffelgrass.

Buffelgrass is a perennial—an individual plant may live ten or more years. Buffelgrass is present in the landscape all year long, and most of the time it's in a dormant state, extremely dry and extremely flammable. This grass burns incredibly hot, 1,300–1,600 F versus 190–750 F, recorded in wildfires fueled by desert annual plants. Historically, even low intensity

fire was uncommon in the Sonoran Desert, taking place on average approximately once every 250 years. As a result, our desert plants are not adapted to fire. In contrast, buffelgrass thrives on fire. Fire removes the dead biomass from previous years' growth, which accumulates because, here in the Sonoran Desert, nothing eats buffelgrass. The removal of this dead biomass and the influx of nutrients after a fire, combined with a little rain, results in a lush, green field of buffelgrass.

As a fire-prone invasive grass, buffelgrass made headlines during the Bighorn Fire, but what role did it play in the fire? The answer to that question requires getting on the ground to document the primary fuels of the fire, something that colleagues and I hope to be able to do soon. What we already know is that there is a lot of buffelgrass in the front range, but it exists in discrete patches. Last year we saw what happens when one of those patches ignites. On August 22, 2019 lightning struck a patch of buffelgrass just to the west of Soldier Canyon. The resulting fire, known as the Mercer Fire, burned through the entire 25-acre patch, burning out at the edge of the patch where it encountered drastically lower fuel loads typical of the Sonoran Desert.

Colleagues and I have initiated a long-term study of the impacts of the Mercer Fire. We've already seen that buffelgrass has re-sprouted from its roots, but we want to know how our native plants will respond. How many saguaros did we lose in the months immediately after the fire, and how many more will we lose in the coming years? We will have to track these saguaros for over a decade to find out the true cost of the fire to the population. Our detailed study of the Mercer Fire will help us better understand the impacts of the Bighorn Fire, in the areas where the fire reached stands of buffelgrass.

If we overlay a map of buffelgrass in the front range with the Bighorn Fire perimeter, we see that the fire reached only the higher elevation patches



Buffelgrass resprouted quickly after the Mercer Fire in the front range of the Santa Catalinas in August 2019, courtesy Arizona-Sonora Desert Museum



Six weeks after the Mercer Fire vegetation still showed fresh signs of being burned. It will take decades to determine the true cost to these saguaros, courtesy Arizona-Sonora Desert Museum

of buffelgrass, which tend to be smaller than lower elevation patches. Perhaps this is a result of the heroic efforts of our firefighters, or perhaps the patchy distribution of buffelgrass in the front range limited the spread of the fire. These are the types of questions we'd like to investigate in coming months. But regardless of the answers, we ought to view the Bighorn Fire as a wake-up call—next time we might not be so lucky. It's safe to assume that buffelgrass patches will continue to expand through the front range, coalescing into even larger patches, and increasing the chances of a major disaster. Just last month in the Mojave National Preserve, a fire burned over 1.3 million Joshua trees, fueled in part by invasive grasses.

This doesn't have to be the fate of our saguaro-palo-verde forests. The Tucson Mountains are a case in point. For the past twenty years a small team of volunteers, the Sonoran Desert Weedwackers, led by Doug Siegel, Pima County Natural Resources Specialist, has kept buffelgrass in check, protecting some of the densest stands of saguaros in the world. Starting fall 2020, they've hired **Tucson Audubon's new Invasive Species Strike Team** to increase the acreage covered.

Our attention is drawn to buffelgrass when a fire takes place, but even in the absence of fire, buffelgrass is transforming our desert. Diversity of native plants goes down as the age of a buffelgrass patch increases. The stand of buffelgrass that burned in the Mercer Fire had been growing for many years, and many native plant species had already declined or disappeared from the area as a result of competition with buffelgrass for space, water, and nutrients. Fire simply speeds up this process of transformation, from a biodiverse desert to a depauperate buffelgrass grassland. Fortunately, we have a second chance.

To learn more about buffelgrass and what you can do to help, visit buffelgrass.org.

Kim Franklin Ph.D.
Conservation Science Manager
Arizona-Sonora Desert Museum



THE LINKED FATES OF SAGUAROS AND DESERT BIRDS



Jennie MacFarland,
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Gila Woodpecker in saguaro nest cavity, Mick Thompson

Saguaro cacti are the iconic image of the Sonoran Desert, and synonymous with southern Arizona in general. They are a keystone plant for the ecosystem, a vital habitat component for many species of birds. A large saguaro cactus will often have numerous holes created by either Gila Woodpeckers or Gilded Flickers for their nesting needs. These in turn provide nesting opportunities for other species. Sometimes referred to as a “saguaro hotel,” it’s relatively common to encounter several different species of cavity nesting birds—Elf, Western Screech, and Cactus Ferruginous Pygmy-Owls; Ash-throated and Brown-crested Flycatchers; and American Kestrel—all using the same saguaro. In the Sonoran Desert, the saguaro fills the role of trees in other communities, but with added insulation benefits. This is a vital nesting resource in a habitat with extreme high temperatures.



Purple Martin, Richard Fray

Changing fire dynamics created by invasive grasses, such as buffelgrass, put saguaros and other cacti in danger. These species did not evolve with regular fire, let alone the exceptionally hot temperatures that introduced grasses produce when they burn. A catastrophic fire fueled by buffelgrass could kill most or all large saguaros within the burned area. Saguaros are slow growers, taking upwards of 200 years to reach their full stature. If

all large saguaros are removed from an area, nest sites for cavity nesting birds are virtually eliminated in that area, and won’t be available again for an absolute minimum of 50 years (more likely 150 years). This would be acutely devastating for several birds that, in Arizona, nest exclusively in saguaro cavities.

Gilded Flickers are almost completely tied to the Sonoran Desert and excavate their nesting cavities in large, mature saguaros. Data from the **Tucson Bird Count** shows that fragmentation of their desert habitat causes them to abandon even the largest saguaros within desert patches that are too small. Unfortunately, large areas of desert habitat away from residences are generally lower priority during firefighting efforts, leaving Gilded Flickers even more vulnerable to the negative effects of catastrophic fires.

The Desert Purple Martin is a specialized subspecies that exclusively nests in woodpecker cavities in saguaros and the similar cardon cactus in Mexico. These birds time their migration to coincide their nesting with the monsoon season, and favor large, very mature saguaros within lush Sonoran Desert habitat. Tucson Audubon has begun a study on **Desert Purple Martins**, and the first spatial analysis of these desert-adapted birds has shown a preference, similar to Gilded Flickers, for large patches of intact desert upland habitat.

Beyond the nesting opportunities they provide, saguaros are crucial to the Sonoran Desert in other ways. The flowers are an important resource for pollinators, including migratory nectar feeding bats, and the fruits provide food for many species. Even the buds exude nectar during the hottest driest time of year. Buds, flowers, and fruits attract numerous insects, which in turn provide more food for birds and other wildlife. Preventing the long-term loss of these keystone giants is the most effective, local conservation measure for the approximately 14 bird species that primarily nest in saguaros. Efforts to control the spread of invasive grasses, and protect desert habitats from fire, will positively contribute to conserving these amazing cacti and the animals that rely on them for centuries to come.

BROWN-CRESTED FLYCATCHER (*MYIARCHUS TYRANNULUS*)

In this column we look at some of our Southeast Arizona borderlands specialty bird species. Birders from all over the US travel here 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.

Brown-crested Flycatcher is one of my absolute favorite yard birds. I eagerly (but also a bit anxiously) await the return of this large flycatcher each spring—it seems such a privilege to have this migratory species nesting in our urban neighborhood in Tucson. Throughout the desert Southwest, Brown-crested Flycatchers are generally tied to watercourses with tall trees like cottonwoods or oaks, but urban parks and yards with lush vegetation must provide a suitable analog to this riparian habitat. I've never found the nest of the pair that frequents our yard. It could be in a saguaro cactus or perhaps a nearby nestbox, though they've never chosen our own backyard nestbox for a nesting attempt.

For me there's a lot of mystique to the Brown-crested Flycatcher. For example, they arrive in Arizona in May and depart in August, but have you ever thought much about where they go for the other eight months of the year? We can presume most of them spend the winter somewhere in southern or western Mexico, but perhaps they travel all the way to Central America. In fact, the exact wintering grounds are unknown. In part this is because there are resident (nonmigratory) populations of Brown-crested Flycatcher in Central America and South America as well, with resident breeding populations as far south as Argentina. It's complicated.

This expansive range map makes the Brown-crested Flycatcher one of the most cosmopolitan of all the 22 species in the genus *Myiarchus*, which is among the largest genera in the Tyrant Flycatcher family in terms of both body size and number of species. Only the wide-ranging Dusky-capped Flycatcher is found in more countries (19) than the Brown-crested (18). Brown-crested and Dusky-capped Flycatchers make up two of our three *Myiarchus* species that nest in the Grand Canyon State, with the desert-dwelling Ash-throated Flycatcher being the third. These three very similar species often cause identification problems for birders here in Arizona, but if you think large-billed, yellow-bellied flycatchers with crests are hard to keep straight, imagine being confronted with ten similar species of *Myiarchus* while flipping through a field guide to Colombia! The taxonomic relationships of the many *Myiarchus* flycatchers have not been fully analyzed with modern DNA sequencing, but the Brown-crested's closest relative may actually be the Galapagos Flycatcher, living thousands of miles away on an island in the Pacific Ocean.



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



YOUR VOICE, YOUR VOTE

Nicole Gillett
Conservation Advocate
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This November we will all have a lot on our minds—our health, our friends and family, record temperatures, fire in the mountains and across the Southwest. There is one action we all need to take to address these concerns: we must vote.

The number of people placing “climate change and the environment” as their number one voting priority is rising—now at 14% of registered voters, up from 2–6% in 2016. Yet 10 million of these environmental voters did not vote in 2016! During the midterm elections we again saw a sweep of environmentally inclined voters help change the makeup of our Congressional delegations, and yet the potential is not yet being met.

If we don’t act and vote for birds and the places they need, no one else will. Your power is your vote, but only if you use it!

PIMA COUNTY VOTER INFORMATION: recorder.pima.gov/ElectionInformation

SANTA CRUZ COUNTY VOTER INFORMATION: santacruzcountyaz.gov/750/Voter-Information

COCHISE COUNTY ELECTIONS: cochise.az.gov/recorder/voter-information

NATIONWIDE INFORMATION: vote.gov

YOU CAN LEARN MORE ABOUT THE ABOVE STUDY AT: environmentalvoter.org/



Migrating Swainson's Hawks, Ned Harris

THE MIGRATORY BIRD TREATY ACT STANDS

We have won a critical court battle for birds! US District Judge Valerie Caproni struck down the federal administration decision to roll back US government protections for migratory birds and wrote, referencing the time-honored classic work of literature: *To Kill a Mockingbird*: “It is not only a sin to kill a mockingbird, it is also a crime.” While this is not the end of the battle to protect the Migratory Bird Treaty Act, it is a huge win to celebrate. Continue to follow our updates on the Migratory Bird Treaty Act and join our *Free to Fly* campaign to make sure your voice is heard at the federal level.

A BIPARTISAN WIN

The Great American Outdoors Act is the win of a generation for our environment, public lands, and communities. What does this look like here in Southeast Arizona? The passage of this act means a backlog of funding needs at our National Parks, such as Saguaro, can finally be addressed. This Act also permanently funded the Land and Water Conservation Fund that brings much needed resources to local parks and open spaces. Overall, this is an amazing example of what we can do when we come together and voice support for birds and the environment.

YES, YOUR VOTE MATTERS

These past few years, we have shared with you many Action Alerts in part because it has been a record administration for environmental rollbacks. At least 95 environmental rules, protections, and laws have been targeted for rollback, elimination, or redefinition under the current administration. Data shows that strong environmental policies are actually beneficial to our society and economy—from our health, to job creation, global competitiveness, and of course, they safeguard our public lands, biodiversity, and climate.

All of these rollbacks threaten birds and the places they need:

- **CLEAN WATER**—from flyways to nesting locations, birds rely on clean and secure access to water.
- **CLEAR AIR**—pollution and toxins can impact every level of the food chain and ecosystem.
- **CLEAN ENERGY AND CLIMATE CHANGE**—Climate change is the biggest threat birds are facing.

These challenges are just the tip of the iceberg. Who we vote into power really matters.

FREE *to* FLY!

TUCSON AUDUBON'S VIRTUAL FLYWAY

HONOR OUR TREATY AND OUR BIRDS

VIRTUAL FLYWAY: FREE TO FLY CONTINUES!

We are celebrating a big win for the Migratory Bird Treaty Act (MBTA) but the work is not over. Migration continues to captivate the curiosity of scientists as well as the imaginations of all of us who take notice of the seasonal movements of birds. It is at once fleeting and at our doorsteps. It is also critical to the survival of our birds.

In response to the attack on the MBTA, Tucson Audubon launched the *Free to Fly* campaign, and we need YOUR help to create our **Virtual Flyway**! The Virtual Flyway represents the phenomenon of migration through the stories of birds along their migratory routes through Southeast Arizona. When it's completed, submissions will be housed on a website available to the public, and leveraged when meeting with decision-makers.

Choose your favorite bird and share your creativity to build a Virtual Flyway! Visit tucsonaudubon.org/virtual-flyway for submission details. You can also email Autumn at asharp@tucsonaudubon.org if you have any questions.



When living in the Central Valley of California, every fall it was always great to hear the Sandhill Cranes as they migrate there for the winter from Northern California, Oregon, Washington, and Alaska. The unison rattle calls from a pair always caught my attention. I was always fascinated with the fact that fossil records of the Sandhill Crane date back over 2.5 million years.

—JIM HOAGLAND



Originally from Michigan, one of my first wild-life jobs was duck banding for the state of Michigan. I used to think birds were so boring, I did not understand the appeal. But waist-deep in a mucky pond and covered in mosquitos and poison ivy, I stared at a trap full of these gorgeous green-headed male and adorable demure female Wood Ducks. I was in love. That summer working with ducks was one of the best summers I've ever had, and I am so happy that I can still see the bird that started it all for me here in my new home in Tucson!

—MOLLIE LISKIEWICZ



My summers in Arizona were spent at Lake Roosevelt on the water. The weekly trips required plenty of hours in the car before reaching our destination. I remember Turkey Vultures flying on the thermals along AZ-77 through the mountains and always high above the shores of the lake. Seeing a Turkey Vulture high above takes me back to the many summer days that made up my childhood and my respect for the outdoors.

—MATT LUTHERAN

Contribute to the Virtual Flyway here: TUCSONAUDUBON.ORG/VIRTUAL-FLYWAY





Louie Dombroski



In September 2020, Tucson Audubon cleared a hurdle for moving forward with new construction planning at the **Paton Center for Hummingbirds**.

Critical for redesigning the site to maximize the

benefits for birds, while accommodating 15,000 annual visitors, was for the Town of Patagonia to issue a change of use permit. The 1.4 acres we know today as the Paton Center was previously permitted for Residential Use. On September 9, 2020, the Town Council for the Town of Patagonia voted unanimously in support of permitting the beloved birding hotspot and micro-preserve for Multiple Use.

Going forward, we envision the Paton Center being used in several important ways: continuing to host visitors who come to appreciate birds, butterflies, and native plants; providing a venue for small meetings and classes and, possibly, small art exhibitions; and hosting either a full-time or part-time residence for an employee, seasonal researcher, or visiting artist. Tucson Audubon will also continue providing visitor information at the site and, possibly, offer a limited selection of Paton Center gifts for sale. Finally, while the site is small, we intend to maintain a work area and storage for tools and landscape maintenance supplies.



Conceptual sketch of new construction at the Paton Center. A final design will complement existing trees and be open to the restored riparian zone. Credit: DUST

collaboration with our contract partner, DUST. Once our designs for new construction are finalized, we'll present them for consideration by authorities in Patagonia and Santa Cruz County. We hope to clearly demonstrate that our new site plan and buildings will be an extension of the work we've already done to restore and maintain a healthy Sonoita Creek Watershed.

We're now entering the Design and Development phase of the project. From studies conducted this past summer, we know that it's possible to construct new buildings at the Paton Center and reduce our impact to the Sonoita Creek floodway. Our findings are included in a Site Development Plan finalized in

RARE VISITOR: PLAIN-CAPPED STARATHROAT

On July 27, 2020, a Plain-capped Starthroat hummingbird—a native of Mexico and Central America—was observed at the Paton Center and recorded in eBird. Observations of the bird continued for 7 weeks, through the annual period we consider to have the highest abundance of hummingbirds for the year. Birders respectfully and safely (i.e. observing physical distancing and wearing masks) watched and photographed the rare hummer from the roadside. A single observation of a Plain-capped Starthroat was logged to eBird on September 29, 2015; the last multi-day viewing event for this species was in 2013.



Plain-capped Starthroat, Thor Manson

CEDAR WAXWING

Cedar Waxwings have long been a favorite of mine. The sleek, almost silky plumage, crested, with white-bordered black mask coming to a sharp point behind the eye, and bright yellow-tipped tail make this species striking indeed. Historically, cedar berries dominated their winter diet. The second part of their name is derived from vivid red wax-like droplets on the secondary flight feathers. This species is unlikely to be confused with anything else, except for its incredibly rare-for-Arizona, larger cousin, the Bohemian Waxwing. This is one of only three species of waxwings worldwide—the third is the Japanese Waxwing. Along with Bohemian Waxwing and Phainopepla, it's among the most frugivorous (fruit-eating) birds in North America.

During the cooler months, Cedar Waxwings depend heavily on sugary fruits, of which there is an abundance at the Paton Center and the adjacent Cuckoo Corridor. Waxwings flock in good numbers where their dietary requirements can be met. They are efficient seed dispersers, obtaining nutrients from fruit pulp, and passing intact seeds to the environment. Because timing and abundance of fruits vary by location, Cedar Waxwings are nomadic, going where they find food. In the spring, they migrate out of Arizona northward, where they nest late in the season—coinciding with summer fruits ripening. Because of their dependence on a good berry crop, this species has lower nesting site fidelity than most other passerines. From May through at least September, waxwings also feed on insects including mating ant swarms, mayflies, dragonflies, and even glean insects from spider webs.

Cedar Waxwings breed as far north as Canada and most depart from there in winter. They are considered permanent residents throughout much of the northern to central United States. Banding studies suggest that there may be an eastern and western population, though no evidence of segregation of any subpopulations. Migration is still poorly understood as it is difficult to distinguish wintering wanderers from actual migrants. This species winters all the way down to Central America, reaching the southern edge of their range rather late, usually from January to February. Some don't depart from there until May. Linger migrants, or perhaps non-breeding summering individuals sometimes are found well south of their typical breeding range. Records for as late as July exist for Arizona. Frequently observed migrating during the day, sometimes in very large numbers, kills at TV towers suggest nocturnal migration as well. Much is left to be discovered about the enigmatic movements of this remarkable bird.



Keith Kamper
Paton Center Volunteer
and Board Member

Cedar Waxwing, Mick Thompson

NEXT GEN BIRDERS: YOUR ME

In the midst of today's unpredictable global challenges, and a rapidly changing environment, one thing we know for certain is that the future of our birds depends on a diverse, active, and engaged generation of new birders. We cannot underestimate the importance of mentorship, and creating a wide range of opportunities for youth from all different backgrounds to experience their own "birding origin stories," wherever they might occur, maybe even in a cemetery!

Do you remember where you were when you saw your "spark bird"—the bird that turned you into a birder? Did you have a mentor help you learn the names and calls of the birds you saw and heard? Our avian co-habitants inspire us through their unique beauty, fascinating behavior, inimitable birdsong, and their ability to fly. For many of us, we can experience this inspiration anywhere we can spend time among birds, but what if your neighborhood doesn't have an abundance of green spaces and trees? What if you don't have access to binoculars, or a more experienced birder to show you how to use them? In the absence of such resources, a youthful, innate curiosity about our natural world and its rich birdlife risks succumbing to more readily available distractions, such as televisions and cell phones.

Birds can teach our youth, and indeed everyone, so much more when people are provided with access and meaningful opportunities to learn. Are there young people in your life that would benefit from your birding passion?

YOUTH VOICE: YOU ARE THE KEY TO INSPIRING THE NEXT GENERATION OF BIRDERS

We were pleased to present the **2020 Bill Thompson III Youth Award** to Maia Stark this year. Congratulations Maia!

In August I spoke at Tucson Audubon's **Southeast Arizona Birding Festival**, and I was happy to receive the Bill Thompson III Youth Award for 2020. I used the opportunity to share my thoughts about how birding is different for young birders. I and birders my age fear that many birds we see now will disappear in our lifetime. As a result, birding is just as much about conservation for us as it is recreation.



Maia and her birding mentors: Helen Kalevas, Jeanette Hanby, David Bygott in 2016

In this column, I would like to talk about another observation from a youth birder's perspective: out of the hundreds of people attending the Birding Festival, I noticed I was one of a handful under the age of 60. This demographic seems backwards to me. Birds will need as many advocates as possible in the coming decades. The absence of youth in the birding community is troubling. Will enough people be there for birds?

If we need more birders in younger generations we will need more mentors. Birding is learned by real-life practice—the only way I can really learn a bird call is to hear it in the wild and immediately ask about it. You (I'm guessing the person reading this magazine knows a bit about birds) have knowledge that young people value. Taking kids on bird walks around your neighborhood or places like **Tucson Audubon's Mason Center** is a way to give young people opportunities to become interested in birds. Tucson Audubon's **Birdathon** has been very effective in keeping me engaged with local birds. Consider participating in the Birdathon this coming year, and invite a young person to join you. Don't underestimate how far a purpose and a little competition can take a young person!

I appreciate the audience Tucson Audubon gives me as a young birder. In addition to this, they have funded my bird education with a scholarship to an online Cornell Lab of Ornithology course and the Bill Thompson III award. Their Birdathon and youth events have been really important to my interest in birds. Supporting Tucson Audubon's involvement in youth is another good step to helping build a generation of birders.

I hope to see many more young people in future birding events, and you can help make this happen! Mentoring the next generation will ensure birds have people looking out for them for decades.



Maia Stark is a long-time member of the Tucson Audubon Community. She has participated in 6 Birdathons and is the recipient of a Tucson Audubon youth grant to participate in a Cornell Lab of Ornithology online course: Comprehensive Bird Biology. Her family is currently living in Switzerland.

MENTORSHIP AND THE FUTURE



Mount Auburn Cemetery in Cambridge, MA., Friends of Mount Auburn



Vermilion Flycatcher at Evergreen Cemetery in Tucson, Dan Weisz

GUEST AUTHOR

INSPIRE BIRDERS FROM BEYOND THE GRAVE

Urban wildlife may read as an oxymoron to some. But to many, including myself, urban wildlife is not only part of everyday life, it's part of everyday enjoyment. It's delightful to know that while human settlements continue to expand and transform landscapes, habitats for wildlife are still being created within those altered areas. Local hotspots are visible throughout our day-to-day urban mosaics. Certainly there are city parks, nature preserves, greenways, and trails in many urban areas. However, these resources are not readily available for people who live in places low on greenspace. As an added barrier, we now live in a time where the health of millions is at risk due to a global pandemic. Common recreational locations may be too crowded or have limited access. Risking your life to see a life bird should not be a situation you need to put yourself in. To remedy this, I have turned to a well-known but often overlooked birding spot to replace the spots I once frequented. I have become absolutely obsessed with birding in cemeteries. How obsessed? Obsessed to the point that I have planned indulgent road trips to cemeteries nationwide, and worldwide once it is safe again. People in my birding networks rave about Green-Wood Cemetery in New York City and Mount Auburn Cemetery in Cambridge. If I could pack my bags and leave tonight, I would.

Thinking back on my own birding origin story, I realize my very first birding experience happened in a cemetery in south Texas. I was uncomfortable initially, but seeing the more experienced birders casually rack up lengthy species lists put me at ease. It still felt somewhat unsettling to be excitedly

weaving between headstones, spotting rare birds, and plainly enjoying life around the dead. Little did I know, I was actually participating in a centuries-long tradition. Cemeteries have historically served as popular spots to stroll and picnic since the early 19th century. Cemeteries, like Green-Wood, have also inspired America's most famous parks including Central Park and Prospect Park.

Shifting attitudes around death have helped re-popularize green burials, burials that do not involve embalming, burial containers, or vaults. Conservation burials, exceptionally executed at Prairie Creek Conservation Cemetery in Florida, take green burials one step further by committing a portion of each burial fee to land restoration and conservation. Additionally, burials are beautified by native plants. Since the cemetery doubles as a preserve, everyone is encouraged to explore the hiking trails among the 93 acres of Prairie Creek Conservation Cemetery. I didn't expect birding to help me destigmatize death and decide my final resting plans, but I couldn't imagine a better way to be remembered. I'd be honored if my resting place sparks the journey of a new birder.



Danielle Belleny, also known as The Cemetery Birder, is a wildlife biologist and birder in Springfield, MO. In June 2020, Danielle helped organize #BlackBirdersWeek, a social movement that celebrated Black nature enthusiasts.

LOCAL ANGLE

Evergreen Cemetery is a great spot to bird in late fall and early winter. One of Tucson's largest non-golf course green spaces, it provides migrating birds, such as Hermit Warbler and Hutton's Vireo, with a rest stop, and offers birders a peaceful place to reflect while adding to their species lists. Located at Oracle and Fort Lowell, Evergreen Cemetery is privately owned and open during daylight hours.



Lynn Hassler

GRAY THORN

SCIENTIFIC NAME: *Zizyphus obtusifolia*

FAMILY: Rhamnaceae (Buckthorn)

NATIVE RANGE: Grows on dry plains, mesas, and slopes between 1000 and 5000 feet; Arizona, Nevada, California, Sonora, and Baja California

WILDLIFE VALUE: Zigzagging thorny branches provide shelter and places to nest; flowers attract masses of pollinators; fruits a favorite food for birds and small mammals

For me, the primary value of gray thorn in the landscape is for attracting wildlife, but it can also function as an ideal security or barrier plant. This rigidly branched, formidable shrub has green stems covered with a grayish wax-like coating that usually end in sizable thorns. The dense spiny habit makes it nearly impenetrable and an ideal location for safe nesting and sheltering. Bloom time may vary but the specimen at the Nature Shop garden seems to flower mainly in March and April. The inconspicuous yellow-green flowers draw swarms of pollinators: butterflies, bees, wasps, flies, nearly invisible gnats, tarantula hawks, and critters I've never seen the likes of before. Flowers are followed by tasty blueberry-like fruits devoured by small mammals and many birds.

Growth is slow to moderate and plant in full sun and well-drained soil. It's best to steer clear of high traffic areas to avoid impaling any passersby. And be sure to give gray thorn a wide berth for it grows very large (6' high and 8' wide)—sometimes difficult to visualize when you see it in a one-gallon nursery pot. Plants are hardy to 15 degrees so no worries about frost damage, and they are extremely drought tolerant—once established they can survive exclusively on rainfall, though their small leaves may drop during dry periods.

If you need to prune, be prepared for a battle. Nature Shop garden volunteer, Tim (a true native plant aficionado), loves the challenge of wrangling with the mighty *Zizyphus*. Twice a year he dons heavy gloves and protective long-sleeved armor to tame what he affectionately calls the “gnarly beast.”

FALL IS FOR PLANTING!

You may have lost a plant or two during the record-breaking hot, dry summer of 2020—I know I did. Fortunately, autumn is an excellent time to replace and rejuvenate the wildlife garden. In many areas of North America, spring is prime planting time, but that's not the case here. Fall is by far the best season for planting new shrubs and trees (with the exception of frost sensitive plants) for several reasons.

Fall soil is warmer and more conditioned than spring soil, allowing for better root growth. Pests and diseases that might otherwise attack young, vulnerable plants lessen with cooler weather. Less water is required as plants go somewhat dormant for the winter. Milder temperatures and more dependable rainfall help plants acclimatize easily, enabling them to better withstand the onslaught of next year's aridity and heat.

Enhance your garden this year by adding a gray thorn—one of the all-time best natives for attracting wildlife.



Lynn Hassler
Nature Shop Garden Volunteer Captain

From the lifestyles of ants, bees, and wasps to an online Holiday Party for our community, join us for all NEW Classes and Events! More information at TUCSONAUDUBON.ORG/NEWS-EVENTS

Thursday, October 8, 11 am–1 pm

DIGITAL DISSECTION | PRESENTER: RUSS BURDEN

Join nature photographer, Russ Burden, and Hunt's Photo to achieve a greater degree of satisfaction and photo success in your wildlife photography.

Thursday, October 22, 1–2 pm

**BIRDING THE CALENDAR-WHERE TO GO BIRDING IN NOVEMBER
 PRESENTER: LUKE SAFFORD**

We'll look ahead towards November and discover some of the birds to look for and where to go birding around Tucson and Southeast Arizona as winter is just around the corner.

Friday, October 23, 10–11 am

**FUNDAMENTALS OF PASSIVE RAINWATER HARVESTING
 HOSTS: KARI HACKNEY & KIM MATSUSHINO**

We will help you identify the best locations for passive water structures on your property, how to construct them, and the plants best suited to them.

Monday, October 26, 11 am–12 pm

BEES, WASPS, & ANTS | PRESENTER: JEFF BABSON

Pima County Naturalist, Jeff Babson, will lead us through a deep dive into this incredibly important order of insects, looking at their lifestyles, diversity, and importance to humanity.

Monday, October 26, 7–8 pm

BIRDS 'N' BEER-RARE & UNUSUAL BIRDS IN SEAZ | HOST: LUKE SAFFORD

Enjoy your favorite drink and connect with your Tucson Audubon friends. Every month brings some new, rare birds to our region and tonight we'll share stories and pictures of our experiences in October.



Eared Quetzal, a rare bird for Southeast Arizona, Mary McSparen

COMING IN NOVEMBER:

A YEAR OF SANTA CRUZ RIVER BIRD SURVEYS
 with Citizen Science Coordinator Olya Phillips

BRAND NEW BIRDING
 two-part series with Luke Safford

GEARING UP FOR CHESTNUT-COLLARED LONGSPURS
 with Conservation Biologist Jennie MacFarland

**THE INCREDIBLE BIRDS & WILDLIFE OF NORTHERN
 AND EASTERN AUSTRALIA**
 with Andy Walker of Birding Ecotours

COMING IN DECEMBER:

GIVING TUESDAY EVENT Tuesday, December 1

MEMBERS HOLIDAY PARTY Thursday, December 10, 1–2:30pm

AN ANNUAL TRADITION: CHRISTMAS BIRD COUNTS
 with Luke Safford and local CBC Compilers

HABITAT AT HOME: NEW IDEAS AND NEW RECIPE CARDS
 with Habitat at Home Coordinator Kim Matsushino

Q & A WITH BIRDING PHOTOGRAPHER CHERYL OPPERMAN
 with Cheryl Opperman and Hunt's Photo

CREATING SAFE PLACES TO NEST
 with Citizen Science Coordinator Olya Phillips

BIRDING ON NEW YEAR'S DAY: WHEN EVERY BIRD IS NEW
 with Luke Safford



Secretarybird, Russ Burden

ZOOMTASTIC! FIRST EVER VIRTUAL SEAZ BIRDING FESTIVAL



546 PARTICIPANTS FROM 43 STATES/PROVINCES AND 5 COUNTRIES

39 PRESENTERS IN 3 DAYS

7 VIRTUAL SESSIONS

The **Virtual Southeast Arizona Birding Festival** gave all of us a brand new way to experience a birding festival, and it exceeded our expectations! The seven festival events took place August 5–7 over the Zoom platform and brought the birding community together in ways an “in-person” event never could.

Participants from five countries and 43 different states/Canadian provinces engaged in conversations about **Birdability**, made connections between birds and conservation, explored Sonoita Creek Watershed on virtual birding tours, and learned how to identify bird songs with guest speaker, Tom Stephenson. The birding socials each day were lively and fun, giving attendees a chance to hear from multiple birding community experts and leaders.

Not only did we have a great time and learn more about birding and the birds we love, we also raised over \$9,000 for conservation efforts in the Sonoita Creek Watershed and Southeast Arizona through registrations and donations to our **Critical Conservation Continues** summer appeal. We are grateful for the generosity and willingness of our community to try something new like a virtual birding festival!

While we don't yet know exactly what the **2021 Southeast Arizona Birding Festival** will look like, we are eager to explore new ways of celebrating the amazing bird life of Southeast Arizona with all of you. **Save the date! August 11–15, 2021.**

**SAVE THE DATE
FOR OUR
10TH ANNIVERSARY,
AUGUST 11–15, 2021**

TUCSONAUDUBON.ORG/FESTIVAL

Luke Safford
Southeast Arizona Birding Festival
& Volunteer Program Manager
lsafford@tucsonaudubon.org



THANKS TO OUR SPONSORS

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SUPPORTING



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HOLIDAY GIFT GUIDE

The Nature Shop connects your love of nature with support for Tucson Audubon. This holiday season, protect birds and their habitats while creating a joyful memory for a loved one by shopping with us in person or at our new online store: TUCSONAUDUBONNATURESHOP.COM.



Vermilion Flycatcher, B.N. Singh



Leaf Necklace
\$24.00



Folkmanis Raven Puppet
\$38.00



Mata Ortiz Pottery
\$10.00–280.00



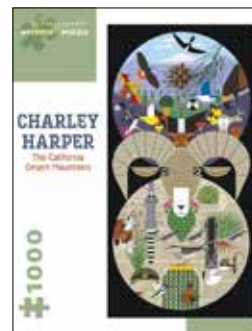
Diana Madaras Glass Trivet
\$15.00



Sanyork Bird Gourd Ornaments
\$10.00



Felt Birdhouse
\$28.00



Charley Harper Puzzle
\$19.95



Cobane Glass Ornaments
\$14.00



NEW Zeiss Victory SF 8x32
Member Price \$2299.99



NEW Swarovski Pure 8x42
Member Price \$2969.00



Kowa TSN883
Spotting Scope Objective
Member Price \$2450.00



Vortex Viper 10x42
Member Price \$499.99

NATURE SHOP

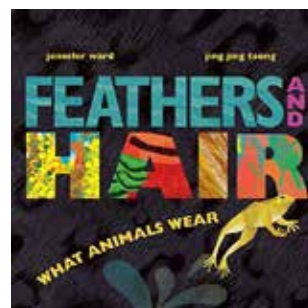
300 E University Blvd #120, Tucson, AZ 85705 · 520-629-0510

Thursday & Friday: 10 am–4 pm, Saturday: 10 am–2 pm.

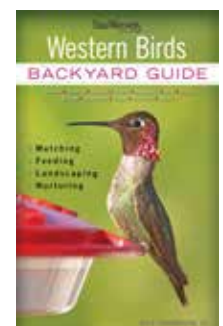
Face coverings are required to enter (no exceptions please) and customers will be limited to 4 at a time.

The Nature Shop at Agua Caliente Park is closed until further notice.

Stay tuned to our website, Facebook page, and weekly e-news for special deals and information on upcoming sales.



Feathers and Hair What Animals Wear
\$17.99



Western Birds Backyard Guide
\$17.99

ONLINE NATURE SHOP

The Online Nature Shop is all NEW and shopping is EASY with our redesigned interface. Visit today and see our constantly expanding inventory at: TUCSONAUDUBONNATURESHOP.COM.



Copper Hummingbird Feeder
\$28.00 (available online)



GCI Packseat
\$20.00 (available online)



Women's Expedition Sun Shirt
\$70.00 (available online)



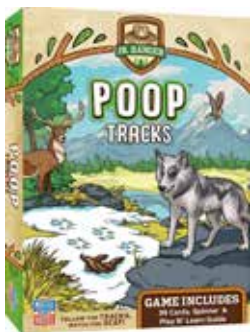
TAS Apron Walraven Owls
\$25.00 (available online)



TAS Bird Facts Youth Tshirt
\$12.00 (available online)



Jabebo Earrings
\$14.00 (available online)



Poop Tracks
\$10.00 (available online)



Reusable Bamboo Utensil Set
\$15.00 (available online)



Javelina Cookie Cutter
\$6.00 (available online)



Bens Bells Be Kind Cactus Ornament
\$20.00 (available online)



Finding Birds in Southeast Arizona
\$24.95 (available online)

CONNECT FAMILY AND FRIENDS TO THE CRITICAL CONSERVATION WORK THEY CARE ABOUT!

GIVE A GIFT MEMBERSHIP TO TUCSON AUDUBON THIS HOLIDAY SEASON.

Need a special gift for the bird or nature lover in your life? Give the evergreen, Earth-friendly gift of memorable experiences and community in 2021. Tucson Audubon provides many ways for people to connect with birds and fellow bird- and nature-minded people through online classes and social events, bird walks, and opportunities to make a real impact protecting birds and their habitats. With every gift membership the recipient will get a one-year subscription to our full-color *Vermilion Flycatcher* magazine and a 10% discount at our Nature Shop and Online Shop.

We've made it easy—support Tucson Audubon with a Gift Membership at tucsonaudubon.org/join.

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own it



THIS IS WHERE SENIOR LIVING GETS INTERESTING

Just when you thought you had “these kinds of communities” all figured out, discover how Splendido provides the platform to live confidently. Well-appointed homes and services to suit your style—all in a dynamic Life Plan Community that’s uniquely designed with the future in mind, so you can rock life with confidence.

SplendidoTucson.com | (520) 762.4084 | Oro Valley, AZ



DONATE A VEHICLE TO TUCSON AUDUBON— IT'S EASY!

Tucson Audubon is now able to accept donated vehicles. We'll use the proceeds from donated cars, trucks, SUVs, RVs, boats, motorcycles, and even airplanes to **help fund our conservation work, habitat restoration, scientific research, educational classes, field trips and social events, and of course our Paton Center for Hummingbirds.**

Tucson Audubon has partnered with **CARS** (Charitable Adult Rides & Services) to help run our vehicle donation program. CARS is a nonprofit and has been processing vehicle donations for more than 16 years.

Here's How It Works:

1. **Submit the secure online form** at careasy.org/nonprofit/tucson-audubon-society, or call **855-500-RIDE** or email donorsupport@careasy.org.
2. **Schedule Your Free Pick-up!** Within 48 hours, a CARS Vehicle Donor Support Representative will contact you to complete the donation and confirm your pick-up information.
3. **Receive a Donation Receipt.** Vehicle donations are tax-deductible!

If you would like more information or have questions, please contact Keith Ashley, Development Director, at kashley@tucsonaudubon.org.

CARS TESTIMONIAL, LINDA MCNULTY, TUCSON AUDUBON BOARD MEMBER



Donating my car to Tucson Audubon could not have been more simple. I input all the necessary information online via the easy-to-use donation website. It clearly explained the process, and folks were available by phone to answer any questions. The pick-up happened on schedule and it was all very professional. My car was converted to a check for Tucson Audubon without delay. I avoided the complication of a trade-in and the work of arranging a private sale. Best of all, I felt like my reliable old car performed another good service, for one of my favorite organizations.



**BIRDS
BENEFIT
BUSINESS**
Alliance

Many thanks to our Birds Benefit Business Alliance Members, who show their support for Tucson Audubon's mission through annual contributions and in-kind donations.

For more information about their businesses visit tucsonaudubon.org/alliance.

PREMIERE (\$5,000+)

Carl Zeiss Sports Optics
Splendido at Rancho Vistoso
Tucson Electric Power

LEADING (\$2,500)

Birdwatcher's Digest
Cornell Lab of Ornithology
Swarovski Optik
Tamron USA

SUSTAINING (\$1,000)

Alexander | Carrillo Consulting
Beaumont & Port Arthur Convention
and Visitors Bureau
Birding Ecotours
Diet of Hope Institute
Dr. Miguel A. Arenas, MD
Green Valley Pecan Company
Hatfield CPA LLC
Historic Y
Kimberlyn Drew, Realtor
Originate Natural Building Materials Showroom
Sabrewing Nature Tours
Vortex Optics

SUPPORTING (\$750)

Solipaso Tours / El Pedregal Nature Lodge

CONTRIBUTING (\$500)

Adventure Birding Company
AZ Birder Casitas
Bed and Bagels of Tucson
Desert Harrier
Hunts Photo and Video
Tucson Water
Visit Tucson
Westgate Garden Design
WINGS Birding Tours Worldwide

GIFTS IN HONOR OR MEMORY OF

In honor of Alice & Bill Roe from Linda Quinn

In honor of Ann & George Mavko from Jan Ormasa & Tom Hiendlmayr

In memory of Ann Scarborough from Gail Scarborough

In memory of Carmen Christy from Deb & Jay Liggett, Martha Pille, Nancy Kraushaar, Rebecca Ruopp, Sandy & Karl Elers, Barbara Becker, Ingrid Christensen, Catherine Oster

In memory of Carmen Grittenden from Patricia Gehlen & Woodford Remencus

In memory of Charlene Shaklee Pease from Margery Osborn-O'Dom

In honor of Deb Vath from Jill & Fred Vath

In memory of Dolores Stadelman from Maura Mack

In honor of Elisabeth Jaquette & Daniel Perelstein from Rachael Daum

In memory of Erich Kehl from Elizabeth Fikejs

In honor of Jonathan Horst from Matthew Lowen

In honor of Laurens Halsey from Rick Skehen

In memory of Leslie Conger from Alan Conger

In memory of Linda Kondrat from Chrissy Kondrat-Smith

In memory of Mark Webber from Deborah Spencley

In honor of Nicole Gillett from Kari Anderson

In memory of Norma Hart Anderson from Pam & Stan Hart

In memory of Porsha from Arvind Kamble

In memory of Richard H. Flower from an anonymous donor

In memory of Teresa Luna from Karen McKinley



CELESTE ANDRESEN A BELOVED PARTNER IN CONSERVATION

Tucson Audubon and the conservation community as a whole are mourning the recent loss of Celeste Andresen to a tragic accident while visiting family in New Jersey. Celeste had a long career with The Nature Conservancy and managed the 7B property in Mammoth, Arizona.

Celeste was a pleasure to work with on numerous projects along the Lower San Pedro River. She was an enthusiastic and pivotal partner in the Lucy's Warbler nestbox work at the 7B Nature Trail. Many of the amazing photos of young Lucy's Warblers in the triangle nestboxes were taken by Celeste as she watched them so carefully and gathered lots of great details for the project. She was also very passionate about the Yellow-billed Cuckoos surveys and her recent work with Monarch butterflies on 7B grounds.

She was a force for conservation on the Lower San Pedro River and an instrumental part of the Lower San Pedro Working group. She is truly irreplaceable and will be very missed.

Rivoli's Hummingbird, Francis Morgan; Celeste Andresen, Jennie MacFarland

FROM THE EXECUTIVE DIRECTOR

A 12-YEAR QUEST FOR THE COMMONISH RED-COCKADED GUILLEMOT

2020 has certainly brimmed with challenges for Tucson Audubon. We think we've tackled one, and another knocks us over like a party of raccoons raiding the birdseed bin. Throughout it all, our members, donors, and program participants have continually encouraged us to remain optimistic. Thank you! Your positive attitude has enabled our team to endure months of the coronavirus pandemic, strengthen our resolve for social change, and remember who we are as Tucson Audubonners: people who love and care about birds.

There've been more 60-hour work weeks than I can count these past months, but I've still been devoting time to reflect on my personal Audubon journey: *A 12-Year Quest for the Commonish Red-Cockaded Guillemot*. Sure, I live in the epicenter for rare bird happenings, but when was I supposed to actually cut loose in search of that Quetzal? (To my credit, I masked up and moseyed out to behold both an Arctic Tern and a Northern Jacana, both within a few miles of my home office). And maybe it's more like a *112-Year Quest*. Our work as bird conservationists is never finished. We're in the fight of our lives to slow a warming climate, protect native landscapes from invasive plants, and attempt to foster the next generation of protectors for our environment. They may communicate differently than we do (I still don't understand Tik Tok), but trust me, these kids are alright.

Since this is the last page of our last Vermilion Flycatcher issue for 2020, let me predict a few things for 2021. Optics companies will tempt us with irresistible new offerings of binoculars and camera components. We'll be sweating through our swishy pants and sun hats by 8:00 am during summer walks at Sweetwater Wetlands. And aspects of life as we know it—how we socialize, how we travel, and how our conservation concerns are represented in government—will continue to roller coaster. Through it all I'll be keeping in mind what you taught me in 2020: remain optimistic. At least I know for certain that together we will continue to grow, learn, and create change for the benefit of birds and people alike.



Sincerely,

Jonathan E. Lutz,
Executive Director

WOO HOOT! BIRDY NEWS BITES WORTH CELEBRATING

CELEBRATING ONE YEAR OF SANTA CRUZ RIVER SURVEYS

This summer we wrapped up our first year of citizen science surveys to document biodiversity changes brought by the release of reclaimed water into the downtown stretch of the **Santa Cruz River** in Tucson. A dedicated team of volunteers documented bird species at assigned locations monthly. Within just a couple months of the water release, shore birds showed up in the channel, including the rare Purple Gallinule. Additionally, increased frequencies of Black-necked Stilt, Killdeer, Black Phoebe, and Great Blue and Green Herons were recorded. The newly created habitat is already supporting many bird species and their food sources. We look forward to continuing to see them thrive in this urban oasis.

Interested in helping with this project? Email Olya Phillips at ophillips@tucsonaudubon.org.

FRESH RECIPES FOR BIRD HABITAT

Our colorful **Recipe Cards** detailing ingredients and instructions for creating bird habitat at your home have proven to be valuable tools for homeowners. Since 2015, Tucson Audubon has given away more than 56,000 of these cards to the public at events such as the SAHBA Home Show. Soon there will be five new cards in this series! We are adding recipes for Greater Roadrunner, Lucy's Warbler, Pollinators, Insect Eaters, and "Crested Cuties," which includes Cardinal, Pyrrhuloxia, and Phainopepla. Stay tuned to our website and Facebook page for the upcoming, fall debut of our brand new recipe cards to make sure your yard is filled with the sights and songs of our Southeast Arizona Crested Cuties and more!



TUCSON
AUDUBON
SOCIETY

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VERMILION FLYCATCHER

Fall 2020 | Vol 65 No 4

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The *Vermilion Flycatcher* is the newsletter of the Tucson Audubon Society, a chapter of the National Audubon Society. National Audubon Society members and members of other chapters may receive the Flycatcher by becoming a Friend of Tucson Audubon. For more information visit: tucsonaudubon.org.



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Flying INTO THE *FUTURE*



FLY FASTER, HIGHER, AND SMARTER
WITH TUCSON AUDUBON THIS NOVEMBER.

Birding for my generation has to be different than any other that has come before us.
When people of my age bird, we fear that much of what we see and hear won't be around much longer.

—Maia Stark, Age 15, Tucson Audubon 2020 Youth Award Recipient

Purple Martin, Andrew Reding