

THE QUARTERLY NEWS MAGAZINE OF TUCSON AUDUBON SOCIETY | TUCSONAUDUBON.ORG

Vermilion

FLYCATCHER

July–September 2013 | Volume 58, Number 3

Sky Islands

Tucson Meet Your Birds

Arizona's Audacious State Bird

What's in a Name?
Chihuahuan Raven

When Our Grasslands
Turn Green

Plus Tucson Bird & Wildlife Festival Insert





Tucson Audubon Society is dedicated to improving the quality of the environment by providing education, conservation, and recreation programs, environmental leadership, and information. Tucson Audubon is a non-profit volunteer organization of people with a common interest in birding and natural history. Tucson Audubon maintains offices, a library, and nature shops in Tucson, the proceeds of which benefit all of its programs.

Tucson Audubon Society

300 E. University Blvd. #120, Tucson, AZ 85705
629-0510 (voice) or 623-3476 (fax)

All phone numbers are area code 520 unless otherwise stated.

www.tucsonaudubon.org

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Hours: JULY–SEPTEMBER Thursdays only 9 AM–1:30 PM,
OCTOBER Thursday, Friday, Saturday, 9 AM–1:30 PM

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Coordinator *Matt Griffiths* 971-7924

Proofreaders *Tucson Audubon staff and volunteers*

Design / Layout *Eng-Li Green*

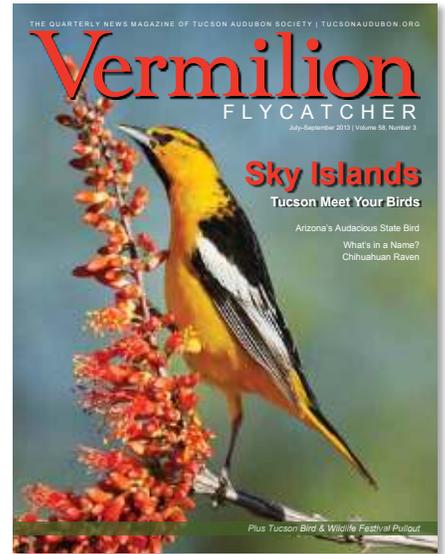
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FRONT COVER: Bullock's Oriole © Jim & Deva Burns, Scottsdale, Arizona. To see more of their work visit their website, www.jimburnsphotos.com and follow Jim's birding blog at www.jimburnsphotos.com/pages/columns.html.

To have your photograph considered for use in the *Vermilion Flycatcher*, please contact Matt Griffiths at mgriffiths@tucsonaudubon.org.



Birders of Another Feather

Guest commentary by Dr. J. Drew Lanham, passionate birder, ornithologist, writer, Clemson University wildlife biology professor, and keynote speaker at the third Tucson Bird & Wildlife Festival in August

Anyone who knows me understands that I'm passionate about "coloring the conservation conversation". It's my mantra! Birding and conservation should be reflective of the world we live in. With the 2010 census clearly showing the trends of a "new" demography and minority flips to majority status in the next couple of decades, that maxim is becoming an emerging necessity. If our outdoor passions are to thrive into the future then they will have to expand beyond the audiences they've traditionally catered to. It is simple; stay the same and stagnate or change and grow. If nature and people are to coexist symbiotically then the choice is obvious; evolve or die.

If for some odd reason we really don't care about human diversity and are solely concerned about feathered things, then there's still a reason to care about *who's* watching the birds. Take a look at a range map for your home place. For me it's the Southeast; a place where Swallow-tailed Kites wheel over thousand year-old cypress swamps and sweet whistling Bachman's Sparrows and elusive Red-cockaded Woodpeckers cohabitate in cathedral-like longleaf pine flatwoods. In Southeast Arizona the Sky Islands harbor croaking Elegant Trogons in sycamore strewn canyons and an accompaniment of bucket list border birds found

in few places north of Mexico. Consider the range maps of those specialties. Then, superimpose the maps of the latest census on them. Guess what? The places where many of the birds we crave are also the places where people of color are either already a majority or are projected soon to be. Now ask yourself, how do people who don't look like the birders most of us know feel about conserving habitat? Have they been included in conversations about conservation? Why should they care about trogons or tanagers? Will they vote or care for clean air, water or habitat protection? Will they pay for it?

The real questions should give us pause. The potential answers should make us shiver. The birding community has largely ignored the issue—at our own peril. Look around at your next outing. Is it a flock of Glaucous Gulls or mixture of Neotropical migrants? Just as any biological system thrives on diversity, so too must birding expand if it is to survive into a more colorful future. Going forward, think about the people where you bird and the future for both. Support efforts to make "us" a more diverse hobby. Pass your passion on to someone different. New eyes and ideas will broaden the impact of the pastime and expand the impacts for conservation and all of our futures—feathered and un-feathered alike. ■

RED-COCKADED WOODPECKER, USFWS



COMMENTARY

PAUL GREEN | EXECUTIVE DIRECTOR



Don't It Always Seem As Though...

"You don't know what you've got 'til it's gone. They paved paradise and put in a parking lot." Joni Mitchell's lyrics from *Big Yellow Taxi* forewarn us of the challenges we face in Southern Arizona. What is your vision for our future? What do you plan to do to create it? Your future vision might be to keep what we have now in the face of a changing climate. Perhaps it includes a little more groundwater to support rivers and provide more vegetation to make life possible for more birds, and a better quality of life for us. With your support, we have achieved many small victories in the fight for a sustainable future. However, the battle rolls on and we still have a lot of work to do.

If the latest planned developments happen, as their proponents would like, we are likely to end up with a sorry scenario: a dusty, treeless Sonoita Plain, a dried up and contaminated Las Cienegas National Conservation Area (NCA); a significantly diminished upper San Pedro River, with a lower river valley scarred by a 47-mile-long, one-mile-wide electrical transmission corridor that will destroy critical, fragile habitats; and a continuing decline in the water table in the Santa Cruz River Valley.

This issue of the *Vermilion Flycatcher* is loosely themed on the economic benefits derived from watchable wildlife, led by the birds. Two events lead to this focus. First is our third annual Tucson Bird & Wildlife Festival which we created in part to demonstrate to local government and business how birds can bring economic benefits to Tucson in August. See the special festival pullout.

The second is a new report, initiated by Tucson Audubon and funded by the Arizona Game & Fish Department, that illustrates the significant economic benefits of birdwatching and wildlife. This report was produced by Southwick Associates, and uses Arizona data from the U.S. Fish and Wildlife Service. Erin Olmstead writes more about the report on pp 5–6 of the festival pullout.

The report finds that outdoor recreation based on wildlife is responsible for \$330 million of annual economic impact and nearly 3000 jobs in Pima, Cochise, and Santa Cruz Counties. These are sustainable jobs, and many of them are in rural areas where they are especially valuable. People come to see birds along the San Pedro River, Santa Rita Mountains, Madera Canyon, and many others places. These visitors patronize businesses in towns such as Patagonia, Elgin, Sierra Vista, and many others for their wildlife-focused vacations. So we had better look after those habitats and the groundwater that support

them if we want the economic benefits to continue. Unfortunately, not everyone is on board with this idea. There are even some who view the San Pedro River—this jewel of southeast Arizona's riparian areas and a refuge for people, birds, and other wildlife—as a 'threat' to the town of Sierra Vista, standing in the way of growth.

Seven years ago the Sierra Vista City Council approved a new 7000-dwelling development—now on the fast track—that wants to send straws down into the aquifer to feed these new households. World-class hydrologists and expert water lawyers are explaining the simple physics about what happens when you pump more than 3000 extra acre-feet of water from a groundwater aquifer near a sensitive riparian area. Yet the state agency tasked with securing long-term dependable water supplies for Arizona's communities, the Arizona Department of Water Resources (ADWR), has given the developer the go-ahead irrespective of the permanent impacts to the San Pedro River and the people and wildlife that depend on it.

Arizona water law constrains ADWR's decisions and so denies connections between groundwater and surface water. Some have said that Arizona water law was designed to manage the depletion of an irreplaceable resource in the service of development, and not to protect water-dependent natural resources. For example, the definition of 100-year water supply, needed by developers, allows groundwater levels to decline to no deeper than 1200 feet below surface outside of Active Management Areas and 1000 within. There is no consideration for environmental water or neighboring effects of pumping, a lack of management for nearly 65 percent of Arizona's groundwater, and a lack of mechanisms for water rights transfers. Illogically, our State manages groundwater as being separate and unconnected to surface water.

One hopeful sign is that the Bureau of Land Management has stepped up to defend the public's claim on water rights needed to preserve the riparian values of the San Pedro Riparian NCA. BLM has an obligation to protect the conservation area and has argued that there is not enough groundwater available to satisfy both the needs of the riparian area, south of St. David, and a new unsustainable development (more on page 19).

So while the BLM is fighting for the future of our birds and their habitats in the Upper San Pedro, on June 14 it released the Final Environmental Impact Statement (FEIS) for the SunZia Southwest Transmission Project (available at www.blm.gov/

www.blm.gov/). This FEIS includes the BLM's preferred alternative route, which would construct two 500-kilovolt lines down the west side of the San Pedro River valley for 47 miles north of St. David. They would cross three ranches that Pima County has purchased as part of our Sonoran Desert Conservation Plan, and span the sensitive lower Buehman Canyon. SunZia has pitched its project as a means of transporting renewable energy to Arizona, when in fact it will serve to move energy from various sources in New Mexico, across Arizona, to California (which does not need it) and to make a great deal of money for its investors at our expense. Read more on pages 20–21.

Meanwhile the regulatory process for the proposed Rosemont Copper Mine in the Santa Ritas is plowing ahead. The EPA has been very critical of mitigation plans for the project thus imperiling the Sec. 404 permit, a critical and essential regulatory approval for the mine. Conversely, state agencies which appear to be powerless or negligent to do anything in the name of protecting our natural environment, issue permits.

On pages 20–21, we do a quick and accessible review of the water issues surrounding Rosemont. One of the most devastating possibilities is the 'cone of depression' of the groundwater in the Sonoita Plain that will result from the hydraulic sink effect created by the massive half-mile-deep open pit mine. This could well suck dry Patagonia, Elgin, and Las Cienegas by dropping the water table down by perhaps as much as 960 feet below current levels. That would turn this region into a desolate dustbowl. Do you want your drive along Scenic Highway 83 to resemble the worst of the Tucson to Phoenix commute? Because that's where we are headed if Rosemont succeeds. Yet the effects of the 'cone of depression', raised by the Sonoran Institute and others, were not even addressed by the Draft Environmental Impact Statement.

As birders, we depend on the continued health of the habitats that support the birds. As birders, we have a responsibility to lead the charge, as Drew Lanham suggests on page 2. We need to fight the onslaughts on the last of our pristine natural areas in Southern Arizona with all of our energy. Tucson Audubon is fully engaged and we encourage you to get involved. Sign up for our email updates (see page 5)—we will keep you informed of the latest developments and alert you to ways in which you can make your voice heard. Let's let our legislators know that *Birders Mean Business* (in more ways than one). ■

TUCSON AUDUBON EVENTS AND CLASSES

Meet Our Faculty! Institute of Grassland Ecology

October 3–6, 2013

Tucson Audubon and National Audubon Society's Appleton-Whittell Research Ranch are gearing up for our Institute of Grassland Ecology! The institute will be held at the Research Ranch in Elgin, Arizona. Topics will cover the important ecological role the grasslands of southeast Arizona play within our region, how its unique plant and animal communities differ from those of surrounding habitat types, and conservation threats and management strategies that are used to safeguard this ecosystem. Expert faculty will impart their knowledge, the event will be fully catered by Dish for Dosh, and participants will camp onsite for the duration. Adults ages 18 and over are welcome. Come join us!

OUR EXPERT FACULTY ARE:

Ronnie Sidner, Ph.D. — Mammalogy

Ronnie is a long time Institute of Desert Ecology faculty



member and an ecological consultant, with 30 years of experience as a field biologist/mammalogist. She specializes in surveying and monitoring of bats on public and private lands and has also studied a few other mammals like shrews and chipmunks, and even feathered critters like Spotted Owls! Ronnie completed her Ph.D. at the University of Arizona, while studying two desert species, pallid and big brown bats.

Roger Cogan — Herpetology

Roger is the Conservation Coordinator at the Appleton-Whittell Research Ranch. There, he promotes public awareness of the fragility of native grasslands and the wildlife they support. He is currently documenting the presence or absence of the 53 reptile and



amphibian species that have been recorded over the last forty years at the Ranch. Prior to working at the Ranch, he had a thirty year career with the Phoenix Zoo, working on recovery projects for threatened and endangered Arizona wildlife.

Linda Kennedy, Ph.D. — Botany

Linda is the Director of the Appleton-Whittell Research Ranch. Her responsibilities include land stewardship, initiating and supervising research projects, and planning and implementing education and outreach programs. Of special interest is the development of monitoring programs to track long term changes in upland vegetation, shrub encroachment, and small mammal populations. Linda earned a doctorate in botany from Arizona State University in 1999.



Ron Pulliam, Ph.D. — Ornithology

Ron is Regents Professor Emeritus in the Eugene P. Odum School of Ecology at the University of Georgia. His former positions include President of the Ecological Society of America, Director of the National Biological Service, Science Advisor to the Secretary of Interior, and Director of the Institute of Ecology. He has

more than 100 scientific publications on topics including niche theory, animal behavior, source-sink dynamics, endangered species, and the effects of climate and land use on plants and animals. He has extensive experience conducting research at the Research Ranch and is an expert in grassland bird communities of southeastern Arizona!

John Palting, Ph.D. Candidate — Entomology

In addition to managing a full time career in the field of immunology, John is pursuing a Ph.D. in Entomology at the University of Arizona! For over 30 years, he has studied the insects of Arizona and Sonora, Mexico. He was employed at the Arizona-Sonora Desert Museum, where he became a specialist in moths of the region. As a volunteer for Sky Island Alliance, he has identified nearly 3,000 moths for their Madran Archipelago Biodiversity Assessment (MABA) program. His enthusiasm for Arizona-Sonoran entomology is contagious!



Greg Barron-Gafford, Ph.D. — Biogeography and Climate Change

Greg is an Assistant Professor in the School of Geography and Development and with Biosphere 2 at the University of Arizona. He received a Ph.D. in Ecology & Evolutionary Biology from the University of Arizona. His research is centered on developing our understanding of how climatic changes, such as increased temperature and reduced precipitation, affect native vegetation across the gamut of ecosystems representing southern Arizona. Greg loves being outdoors and shares that passion for experiential learning with his wife and two young children.



AARON ENSLEY

FOR MORE INFORMATION ON OUR SUITE OF EDUCATION CLASSES AND TO REGISTER ONLINE, PLEASE VISIT
WWW.TUCSONAUDUBON.ORG/EDUCATION

Institute of Grassland Ecology

Date: October 3–6, 2013

Cost: \$525 for Tucson Audubon members; \$560 for non-members (includes a year-long membership); \$40 camping fee in addition to tuition/registration fee

Contact Institute Director, Bete Jones, with any questions at (520) 209-1812 or bjones@tucsonaudubon.org

Register online today! Limited to 50 participants! tucsonaudubon.org/ige

Register online today! Visit tucsonaudubon.org/education. Contact for all education activities: Bété Jones at bjones@tucsonaudubon.org, 520-209-1812. All non-member prices include a year's membership with Friends of Tucson Audubon.

Get Your Calendar Out And Reserve These Dates! 2013–2014 Learning Opportunities at Tucson Audubon

See our website for more detailed descriptions: www.tucsonaudubon.org/education

Specialty Workshops

Taught by Homer Hansen.

Warblers: August 8 & 10, 2013

Flycatchers: September 5 & 7, 2013

Sparrows: February 6 & 8, 2014

Raptors: February 13 & 15, 2014

Birding by Ear: April 17 & 19, 2014

Gardening to Attract Birds

October 19, 2013

Taught by Lynn Hassler.

Beyond Backyard Birding

January 11–February 22, 2014.

No class January 25th.

Taught by Lynn Hassler.

Moving to Mastery

March 15–April 5, 2014

Taught by Homer Hansen

For advanced beginner to intermediate birders.



LUCY'S WARBLER, JEREMY HAYES

Tucson Audubon's eNews Delivered to Your Inbox

Stay informed with weekly email updates from Tucson Audubon. Get advance notice of upcoming events, special invitations, urgent conservation updates and action alerts, and more. You can sign up for this list in a number of ways. The easiest is to go to tucsonaudubon.org and click on the link that says Sign-Up E-newsletter. Otherwise send an email to pgreen@tucsonaudubon.org with your first and last name, or call Jean Barchman at 520-209-1802 and she will take your details.



WESTERN SCREECHOWL, PAUL & ENGLI GREEN



KENDALL KROESEN

July 1–6. Nature Shops closed for annual inventory

July 12. IBA Yellow-billed Cuckoo Callback Survey (see p 9)

July 22. IBA Nocturnal Survey (see p 9)

July 26. IBA Yellow-billed Cuckoo Callback Survey (see p 9)

August 8 & 10. Warblers Specialty Workshop

August 14–18. Tucson Bird & Wildlife Festival (see Festival insert for full schedule of events)

August 15–17. Nature Shops closed—will be at the Tucson Bird & Wildlife Festival

September 5 & 7. Flycatchers Specialty Workshop

October 3–6. Institute of Grassland Ecology (see p 4)

October 19. Gardening to Attract Birds Workshop (see p 4)

October 14. Living with Nature lecture (Tucson)

October 19. Gardening to Attract Birds Workshop (see p 4)

November 9. Harvest and Mesquite Milling Festival (see p 7)

November 9. Living with Nature lecture (Green Valley)

December 7. Living with Nature lecture (Green Valley)

December 9. Living with Nature lecture and member holiday potluck at St Phillip's Plaza

Tucson Bird & Wildlife Festival offers activities galore for the birder and nature enthusiast, August 14–18. View the full schedule of field trips, workshops, evening programs, and Nature Expo activities in the festival insert or online at tucsonaudubon.org/festival.

Tucson Audubon's Living with Nature Lecture Series

THANK YOU

A big thanks to our outstanding 2012–2013 presenters who took us on virtual tours of birding in lands far and near, spoke of the unique avifauna of southeastern Arizona and their important habitat, and gave us insight into the threats our precious natural

resources are facing and what we can do to protect them:

Jesus Garcia, Guy McPherson, Rick Taylor, Chris Cokinos, David Lindo, Matt Johnson, Jennie MacFarland, Karl Flessa, Jherime Kellermann, Noreen Kordosky, David Mackay, Mike Smith, Vince Pinto, Doug Moore, Mark Avery

Next Season's Schedule: Save the Dates

TUCSON Living with Nature Lecture Series and Member Meetings

VENUE: Pima Community College Downtown Campus, Amethyst Room. Located on campus at 1255 N. Stone Ave. The program begins at **7 PM, SECOND MONDAY** of each month **October through May**.

Dates for 2013–2014 season

October 14	November 18*
December 9**	January 13
February 10	March 10
April 14	May 12

**Holiday Potluck at St. Phillips Plaza in the Hills Episcopal Church

GREEN VALLEY Living with Nature Lecture Series

NEW VENUE!! We have a new venue for next season. All lectures will be held at the Green Valley Recreation's Desert Hills Social Center, 2980 S. Camino Del Sol. Lectures will be scheduled on the **FIRST SATURDAY** of the month, at **10 AM** from **November to April**.

Dates for 2013–2014 season:

November 9
December 7
January 4
February 1
March 1
April 5

*Note change to third Monday

VERMILION FLYCATCHER, JEREMY HAYES



Birdathon Fun Concludes Until Next April

Kara Kaczmarzyk, Volunteer & Development Coordinator

A huge thank you goes to each and every one of this year's Birdathoners. Forty eight birders on 16 teams spotted over 200 bird species and raised more than \$22,000, garnering critical support and awareness for bird habitat conservation.

The Birdathon after-party, the Birdy BBQ, saw Birdathoners and their supporters celebrating another great Birdathon season with fun, food, and prizes. The winning Birdathon team, for the second year running, was the Wrenegades, who spotted 152 species during their Big Day. For the third consecutive year, Kendall Kroesen took home the title of Grand Prize winner, a title earned by his total funds raised combined

with his total species seen on the Tyrannulets.

A highlight of the evening was presenting eight-year-old Maia Stark with the awards both for being youngest Birdathoner, and for getting the most supporters. She was excited to win a pair of Vortex Diamondback binoculars and a field guide. This young birder is getting a great start as a champion for our natural world.

We also thank our Birdathon sponsors for making this event possible: at the Gila Woodpecker level, Pima Federal Credit Union, and at the Phainopepla level, Hughes Federal Credit Union. Our awards, music, and movie at the Birdy BBQ sounded stellar thanks to our AV

sponsor, Audio Visual Management. A special thanks goes to each of the prize sponsors for helping to reward the Birdathoners for their tremendous efforts: Barrio Brewery, Bookman's, Eege's, Exo Roast, Golf N' Stuff, Green Mountain Digital, Julie Bar, Ordinary Bike Shop, REI, Reid Park Zoo, Sullivan's Eatery & Creamery, Tasteful Kitchen, Titan Missile Museum, Tucson Children's Museum, Tucson Audubon's Nature Shops, and Sunglow Ranch. Volunteers helped behind the scenes to make Birdathon possible. For their stunning artwork, we thank this year's Birdathon postcard artist, Patty Kane, and the Birdathon t-shirt artist, L. Wren Walraven.

Stay tuned to tucsonaudubon.org/birdathon for details on next year's Birdathon and to take part in the 2014 Birdathon t-shirt artwork contest! Submit your artwork or vote on the winning work.

Mark your calendar for Birdathon, April 2014! ■

Below, left to right: left: The Wrenegades Birdathon team spotting the Solitary Sandpiper at Sweetwater Wetlands. After the birding, it's time to celebrate! Attendees at the Birdy BBQ. Inset: Maia Stark.



JENNIE MACFARLAND



TUCSON AUDUBON NEWS ROUNDUP

Annual Harvest Festival and Mesquite Milling Set for November 9: Save the date (and store your pods)

Niki Szivek, Tucson Audubon Volunteer

Save the date: On Saturday, November 9th, 2013 the Tucson Audubon Mason Center will host the Harvest Festival and Mesquite Milling, an annual celebration of the native foods of the Sonoran Desert.

In addition to milling services, the festival will feature talks, exhibits,

vendors, children's activities, a raffle for fabulous prizes, and tours of the Mason Center's nature preserve and gardens.

In the meantime, those of you who have collected mesquite pods this summer will want to make sure your pods are processed and stored safely.



BOTH PHOTOS KENDALL KROESEN

Pods should be dried thoroughly in the sun or oven, and kept dry until milling. Pods can also be frozen, but should be defrosted in the sun for several days before the milling to ensure that they are completely dry. Beyond these basic guidelines, I recommend visiting www.desertharvesters.org for

information about how to store and prepare pods for milling.

We hope you will join us November 9th! Be sure to bring your friends, bring your kids, and bring the pods you've collected along with some clean containers for our milling staff to fill with your delicious mesquite flour.

Bendire's or Bust! A Busy Season for Arizona IBAs

Jennie MacFarland, IBA Conservation Biologist



MATT GRIFFITHS



Inset: Bendire's Thrasher, the target bird of expedition to Wikieup. Left: The unique habitat of the Chicken Springs Allotment near Wikieup. Here we found enough Bendire's Thrashers to qualify the site as a Global IBA in the future. Right: One of the many Joshua Trees that dominated the landscape in Chicken Springs.

This past spring season certainly was busy for the Arizona Important Bird Area crew! We dedicated the San Pedro Riparian National Conservation Area IBA as a newly designated site of Global importance in conjunction with the April 13 International Migratory Bird Day. This was a great event with an emphasis on the Bell's Vireo, the species that qualified this area as a Global IBA. The expedition to an area west of Wikieup near Lake Havasu was a great success and will likely lead to another Important Bird Area in Arizona. This unique mix of Joshua Trees, saguaros, California junipers, creosote and many species of cacti

has excellent overall bird diversity and was rumored to be good habitat for Bendire's Thrasher. We found over 30 individual Bendire's Thrashers on the site and 10 confirmed pairs, this should qualify this site as a Global IBA in the future!

The annual Elegant Trogon surveys that Rick Taylor has coordinated for many years were expanded this year with Tucson Audubon's help to add the Patagonia Mountains, Atascosa Highlands, and Patagonia Mountains for the first time to the regularly surveyed Chiricahua Mountains and Huachuca Mountains. It was so much fun to visit four IBAs and one potential IBA

over two weekends and look for one of Arizona's "most wanted" birds. We did document these amazing birds breeding in each of our target mountain ranges.

This spring we also conducted some very interesting migration-focused surveys along the Lower San Pedro River near San Manuel north of Tucson. We documented many species using this lush riparian corridor to travel north on their way to their breeding territories. Our first nocturnal survey along the river was also very rewarding with Elf Owls and Lesser Nighthawks heard singing under the full moon on nearly every stop.

Coming up this summer we will have our second season of Yellow-billed Cuckoo callback surveys along the Lower San Pedro River. We had such success finding them in the humid riparian woodlands it will be very interesting to see what we can find with our expanded counting area this year. All of these efforts have been possible only through our amazing volunteers who so generously donate their time and skill to help conduct these surveys. Thanks so much folks: we couldn't do it without you!



Visit tucsonaudubon.org for updates and more.

Mason Center's Path to Net-zero Energy

Paul Green, Executive Director



ALL PHOTOS PAUL & ENGLI GREEN

How do we turn our 1950s bungalow into a net producer of carbon-free energy? We start by reducing the amount of energy we use, and then plan to generate more than that. Since our major uses of energy in the building are heating and cooling, we first have to reduce energy transfers between outdoors and indoors. We began by replacing the tile roof with a white metal one, which reflects sunlight and, more recently, we replaced the 1950s steel-framed single-pane windows with modern

thermal units. Last month we applied HeatBloc radiant spray on the inside of the roof deck to decrease further its emissivity, and then added recycled cellulose insulation to give us R49 in the roof space.

We had a HVAC engineer design a system that was adequate for heating and cooling, and then our solar guy, George Villec of GeolInnovation, sized the future photovoltaic generating system to balance our estimated demand (installation is in the future). As we go to press, we have started

the necessary electrical rewiring, and initial installation of HVAC has begun. One complication was that the original connection to the grid was not of sufficient capacity to run our new systems, and that has added around \$14,000 to the cost. New connector panels have now been installed to the buildings ready for the new grid connection.

Work interruption for staff based at Mason was minimized by the use of a solar trailer (pictured above), which powered our computers and network

while we were disconnected from the grid.

All these changes have been funded by generous gifts from members. We still need around \$20,000 to complete this first stage of the work. Future plans include installing a car charging station and solar-covered parking in our parking lot. In the next issue we will update you on our progress with the photovoltaics and HVAC. We look forward to welcoming supporters to see the result during the fall.

WELCOME NEW MEMBERS

Barbara Adams, Keith Ashley, Andrea Berger, Chris Bittle, Patricia Rodriguez-Bluto, Darin Bocian, Craig Bowman, Grant Bright, Ann Browder, Babs Buck, Arnold Capute, Marilyn Carney, Scott Carroll, Bill Case, Larry Caswell, Laura Cleveland, Lois Colberg, Dr Dennis and Sevren Coon, Stephen Cox, Emily Danies, Jo DeChatelet, Leslie DeGrassi and Larry Worster, Scott Egan, Steve Eggimann and Dianne Van Tasell, David Engelsberg, Dr. Roy G. Farrell, Timothy Fiedler, Kimberly Fitzpatrick, Sylvia Fullerton, Ellen Garms, Carol Gaydos, Lizabeth Gluck, Catherine Gogas, Raelene Gold, Morgan Goldberg, Valerie Gomes, Kai Goodwillie, Pamela and Stan Hart, Caitlin Hawley, Patrick Higgins,

Gregory Horrocks, Jay Hutchins, Leo Jacques, Ronald Jennings, James Karrer, Karen Keating, Sharon Kempfert, Molly Kiely, John Kneen, Gail M. Kranz, Ann and Bruce LaRose, Eric Lauterbach-Colby, Holly Lemieux, Melanie Lenington, Russell Lowes and family, Conrad McCarthy, Michael McMann, Carolle Meeks, Mead Mier, Judy Ann Miller and Paul D'Andrea, Mary Miller, Joe Moreno, Merry Kim Morrison, Alice Mural, Edward Musante, Margrit Myrback, Muriel Neddermeyer, Ray Nichols, John O'Neill, Marica Obara, Tom Olkowski, Jacqueline Paul, Susan Pearson, William Pedersen, Jodene Perrin-Gill, Kathi Peters, Melody Peters, Ronald Peterson, Jack Rasmussen, Audrey and Robert

Ray, Marcy Reiser, Crystal Richt, Bob Robriguez, Julie Rogers, Rona Rosenberg, Glenda Ross, Mike Sadatmousavi, Joan Samuelson, Justin Schneider, Lori Scott, Susan Scott, Connie Seddon, David and Mary Shaffer, Nadine Sheehan, JoAnn Sheperd, Ann Shoben, Inga Simmonds, Guadalupe Sipperley, Randi Solomon, Julie St. John, Sharlene Stager, Connie Thomson, Lisa Turecek, John Weakly, Bobbie Wilson, Bonnie Wong and Rob Holliday, Kaaren A. Zvonik

We welcome *A Feathered Nest in Amado* as a new Birds & Business Alliance Copper Level Member.

Jean Barchman,
Membership Coordinator

THANK YOU TO OUR DONORS

Birthday Fund: Alondra Telles-Waite, Jean Barchman, Fermin Garcia, Jr.

Business Philanthropy: Albertsons, LLC

Matching Gift: IBM International Foundation

Gift in Honor/Memory: We thank these donors for their special gifts:

In memory of Dick Else from Patricia Catalano, Dr. James G. Else, and JoAnne and Bill Peacock

In honor of Laura Cotter from Dorothy Klepper

In honor of Alexia Bivings from Gary Bivings

In honor of Michele Joel from Jessica Jubin

In honor of Richard McKee from Nancy Young Wright

Call for Volunteers: Tucson Bird & Wildlife Festival

Kara Kaczmarzyk, Volunteer & Development Coordinator

It's festival time, the Tucson Bird & Wildlife Festival!

August 14–18. This event, which is expected to draw people from more than 23 states, is high energy and lots of fun! This August, people from all over Tucson and the country will convene for one thing: to celebrate birds and nature. More than 60 volunteers are needed to help make the third annual Tucson Bird & Wildlife Festival a spectacular celebration of the birds and wildlife of southeast Arizona. Will you be one of them?

A variety of fun roles are available for this festival. You can volunteer to support the free talks, workshops, family activities, field trips, registration, Nature Expo, or Nature Shop booth at the event, or serve as an emcee, help setup, take photos, or work on the back end to prepare for the event.

You'll have all the tools you'll need to feel comfortable and confident in whatever role you choose for this event. With your help, the Tucson Bird & Wildlife Festival will showcase

southeast Arizona as the place for monsoon birding!

See what last year's volunteers thought of the event:



The expo was bright and open and inviting. It was a fun place to be.

I'm new and several veteran volunteers were very friendly and helpful.

I also enjoyed interacting with all the nice attendees, vendors, instructors and field trip leaders, etc.

My observation is that it all went very smoothly. I had comments from out of state participants that were very impressed with how well planned and run it was.

Other exciting and important volunteer opportunities include those in our field trip program, press writers, Nature Shops, mail crew, Important Bird Area surveys, and for offsite events.

Contact Kara about volunteering!

volunteer@tucsonaudubon.org

520-209-1811

tucsonaudubon.org/volunteer

Warmest welcome to the new members of the Tucson Audubon volunteer team: Keith Ashley, Meaghan Conway, Nancy Giesen, Jill Goetz, Rachel Martinez, Diana Rosenblum, Connie Stevens, and Mike Thompson.

Carolyn Halder calls herself a birding groupie ("someone who hangs out with birders rather than someone who is a birder"). She began volunteering for Tucson Audubon in the Important Bird Area program a few years ago, doing data entry for the surveys. She did not feel she had the birding skills to qualify for identifying the birds, but a few years later, Carolyn is now in the field participating in surveys herself! She still collects data for the team, but also helps to spot birds for others to identify and is starting to recognize more species.

Carolyn has a hands on approach to improving her bird identification skills, she helps to band birds! She examines hummingbirds and passerines up close through banding programs with the Hummingbird Monitoring Network, Bureau of Land Management, and Sky Islands Bird Observatory. In these roles, she helps to operate the trap nets, records the data that the bander reports, and enjoys the feed and release part of hummingbird banding.

Carolyn has also volunteered for a number of offsite events for Tucson Audubon including Wings Over Willcox (her excuse to go to Whitewater Draw for the Sandhill Cranes).

Overall, she enjoys traveling when she can be helping a good cause at the same time. Birdwatching activities give her an excuse to focus on birding, otherwise, during hikes, she is



usually absorbed by the overall scenery, the totality of the experience. In cooler weather, Carolyn volunteers with Tucson Audubon and other weed whacking groups to remove buffelgrass, arundo, and other invasives.

As a Certified Public Accountant, Carolyn admits that the tax season sometimes obligates her to miss out on outdoor springtime events. She is treasurer and webmaster for the local pet bird club, Avicultural Society of Tucson and has a number of pet Cockatiels. For only a few years since she was six years old has she been without a pet bird. Born in Ohio, Carolyn moved to Tucson in 1988 and hasn't looked back since. Her husband is a professor at the University of Arizona, and her son is a bio technology researcher at the University of Southern California. Her pride showed through as Carolyn talked about her son's research; he is working on improving the signal processing on MRI machines so that brain scans will be much sharper and clearer. ■



DEB VATH



STORMY ROSE



KENDALL KROESEN



MATT BROOKS

Left to right: Cristal shows how to make pine cone bird feeders at the Water Festival; Tucson Audubon volunteers and Wild at Heart relocate six borrowing owls from the site of a future PV power plant to a safe habitat in Marana.; Volunteers Jill Goetz and others helped to present the Birdathon after party; Smiling despite an unusually cold day are volunteers at the Festival of Books.

Interesting stories about birds with interesting names

Chihuahuan Raven

LARRY LIESE

On a Tucson Audubon “Thank-you field trip leaders” outing some time ago, one of the attendees asked our guest leader what he felt was the most challenging identification in our area. We all were quite surprised to hear him announce that Chihuahuan Raven (*Corvus cryptoleucus*) was his choice. The key was that as a professional guide, many of his clients expected to get their life bird tick for this species on the tour, but without a good, studied look at one it wasn't right for him to say they “probably” saw one. Though I know I'd encountered many in my early years of birding, it was five years after starting that I finally checked mine off.

By far the least-studied member of the Corvid family, Chihuahuan Ravens are fascinating birds. They are bold, noisy and gregarious. They are among the most highly intelligent of all birds, with tests showing an ability to count to seven when distinguishing groups of objects! They show innovative thinking when posed with a problem, and make good use of their strong feet and legs if it will fill their belly. Grasshoppers are one of their primary food items, with meat in the form of carrion probably next. One estimate states that a pair of ravens and their nestlings may consume at least 168 grasshoppers per day. They are opportunistic feeders and will eat most anything available, so impact on agricultural interests are mixed. When either perched or soaring, they apparently rely heavily on spotting cues that indicate the presence of food rather than actual food. They cache food when abundant for later retrieval, and have a highly social life history. Individuals have been known to live for over twenty years in the wild.

Breeding in grasslands and desert, Chihuahuan Ravens avoid mountainous terrain and higher elevations which are the home of their larger congener - the Common Raven. At lower elevations, all raven nests in telephone poles and under bridges will be Chihuahuan. A good clue that you may have found one is that there will be a number of unused sticks on the ground beneath the nest. Whether discarded or just inadvertently dropped



(remember, birds have no hands!), they reportedly will not use a stick in their nest if it falls to the ground. They will re-use nests, sometimes stacking new layers atop the old. One such nest was found to have seven layers!

Chihuahuan Ravens have an interesting breeding strategy, which is thought to help maximize the number of healthy chicks fledged. The female will lay three eggs over a couple of days and then start incubating them. One to three additional eggs are added one-per-day with the result that initially three chicks will hatch together followed by the later ones on subsequent days. In times of plenty most chicks survive, but in lean times this keeps failure of the entire clutch less likely. Fledging of chicks is a haphazard affair, with first flights often of an accidental nature when excess lift during branch-hopping carries the chick out of the nest tree. First flights typically head downwind for a hundred meters or more and end with crash landings. They do get better at it, and within 48 hours can make connected flights of a kilometer or more. The word *corvus* is Latin for “a crow”. The species name *cryptoleucus* is a combination of the two Greek words *cryptos* and *leucos* which mean “hidden” and “white” respectively. As all birders in our area might guess, this descriptive combination was given for the bright white feather bases on the birds' neck. Difficult to see in the field, this field mark is one of the most definitive in distinguishing this species from the Common Raven. Look for it on perched birds on windy days. Originally, our bird was given the

name “White-necked Raven”, but that name now belongs to an African bird and Chihuahuan is here to stay (at least for now!).

The word raven comes from the Anglo Saxon word *hraefn*, meaning “a raven”, imitative of the bird's cry. If this seems a stretch, get out your iPod, smartphone or MP3 player and listen—it does fit! Speaking of raven's calls, common birding lore states that the Chihuahuan has a higher pitched call. The literature warns this isn't diagnostic so I tried to verify this by listening to one recording I have comparing our two ravens' calls. Interestingly, the Chihuahuan calls were all quite similar, while the Common's calls on the recording vary with some both higher and lower in pitch. Be careful!

It would take quite a bit of space to describe the subtleties of visual cues for identifying our two ravens so I'll leave that as “homework” with your field guides. Suffice it to say that with practice you can tell them apart with good views, though for many sightings, be ready to say “I'm not sure on that one”! Good luck! ■

Attend the Institute of Grassland Ecology this October 3–6 in Elgin, Arizona, for a good chance to see your own Chihuahuan Raven! See page 4 for details.



ILLUSTRATION BY GEORGE WEST

When Our Grasslands Turn Green

JENNIE MACFARLAND | IBA CONSERVATION BIOLOGIST

Many birders in southern Arizona are familiar with Arizona's grasslands as hotspots for birds in winter and that is certainly true. In the winter months, sites such as the San Rafael grasslands are full of flocks of longspurs, sparrows and impressive predators such as Northern Harriers and Ferruginous Hawks. These areas are less visited by birders in the summer which is a shame because these grasslands come alive with song once the rains fall.

When summer settles in and we have three digit temperatures day after day, many of us turn our thoughts to the near future when we begin to see towering clouds on the horizon in the afternoon. Our summer monsoons bring the relief of afternoon showers and cool evenings. This second act of summer is my favorite time of year and the birds are just as excited to see it arrive. Many grassland species time nesting season to synchronize with the abundance of food our summer rains provide. Those birders adventurous enough to brave the midmorning heat are rewarded with sights and sounds not seen any other time of the year in our grasslands.

One of the best indications that the summer rains have indeed come is when you hear the melodic, clear song of Cassin's Sparrows in courtship display. This is the best time of year to actually get a good look at this species. During the winter they are shy and have the maddening habit of running along the ground through the grass to evade your binoculars. But once the rains come the males will sit up on exposed perches and sing their hearts out. Grasshopper Sparrows can be found in SE Arizona in the winter but they too are generally quiet and only sit out on the fences in the very



Above: Monsoon over Las Cienegas; left: grassland before Proctor Rd outside Madera Canyon; inset: Loggerhead Shrike; bottom left: Grassland outside Madera Canyon

early morning, but mid morning they are very difficult to locate. Like the Cassin's they also sing their buzzy insect-like song throughout the day once the high humidity of the monsoons arrive. Botteri's Sparrow is a regional rarity found in the U.S. only in the extreme SE corner of Arizona and the southernmost tip of Texas and are only here in the summer. These subtly handsome birds wait to lay their clutch until the monsoon conditions are just right in our grasslands but do begin singing their "bouncing ball" song in June.

There are several excellent places where birders in SE Arizona can go to enjoy the natural bonanza that summer's rains bring to our grasslands. As an added bonus, many of these sites are near some well-known birding hotspots.

When driving to Madera Canyon you pass through a relatively flat area of grassland dotted with mesquites and yuccas. Most birders zoom through this habitat in their excitement to enjoy the moist canyon beyond, but it is definitely worth slowing down here. The last few miles before Proctor Road are

especially good for pulling off the side of the road and listening for our summer songsters. The scenic vistas of the San Rafael Grasslands lie southeast of the town of Patagonia and are another excellent place to look and listen for summer breeding sparrows, Eastern Meadowlarks singing their beautiful song and hovering White-tailed Kites.

Las Cienegas National Conservation Area is conveniently located on the way to Patagonia and also features our classic summer singing sparrows along with Chihuahuan Ravens, Loggerhead Shrikes and Blue Grosbeaks.

One of the best places to experience native southern Arizona grassland is at the Appleton-Whittle Research Ranch near Elgin. This beautiful area was once heavily grazed but has now been allowed to operate once more as a natural grassland ecosystem for the past 30 years. This is also where the first **Institute of Grassland Ecology** will take place this upcoming October (see page 4). At this 4-day program, participants will learn about the important ecological role the grasslands of southeast Arizona play within our region, how its unique plant and animal communities differ from those in surrounding habitats, and conservation threats and management strategies that are used to safeguard this ecosystem. ■

Check the Tucson Bird & Wildlife Festival insert for field trips that will be visiting Madera Canyon, and the Patagonia-Sonoita area.

ALL GRASSLAND PHOTOS BY JENNIE MACFARLAND

WHERE TO GO BIRDS TO SEE

eBird: The Greatest Birding Advance in the Last 100 Years?

ALAN SCHMIERER AND JENNIE MACFARLAND

I have been birding since I was a kid back in the mid-1940s. Birding has brought me great joy, has introduced me to many of my best friends and has taken me to strange and wonderful places, some known only to the “brotherhood” of birders. Although the mechanics of birding over that time period have progressed markedly, I see a few events as being extraordinary.

The first big addition to the birding world was the advent of the field guide; a book small enough yet inclusive enough to be of use actually in the field. I still treasure my 1947 edition of “Peterson” (with penciled-in life list of 69 birds!).

The second dramatic advance co-evolved with the advent and popularization of the computer. Only with the aid of computers could the design of the clear, brilliant and affordable optics that we use today be possible. In addition, the computer brought digital bird guides, lists, listserves and cameras. All of these innovations have been huge advances in finding, identifying and documenting birds.

And now there is eBird: ebird.org. The prior milestones in birding dealt with advances that primarily give to us, the birders. eBird, which I consider to be the greatest advance in birding in my lifetime, and probably in the past 100 years, not only gives a huge birding tool to us, but it is our chance to give back to the avocation that we so love!!

Why is it so special? Bird guides, even the most comprehensive, even those online, like the great resource of *Birds of North America* (bna.birds.cornell.edu/bna) become obsolete even before they are published. eBird is NOW, with about 3–5 million entries submitted per month.

You can find bar-graphs, all the way down to the county level, that show seasons for any year or years that you wish—great for local birding and essential for travel.

Maps of *Birding Hotspots* are a great way to plan a birding trip and helpful when you move to a new town and want to find where to bird.



MATT GRIFFITHS

eBirding for a new Tucson IBA

When you go birding in the Catalina and Rincon Mountains, Saguaro National Park or Tucson Mountain Park, please “share” your checklist with the username ArizonalIBA to directly help create a new Important Bird Area around Tucson. Lists from the past are also extremely helpful as well!

eBird and Arizona IBAs

The Arizona Important Bird Areas (IBA) program relies heavily on skilled volunteers collecting data on what birds are located where. In the past this had been done almost exclusively in a formal way where IBA volunteers went birding in predetermined locations and filled out forms. We also used data that were shared from other organized programs such as Breeding Bird Surveys and Christmas Bird Counts.

While we do still use these sources to monitor IBAs and create new IBAs, eBird has really stepped up recently as a vital complementary source of information. Observations listed on this site are less rigorously collected but the sheer volume of sightings makes up for this. There is also a network of eBird reviewers who follow-up on less than likely sightings and keep the data free from mistakes. The interactive maps showing where a certain species has been reported also have been helpful in recent survey planning. For the recent Elegant Trogon surveys some canyons that were not on our radar had sightings reported so we sent teams into those areas and the birds were found on survey day.

eBird is fun to use and it is interesting to see your personal birding statistics, but keep in mind that every time you report what you observed while birding, you are helping the science that fuels conservation efforts. Let’s get out there and eBird! ■

Jennie MacFarland
IBA Conservation Biologist

If you are a bird-lister and are looking for “life birds”, search a species with the month/year parameters that you wish and an area of interest to get detailed Google maps of exactly where the species is being seen (and what else was seen at the same location on that day).

Visit “My eBird” and see all of your prior reports and your county, state and North America species lists.

Data can be entered at any time; immediate is good, but it can be entered retroactively; a good “rainy-day project”. (A few years ago I went through my notes from when I lived in a remote county in Utah and entered data that likely would never otherwise have been part of science.)

eBird is here to stay, but it is also evolving. Its leadership is responsive to the needs of the system and to keeping it user-friendly.

BUT... the value of eBird is proportionate to the input! The input to the system now represents about 80,000 birders. This is estimated to be only about 25 percent of the “birders”! Yet hundreds of thousands of people use the data output created in the system. If you are one of the 75 percent who do not input data to eBird, please *visit the site, explore the data*, and most important, *try a report or two*. It is easy and intuitive. All of that data in your dusty little notebooks could be part of living science and available to all.

Alan Schmierer

Alan Schmierer has been birding since he was 7 years old and just recently, at age 72, got to 800 on his ABA list! Now his quest is to photograph them all. Alan was an optometrist for the Indian Health Service before he retired to Patagonia, AZ.



ELEGANT TROGON, DOMINIC SHERONY

TUCSON meet YOUR BIRDS



AMERICAN KESTREL, JOHN KENNEDY; VERDIN, LARRY SELMAN

When I was a kid growing up in Tucson, summer vacations meant raggedy cut-off jeans, white cotton tees, and tennies without socks. The skimpy street attire my pals and I favored was designed to give us more time outdoors practicing on our skateboards. Skin damage—and skin cancer—were concepts over a decade away.

Eventually the sun always won and we retreated indoors to evaporative cooling and our reading—no digital universe in those days. My favorite writer was Weldon Heald. Heald penned a series of articles published by *Arizona Highways* about his adventures in the Chiricahua Mountains (ultimately collected in 1967 under the title of “Sky Island”) in which he chronicled his jaunts up the so-called “climate ladder.” Leaving the valley floor below Portal where summertime temperatures frequently exceeded 100 degrees, he ascended Cave Creek to a mountain meadow surrounded by pines and firs called Rustler Park. Still not satisfied, Heald hiked out on the Crest Trail to Chiricahua Peak. Here, among

aspen glades and the southernmost Engelmann spruce in North America, the temperatures dropped to the mid-70s.

Vicariously I could smell the sweet mold in the leaf litter on the shady, north-facing slopes and the aromatic air where the trail meandered through tall stands of Ponderosa pine. From June through August, Weldon Heald created many of my daydreams. He was the master of the climate ladder.

That was over forty years ago, but Heald’s image of the Southeastern Arizona border ranges as mountain islands surrounded by a sea of desert still holds true today. Rainfall increases about 4 inches per 1000 feet because cool air cannot hold moisture as well as warm air, and is the same as moving north in latitude approximately 300 miles. The vegetation changes from creosote desert to spruce forest over the 5,000 feet of elevation spread separating Portal from Chiricahua Peak are the same one

would encounter driving 1500 miles north into Canada.

And—of course—the birds change too. Cactus Wrens give way to Golden-crowned Kinglets, and Verdins morph into Red-faced Warblers. This rich panoply of habitats, from saguaro cactus to Madrean pine-oak woodland and boreal forests of spruce and fir, gives southeast Arizona its concentration of “specialty birds.” Just as boys—and girls—need fantasy to escape the heat, this edition of Tucson Meet Your Birds introduces you to some mountain birding locations and to some of our neighbors that use the Sky Islands to survive the summer in Southeastern Arizona.

Rick Taylor, Borderland Tours

ALYSSON HURT

SPECIAL SECTION



OUR MISSION: Tucson Audubon promotes the protection and stewardship of southern Arizona’s biological diversity through the study and enjoyment of birds and the places they live.

FREE Birding Field Trips:
tucsonaudubon.org/fieldtrips

Nature Shop: 300 E. University Blvd.
520-629-0510 x1

Birding Classes:
tucsonaudubon.org/education

Rare Bird Alert: tucsonaudubon.org/rba or
520-629-0510 x3

Tucson Bird Count: tucsonbirds.org

Volunteer: tucsonaudubon.org/volunteer

Tucson Bird & Wildlife Festival:
tucsonaudubon.org/festival

tucsonaudubon.org 520-629-0510

GREAT BIRD PLACES NEAR TUCSON | CATALINAS

PEPPERSAUCE CANYON Oracle State Park is only open weekends and just six months of the year, but even better birding can be found year-round seven miles past the park. Peppersauce Canyon and a National Forest campground are located in a treed oasis at 5,000 feet along the old Mt. Lemmon Road. Pavement ends two miles from the state park, but the dirt road is an easy drive to the campground.

Enormous sycamores shade the camp sites, and the adjacent Rice Peak trail gently ascends through Mexican blue oak and juniper to a second spring-fed oasis just a mile from the campground. This habitat is ideal for birds, and 139 species have been reported on eBird’s hotspot, including 17 flycatchers, phoebes and kingbirds, as well as 5 vireos and 14 warblers. Summer Tanagers are reliable summer visitors, and resident birds include Phainopepla, Mexican Jay and Bridled Titmouse. It’s also just 20 miles from Ski Valley, but don’t try it in the family car. **Bob Bowers**



Indigo Bunting

BOB BOWERS



LOIS MANOWITZ

Elegant Trogon

Many American birders regard the male Elegant Trogon as the most beautiful bird north of the international boundary. Almost a foot-long with an iridescent green back and scarlet red breast, the multihued male trogon exhibits a yellow bill, an orange eye-ring, immaculate white breast band, dove gray wings, and a black-and-white laddered undertail. Females are fractionally larger than the males. Overall the olive-hued upperparts are a neutral grayish-brown, but she shows a dramatic white “teardrop” behind the eye, a coffee latte-colored vest, and a watermelon pink lower belly. The underside of her tail is more heavily barred than the male’s, and the top is a brilliant plane of beaten copper that gave rise to the former species name: Coppery-tailed Trogon.

Add rarity to the charisma of the Elegant Trogon. With a range that extends as far south as Costa Rica, a 2013 census revealed that only approximately 100 adult trogons summer in the United States, all in the border mountains of Southeastern Arizona. Furthermore, trogons occupy canyons hosting the greatest avian species diversity of any habitat within the whole of the U.S. Social scientists at the University of Arizona have estimated that over 25,000 birders come to Arizona annually to enjoy our unique avifauna. Undoubtedly the foremost symbol of that community is the rare and beautiful Elegant Trogon.

Rick Taylor, Borderland Tours



TOM GREY

Magnificent Hummingbird

On first encounter, a Magnificent Hummingbird brings to mind a large butterfly. The relatively slow wing beat, though, is faster than that of the larger Blue-throated Hummingbird, the largest hummingbird in North America.

Of the two races of Magnificent that inhabit a combined range extending from southwestern United States to Panama, Arizona has the smaller northern race (*Eugenes fulgens fulgens*). Males are around ten percent larger than females by most measures. However, the females have bills that are around ten percent longer, which would make some nectar sources available to her that the male cannot reach.

The male’s green throat and purple crown sometimes flash in the light but usually the bird appears to be all dark with a white spot behind the eye. The female is much plainer, with a white stripe behind the eye, a noticeably long bill, and mottled gray-green sides.

Easy to see at some feeders in Madera Canyon and elsewhere, this species wanders far from its southeast Arizona stronghold. There are regular records from the White Mountains, and northwest along the Mogollon Rim and as far north as Flagstaff. It prefers cool, shaded Madrean pine-oak canyons. While some birds winter locally at feeding stations, most are migratory, appearing in Arizona during early to mid-March.

Paul Green, Executive Director



JEREMY HAYES

Elf Owl

Sometimes a bird’s name can be a bit baffling once you become more experienced with the bird itself. For instance the ring on a Ring-necked Duck can be very hard to see and Turkey Vultures don’t look all that much like Turkeys. The Elf Owl certainly does not have this problem! Everything about this tiny predator of insects is reminiscent of an elfin creature. Their miniscule size of 5 to 6 inches in length makes them the smallest owl in the world and their startlingly loud call sounds like ethereal laughter. This bird certainly lives up to its name. With a breeding range in the U.S. restricted to the southern half of Arizona and portions of New Mexico and western Texas, it is no wonder why this bird is featured on the logo for the Tucson Bird and Wildlife Festival.

Many of us in Tucson associate this bird with saguaros and indeed they do often use cavities created by woodpeckers in these giant cacti as nest sites. During late April through July their call can be heard throughout the deserts surrounding Tucson but they can also be found at higher elevations as well. They will also use woodpecker holes in Arizona sycamores, various oaks and even pines in SE Arizona’s Sky Islands. Next time you find yourself in suitable habitat as night begins to fall, be sure to listen for this amazing little bird.

Jennie MacFarland, IBA Conservation Biologist

SPECIAL SECTION

GREAT BIRD PLACES NEAR TUCSON | SANTA RITAS

One of my favorite “secret” spots is **MONTOSA CANYON** in the Santa Rita Mountains. Even though recent birding discoveries here have put the area on the radar of many local birders, most visits will still be blissfully free of the traffic and crowds of nearby Madera Canyon. Montosa Canyon has some of the most easily accessible habitat resembling Sonoran thorn scrub in SE Arizona, which makes it a great place to look for associated specialty birds such as Black-capped Gnatcatcher and Five-striped Sparrow. Plain-capped Starthroat has been found in the early summer. Though it hasn’t yet been reported, a night visit in the proper season may produce Buff-collared Nightjar. Even if you don’t pick up a rarity, the birding in the canyon is excellent. In the lower canyon where the road crosses the creek bed, Varied Buntings, Rufous-crowned Sparrows, and Blue Grosbeaks sing in season and many migrants pass through the oak-scrub habitat on their journeys to/from their breeding grounds. Further up-canyon the habitat transitions into juniper with a few pines, which can add a number of species to a day’s birding list. No matter what time of year you visit, plan on spending a wonderful few hours in this excellent canyon. *Matt Brooks*



BOB BEATSON



TUCSON BIRD & WILDLIFE FESTIVAL

And the Sky Islands Birding Cup

AUGUST
14-18



GLENN BUTLER

SPECIAL 8-PAGE
PULL-OUT

PREPARE TO BE AMAZED BY NATURE!

Tucson Audubon and the Riverpark Inn invite you to experience southeastern Arizona birding at its best! Immerse yourself in the spectacular and unique biodiversity of the Sonoran Desert and Sky Islands at the third annual Tucson Bird & Wildlife Festival. Hit the trails with our friendly expert leaders, who will help you track down your most wanted birds. Visit the Nature Expo where you'll find festival fun for the whole family. Make monsoon memories in Tucson this August 14-18—we can't wait to welcome you!



KEYNOTE BANQUET AND FEATURE PRESENTATION COLORING THE CONSERVATION CONVERSATION WITH DR. J. DREW LANHAM

Saturday, August 17, 6:30-8:30 PM at the Riverpark Inn
\$35 pp, includes buffet dinner

Birds are connected to us in so many ways. While most people appreciate birds' aesthetic appeal and ecological role as fellow planetary beings, few take the time to think about how birds connect to culture. A Bald Eagle soaring might cause many Americans to swell with patriotism. That same spectacular raptor might be seen by some Native American peoples as a bird worthy of ceremonial sacrifice. A Great-horned Owl hooting in the hours before dawn might cause some people of African descent to fear forthcoming malady—even death. To others our largest owl vocalizing in the moonlight might be a symbol of sagacity. And so the birds we see—in life, in art, and in literature—may present themselves differently to us depending on our ethnicity, gender, upbringing, or any multiplicity of other factors. Dr. J. Drew Lanham, passionate birder, ornithologist, writer and Clemson University wildlife biology professor, will broach the subject of why and how our cultural connections to birds are important and in fact crucial to avian conservation and broadening the base of the birding community.

Join Drew Lanham for *So What, You Bird*—a conservation workshop for birders on Friday (details p 4) and a special youth birders' outing on Sunday (details p 7)

FEATURE PRESENTATION SPONSORED BY  SWAROVSKI
OPTIK

Field Trips Difficulty Levels

- 1 Flat walking on groomed trails or roads
- 2 Some mild slopes, but still on excellent surfaces
- 3 Steeper slopes or more rocky/rooted trails
- 4 Long walks away from road surfaces over hiking terrain

Prices are per person, registration required (includes transportation, and packed lunch on full-day trips)

HALF-DAY FIELD TRIPS

SWEETWATER WETLANDS

Fri 8/16 6–8 AM 1 \$20 pp

A “must see” destination for any birder with a few hours to spend in Tucson, and a great place to get started as a beginner birder. A stunning variety of species can be found here at any season, but we’ll need to arrive early before the day heats up to catch the prime activity. We’ll look for everything on the checklist from Cinnamon Teal to Abert’s Towhee! Loaner binoculars available. **meet at Sweetwater Wetlands**



HARRIS' HAWK / JOHN KENNEDY

CIENEGA CREEK & DAVIDSON CANYON

Fri 8/16, Sun 8/18 5:30–11 AM 3 \$50 pp

Here perennial stream flow and lush riparian vegetation create an important nesting and migration corridor for a multitude of avian species. Home to Yellow-breasted Chat, Yellow-billed Cuckoo, Northern Beardless-Tyrannulet, Bell’s Vireo, and Lucy’s Warbler, the creek has also hosted of a number of vagrants. Under the shade of towering Fremont cottonwoods, we will explore this well-watered and increasingly rare habitat on a half-day outing.

MADERA CANYON SAMPLER

Fri 8/16 5:30 AM–12 PM 4 \$50 pp

Starts in grassland habitat for singing Cassin’s, Botteri’s, and Rufous-winged Sparrows, species that have waited just for the monsoon season to breed. Then up to mid-elevation oak-juniper habitat for Arizona Woodpecker, Painted Redstart, and Sulphur-bellied Flycatcher. We’ll spend some time exploring the riparian trail and feeder arrays that make Madera a hummingbird diversity hotspot.

SPONSORED BY LEICA SPORT OPTICS

LAS CIENEGAS

Sat 8/17 5:30am–12:30 PM 3 \$50 pp

This 45,000 acre National Conservation Area with high desert grasslands, perennial streams, marshes, and juniper-oak woodlands is home to monsoonal breeders including the highly sought-after Cassin’s, Botteri’s and Grasshopper Sparrows,

as well as riparian-associated species like Gray and Zone-tailed Hawks, Yellow-billed Cuckoo, Northern Beardless-Tyrannulet, and Summer Tanager. Plus black-tailed prairie dogs (and their Burrowing Owl neighbors) and the possibility of pronghorn.

CATALINA STATE PARK

Sat 8/17 6–11 AM 2 \$50 pp



GILDED FLICKER / LAURA STAFFORD

A diversity of habitats here should yield a wide variety of bird species: saguaro and palo verde desertscrub, mesquite woodland along washes, and scattered ash, sycamore, and oak trees along an intermittent stream are all included. Arizona specialties like Abert’s Towhee and Rufous-winged Sparrow should be found here, as well as the Sonoran Desert endemic Gilded Flicker, and with a bit of luck, regional specialties like Northern Beardless-Tyrannulet and Varied Bunting.

SPONSORED BY ROCKJUMPER

SAGUARO NATIONAL PARK

Sat 8/17 6–11 AM 2 \$50 pp

Saguaro NP protects a large tract of magnificent Sonoran Desert habitat, with towering saguaros and a host of other cacti; and mesquites, palo verde, and ironwood trees along with the birds and other wildlife that depend on these plant communities. Ash-throated and Brown-crested Flycatchers, Gambel’s Quail, Black-throated Sparrow, Black-tailed Gnatcatcher, Pyrrhuloxia, Cactus Wren, Harris’ Hawk, Gila Woodpecker, Gilded Flicker and more.

MT. LEMMON & MT. BIGELOW

Sun 8/18 5 AM–1 PM 2 \$50 pp



OLIVE WARBLER / TONY MORRIS

The Catalina Mountains, just north of the city of Tucson offer a respite from the heat of the desert floor, and access to high elevation forests that are more typical of the Rocky Mountains. We’ll head straight up to dense spruce/fir forests and maple-

filled draws in search of Golden-crowned Kinglet, Brown Creeper, Red Crossbill, Olive Warbler and Northern Goshawk. Mixed species flocks often include numerous Red-faced, Townsend’s, Virginia’s, and Black-throated Gray Warblers.

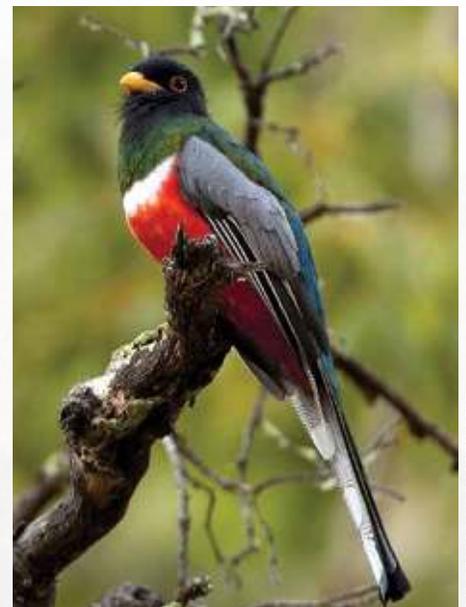
WILLCOX SHOREBIRDING EXCURSION

Sun 8/18 5:30 AM–12 PM 1 \$50 pp

Witness migration in action on this relaxed half-day trip to the Willcox Twin Lakes and Benson Sewage Ponds. Get tips on how to ID some of the shorebird species that, albeit briefly, call Arizona home. Wilson’s Phalarope, Long-billed Dowitcher, Pectoral, Stilt, Baird’s, Western, and Least Sandpipers are likely, as are an array of migrant swallow species, and birds of the open grassland like Scaled Quail and Horned Lark.

MADERA CANYON TROGON TREK

Sun 8/18 5:30 AM–12 PM 4 \$50 pp



ELEGANT TROGON / BRUCE TAUBERT

A special effort to locate the stunning Elegant Trogon may require a roundtrip hike of up to 3 miles, over generally well-groomed (but occasionally steep) trails. Once we have secured views of our main target species we will spend the remainder of the morning exploring oak-filled lower Madera Canyon; Bridled Titmouse, Painted Redstart, Hepatic Tanager, Arizona Woodpecker, and a variety of hummingbirds are on our hit list.

FULL-DAY FIELD TRIPS

CALIFORNIA GULCH ADVENTURE

Fri 8/16, Sat 8/17 5 AM–4 PM 3 \$85 pp

Five-striped Sparrow, Varied Bunting, Montezuma Quail, and Least Grebe are at the very northern edge of their ranges here. Time-permitting, we’ll head to the Patagonia area to look for Thick-billed Kingbird, Violet-crowned Hummingbird and more. Gray Hawk, Tropical Kingbird, Black-capped Gnatcatcher also possible.

BIG HUMMINGBIRD DAY

Fri 8/16 5 AM–4pm ③ \$85 pp

Southeastern Arizona is a mecca for US hummingbird diversity, and the monsoon season is the best time of the year to find the full complement of species. Our goal is 13 including Lucifer, White-eared, and Berylline Hummingbirds. Flexible itinerary allows us to pinpoint staked-out species and spend some time sorting through often tricky female and immature plumaged birds. This trip will likely involve limited walking, plenty of opportunities for extended studies and photography.

BORDERLAND SPECIALTIES

Fri 8/16, Sat 8/17 5:30 AM–2 PM ③ \$85 pp



ZONE-TAILED HAWK / SEARCHNETMEDIA

Local expert Rick Taylor leads a wildcard exploration of several of the region's "can't miss" birding sites. Our itinerary will be determined by the latest sightings of borderland treats like Elegant Trogon, Arizona Woodpecker, and Sulphur-bellied Flycatcher, and other potential birds include Zone-tailed Hawk, Virginia's and Grace's Warblers, Painted Redstart, Flame-colored Tanager, and Botteri's and Cassin's Sparrows.

MT. LEMMON: DESERT TO CONIFERS

Fri 8/16, Sat 8/17 5:30 AM–3:30 PM ③ \$85 pp

Rising over 6,000 feet above Tucson, Mt. Lemmon, at 9157 feet asl, is the highest peak in the Santa Catalinas. The 25-mile journey up the wide, paved, two-lane Catalina Highway is equivalent biologically

to traveling from Mexico to Canada. The fascinating array of desert denizens like Gilded Flicker at the base, to Olive, Red-Faced and Grace's Warblers on the easy drive up make this trip high on any birder's list. Bonus: temps at the top nearly 30 degrees cooler than below, and unparalleled scenery.

FURTHER AFIELD: HUACHUCA MOUNTAINS

Sat 8/17 5 AM–4 PM ③ \$85 pp

Explore the Madrean oak woodland and open pine forests of scenic Carr Canyon on the east flank of the Huachucas, home to Arizona Woodpecker, Painted Redstart, Olive Warbler, Buff-breasted Flycatcher and Greater Pewee. After a few hours exploring along the main road, winding up to near the peaks of the Huachucas, we'll picnic in the shade then descend to nearby Ash Canyon, where private hummingbird feeders should be buzzing with activity. Range-restricted Lucifer Hummingbird possible.

SKY ISLANDS NATURALIST SAUNTER

Sat 8/17 5:30 AM–4 PM ③ \$85 pp

Vincent Pinto leads this detailed exploration of the natural history of the Sky Islands region. Wander the lush riparian areas, mesquite bosques, and grasslands near Patagonia Lake learning about the area's birds, mammals, reptiles, amphibians, native plants, ethnobotany, tracking, geology, and history. Walking at a moderate pace over varied terrain you'll soon discover why southeast Arizona harbors the greatest biodiversity in all of North America! Added bonus: The chance to see a number of regional specialty birds.

PATAGONIA & RIO RICO

Sat 8/17 5:30 AM–4 PM ③ \$85 pp

Towering cottonwoods support Gray Hawk, Yellow-billed Cuckoo and Northern Beardless-Tyrannulet, and also form an important migration corridor along the Santa Cruz River. We'll visit isolated wetlands near Rio Rico and Kino Springs for Black-bellied Whistling-Duck, Common Ground-Dove, Varied Bunting, Tropical Kingbird, and a variety of

migrants. Next we'll hit the famous birding locations of Patagonia targeting Zone-tailed Hawk, Thick-billed Kingbird and Violet-crowned Hummingbird.

BIRDS & BUTTERFLIES OF BROWN CANYON

Sun 8/18 5:30am–2:30 PM ③ \$85 pp

A special access trip to beautiful Brown Canyon at Buenos Aires NWR. This lush canyon in the Baboquivari Mountains boasts large sycamore trees along a usually flowing creek, surrounded by oak forest and patches of excellent thornscrub. Varied Bunting, Sulphur-bellied Flycatcher, Botteri's Sparrow, Montezuma Quail, and Black-capped Gnatcatcher, hummingbirds, and orioles are targets for our morning walk along the riparian corridor. Butterflies and dragonflies are numerous!

PATAGONIA & SONOITA

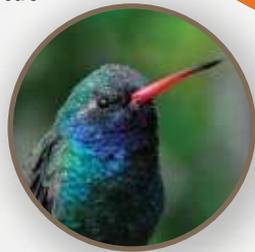
Sun 8/18 5:30 AM–4 PM ③ \$85 pp

Patagonia is one of this area's best-known destinations for riparian birds. Nearby Sonoita's grasslands hold an entirely different set of species. There are many famous places to bird here including the Patagonia-Sonoita Creek Preserve, Harshaw Canyon, and of course the Patons' backyard feeder array; the latest reports will determine our exact itinerary. Targets include Gray Hawk, Thick-billed Kingbird, Varied Bunting, Violet-crowned Hummingbird, Botteri's, Grasshopper, and Cassin's Sparrows.

HUMMINGBIRD SAFARI FOR BEGINNERS

Sun 8/18 6 AM–2 PM ② \$85 pp

This small-group excursion is a "can't miss" for beginner birders or visitors interested in getting to know some of the Tucson area's most dazzling birds and a few popular, nearby birding sites! Join Sheri L. Williamson, author of the *Petersen guide to Hummingbirds of North America*, for a field workshop that covers hummingbird basics.



BROAD-BILLED HUMMINGBIRD / HEATHER PAUL

SPECIAL 8-PAGE PULL-OUT



CHRISSEY SMITH

FESTIVAL NIGHTLIFE

THURSDAY, August 15

NIGHTLIFE SOCIAL

5–7:30 PM at the Riverpark Inn
Registered participants only;
\$5 pp includes drink ticket.

Gather with other birders, festival speakers, and vendors to kick off the third annual Tucson Bird & Wildlife Festival! Get to know your festival leaders and a few special nocturnal guests—a real “Who’s HOO!” Light refreshments provided, cash bar.

FRIDAY, August 16 & SATURDAY, August 17

SOCIAL HOUR

5:30–6:30 PM at the Riverpark Inn
Free entry

Mix and mingle with other Festival attendees and leaders after a great day’s birding! Cash Bar.

FRIDAY, August 16

Feature Presentation
VANISHED BIRDS AND TOMORROW’S SKIES: HOPE IS THE THING WITH FEATHERS WITH CHRISTOPHER COKINOS

6:30–8:30 PM at the Riverpark Inn
\$35 pp, includes buffet dinner

Award-winning writer Christopher Cokinos brings us the stories—the lives and the demise—of several extinct North American birds. We travel to the hilltop where the last known wild passenger pigeon was killed, to the refuge where once there grew a great forest with the last verified ivory-billed woodpecker, and through these stories of loss into a clear-sighted hope for our present and the future. Using words and images, Cokinos—a poet and nature writer—shows us how questions of environmental responsibility toward the contemporary biosphere can be informed by the histories of these extinctions and the context of even deeper histories...and how we, as keepers of our natural world, can act to conserve and protect what we value.

Christopher Cokinos is the author of *Hope Is The Thing with Feathers: A Personal Chronicle of Vanished Birds* and *The Fallen Sky: An Intimate History of Shooting Stars*. He lives and works in Tucson, where he teaches at the University of Arizona and is affiliated faculty with the Institute of the Environment.

SATURDAY, August 17

Feature Presentation
COLORING THE CONSERVATION CONVERSATION WITH DR. J. DREW LANHAM

6:30–8:30 PM at the Riverpark Inn
\$35 pp, includes buffet dinner

Full details on p. 1. Wildlife biology professor, ornithologist, writer, and lifelong birder Dr. J. Drew Lanham explores why and how our cultural connections to birds are crucial to avian conservation, and to broadening the base of the birding community.
 SPONSORED BY SWAROVSKI OPTIK.

WORKSHOPS

FRIDAY, August 16

BEGINNING BIRDING WITH LYNN HASSLER

9:30–11:30 AM at the Riverpark Inn \$35 pp

This workshop is designed for beginners, providing an overview of how to get started, including discussions on the tools you’ll need (and how to use them), where (and when) to look for birds, how to identify what you see, and information on some of the local species that you might encounter on Festival field trips!

GRASSLAND BIRD ID WITH HOMER HANSEN

12–1 PM at the Riverpark Inn \$25 pp

The grasslands of southeastern Arizona are situated in the heart of the Sky Islands, an area known for its rich species diversity. This workshop provides an introduction for beginners to the birds one may see in the grasslands during the summer and fall. Identification characteristics as well as vocalizations for certain species will be covered.

SPARROWS WITH HOMER HANSEN

1:30–2:30 PM at the Riverpark Inn \$25 pp

Our skulky sparrows come to life during the monsoon season, and species such as Botteri’s, Cassin’s and Grasshopper Sparrows can be identified readily if you are familiar with their appearance, behavior, and vocalizations. Homer Hansen will help you get to know the breeding sparrows of our region, their habitats, characteristics, and songs!

SO WHAT, YOU BIRD: BIRDERS AS ACTIVE CONSERVATIONISTS WITH DR. J. DREW LANHAM

3–4 PM at the Riverpark Inn \$25 pp

Festival keynoter Drew Lanham will expound on the historical successes and current failures in conservation and how we might best approach future challenges if birds and birding are to remain a part of our lives. From that morning cup of coffee to inviting birds with kindness, this workshop will inform, invigorate, infuriate and hopefully inspire birders to greater conservation efforts.

GO BATTY! WITH DR. RONNIE SIDNER

4:30–9 PM at the Riverpark Inn \$45 pp, includes sack dinner & transportation

Join expert mammologist Dr. Ronnie Sidner for a classroom lecture all about bats and then take a field trip to search for Mexican free-tailed bats on their nightly trek through the city. Using sonar detectors and modified light, we will be able to ‘see’ a minimum of 3 or 4 species of bats.

SATURDAY, August 17

LANDSCAPING FOR WILDLIFE WITH KENDALL KROESEN

10–11 AM at the Riverpark Inn FREE

This workshop covers basic principles for gardening and landscaping that emphasize sense of place, biodiversity, and providing for the needs of birds and other small wildlife, with a focus on native plants and desert-adapted techniques. Leave with a good orientation toward creating biologically and structurally diverse landscapes and how gardens and landscapes can form a unified whole.



CACTUS WREN / LON & GUIETA

LEARNING TO USE A FIELD GUIDE WITH STEVE N. G. HOWELL

11:30 AM–1:30 PM at the Riverpark Inn \$35 pp

What makes a good field guide, and why? Do I have the right field guide for my purposes? As birders of any level, we likely own at least one field guide. But the field guide is only part of the equation—you are the other part: How do you see birds and look at them? How do you identify birds? Steve Howell, author of several guides, examines these intertwined questions and hopes to make you think about how you look at birds, how you identify them, and how you can get more out of birding.

FALL MIGRATION WITH HOMER HANSEN

2–3 PM at the Riverpark Inn \$25 pp

Southeast Arizona hosts a wide variety of migrant birds—some are just passing through while others stay for a while. Learn about some of these birds, their behavior and other characteristics while learning about ‘molt migration’ and other reasons why this area is awesome during migration.

HUMMINGBIRD ID WITH SHERI L. WILLIAMSON

3:30–5:30 PM at the Riverpark Inn \$35 pp

As familiar and iconic as they are, hummingbirds still offer plenty of identification challenges. Sheri L. Williamson, author of the Peterson Field Guide to Hummingbirds and co-founder of the Southeastern Arizona Bird Observatory, will share what she has learned over 25 years of intensive study to help you identify, understand, and appreciate these remarkable birds.

See p.9 of the Flycatcher for volunteer opportunities at the Festival, or contact Kara volunteer@tucsonaudubon.org | 520-209-1811

SPECIAL 8-PAGE PULL-OUT



BOTTERI'S SPARROW / DOMINIC SHERONY

Birders Mean Business!

Arizona's Watchable Wildlife Worth \$1.4 billion



Watchable Wildlife enhances, elevates and promotes responsible wildlife viewing and nature appreciation for the benefit of society, while building community awareness, understanding and support for the conservation of the wildlife and habitats upon which these activities depend.

The Call of the Wild

Recent studies show that birdwatching is among the nation's most popular recreational activities, and growing. Why Birding? Ask the **47+ million birdwatchers in America** why they love birds, and you'll likely get a range of replies as diverse as the birds themselves.

With colors and songs that can stop you in your tracks (just about anywhere), equally colorful and evocative names, and life stories replete with amazing feats of speed and stamina, not to mention the power of flight, birds pique our curiosity and invite us to explore our world. They delight us, unite us, and challenge our field of view.

Suffice it to say that nature observation can do wonders for the mind, body, and soul. Birds are an exciting gateway to the natural world, and we may value them for personal reasons, experiencing them in different ways. But whether your style is hitting the trails in hot pursuit of your next lifer, or simply enjoying the action at your

backyard birdfeeder, you are also helping to create a different kind of shared value for wildlife: economic value.

Survey Says... "Birders Mean Business!"

BIG business. You might be surprised to learn that Watchable Wildlife recreation in Arizona has a larger economic impact than hunting, fishing, golf, or the Gem Show. A new report by Southwick Associates, a firm that specializes in analyzing trends in wildlife recreation, shows the total economic effect from 2011 watchable wildlife activities in Arizona to be **\$1.4 billion** (\$1.1 billion by residents and \$314.6 million by visitors).

When birders and other wildlife watchers visit, they spend money—mostly on lodging, food, and transportation. Local participants contribute, too, with equipment purchases like optics, camera gear, and birdfeeding supplies (among other tools of the trade). These expenditures have increased since

TOTAL ECONOMIC EFFECT OF WATCHABLE WILDLIFE RECREATION:

Arizona (Statewide) = \$1.4 b

Pima County = \$304.4 m

Cochise County = \$24 m

Santa Cruz County = \$21 m

In this survey "wildlife watching activities" include observing, photographing, or feeding wildlife. Original expenditures by wildlife watchers generate rounds of additional spending throughout the economy, resulting in additional indirect and induced impacts that are commonly called the multiplier effect. Economic activity associated with both the direct spending and multiplier effects impacts is the total economic contribution resulting from the original expenditures.

SPECIAL 8-PAGE PULL-OUT

ANDY REAGO & CHRISSEY MCCLARREN



Red-faced Warbler is on the 'birding bucket list' for many birders who visit Southeast Arizona.

2001, despite economic instability; in 2011, Arizona residents spent a total of \$665 million on watchable wildlife recreation, while **visiting wildlife watchers from out-of-state poured \$183.7 million new dollars into the state economy.**

Original expenditures by wildlife watchers generate rounds of additional spending throughout the economy, resulting in additional indirect and induced impacts that are commonly called the multiplier effect. Economic activity associated with both the direct spending and multiplier effects impacts is the total economic contribution resulting from the original expenditures.

Quantity & Quality

Arizona's unique combination of geography and climate supports a whopping 400+ bird species—that's about half the total of all the bird species that can be found in the U.S. and Canada, in just one percent of the land area! Diverse and distinctive, Arizona's birdlife features many species found nowhere else this side of the border, virtually guaranteeing a slot on many a 'birding bucket list'. Combine all this with our rich cultural heritage, first-class destination services, and a plethora of unique wildlife experiences accessible from Tucson, and it's no wonder we're recognized as one of the top birding and nature destinations in the country.



JOHN HOFFMAN

Birds-eye view of the Santa Cruz, rolling out a 'green carpet' for birds (and birders). Southern Arizona's vital but threatened riparian areas are the main focus of Tucson Audubon's local conservation efforts.

To support and grow this valuable industry, we need to promote responsible wildlife observation and protect and enhance the habitats upon which our wildlife depends. NGOs, government, and business can work synergistically to nurture 'The Goose that Lays the Golden Eggs.'

For more information, including Southwick Associates' full report (*Economic Contributions of Wildlife Viewing to the Arizona Economy, May 2013*), commissioned by Tucson Audubon Society please visit tucsonaudubon.org/birdingconomics.

Tucson Audubon's *Birders Mean Business* outreach to promote the economic value of watchable wildlife is supported by a grant from the Arizona Game & Fish Department Heritage Fund.



Heritage Fund



MATT GRIFFITHS

Tucson Audubon is For the Birds!

With your support we are working cooperatively with a diverse array of partners to create a more bird-friendly and birder-friendly community. You can count on us to create opportunities for all to discover, understand, and enjoy birds and the natural world. We proudly:

- support destination events like the Tucson Bird & Wildlife Festival to showcase our region's unique watchable wildlife and highlight the local economic impact of birding & nature tourism;
- promote our community's valuable natural assets—our special birds and wildlife and the places they thrive—that are the foundation of a \$1.4 billion statewide economic impact;
- protect and enhance important areas for birds and birders: cherished natural habitats and renowned birding sites; and
- provide information on the when, where, how and why of birdwatching and bird conservation in the Tucson region and beyond.

Do you love Tucson's birds and other watchable wildlife? What's your most memorable southeastern Arizona nature experience? Care to tell us how you 'mean business' as a birder? Share your stories and take the survey at tucsonaudubon.org/share

SPECIAL 8-PAGE PULL-OUT

THE SKY ISLANDS BIRDING CUP:

A Bold Big Day Event

August 14, 2013

The challenges involved in this particular competition are intriguing. Many birds wait exclusively for this time of year to sing, breed, and generally become more observable. Still others are not singing and must be detected visually or by call notes. Meanwhile, southbound migrants are arriving. Thus, not every species can be staked out, and must be encountered by a combination of skill and luck on the Big Day. Over 200 species are possible, and the Arizona Big Day record stands at 199. No matter what the outcome for your team, the birds are the real winners! Funds raised by the Sky Islands Birding Cup will support a fencing project at Patagonia Lake to protect the natural riparian area. Or, you may collect pledges on behalf of the conservation cause of your choice! Full details and registration forms online at



MONTEZUMA QUAIL / JERRY OLDENETTEL

tucsonaudubon.org/cup

Results announced at the Nightlife Social on August 15.

SPECIAL EXTRAS

NEW ADVOCACY STATION AT THE NATURE EXPO

Saturday, August 17

Learn about local conservation issues, how these issues affect birds and how you can get involved. A great chance to get educated on hot topics as well as tips for effective advocacy!

GO WILD! FAMILY DAY

Saturday, August 17. Bring the kids!

A fun lineup of free, family-friendly festival activities from 10 AM to 3 PM. Bring the kids to meet live birds and reptiles. Experience some of the amazing methods that plants and animals use to survive in the desert through hands-on activities for kids of all ages. Build a bird feeder or get your face painted. Enjoy family-friendly talks on desert adaptations, bird identification, and the social lives of snakes. (check the schedule on on the right for details on family-friendly interactive presentations.)

YOUTH BIRDING OUTING WITH KEYNOTER DR. J. DREW LANHAM

Sunday, August 18 FREE

A fabulous opportunity for kids to join Drew for a morning's birding at Sweetwater Wetlands! Anyone age 10 to 18 with an interest in birds or bird photography is invited. Parents welcome! Loaner binocs available. For details and to RSVP contact Erin at 520-209-1809

- Field Trip ■ Workshop ◆ Evening Program
- ★ Free Presentation ★ Family Friendly

WEDNESDAY, August 14

12:00 AM–11:59 PM Sky Islands Birding Cup

THURSDAY, August 15

5:00 PM–7:30 PM Nightlife Social, \$5 ◆ Details left
5:00 PM–7:30 PM **NATURE EXPO PREVIEW**

FRIDAY, August 16

5:00 AM–4:00 PM California Gulch Adventure ● \$85
5:00 AM–4:00 PM Big Hummingbird Day ● \$85
5:30 AM–11:00 AM Cienega Creek / Davidson Canyon ● \$50
5:30 AM–12:00 PM Madera Canyon Sampler ● \$85
5:30 AM–2:00 PM Borderland Specialties ● \$85
5:30 AM–3:30 PM Mt. Lemmon: Desert to Conifers ● \$85
6:00 AM–8:00 AM Sweetwater Wetlands ● \$20
9:30 AM–11:30 AM **Workshop: Beginning Birding with Lynn Hassler** ■ \$35
10:00 AM–6:00 PM **NATURE EXPO OPEN**
10:00 AM–11:00 AM Seasonal Changes with *LoriAnne Barnett* ★
11:00 AM–1:30 PM **TERRACE CAFÉ OPEN**
11:30 AM–12:30 PM Birds of Madera Canyon with *Doug Moore* ★
12:00 PM–1:00 PM **Workshop: Grassland Bird ID with Homer Hansen** ■ \$35
1:00 PM–2:00 PM Bighorn Sheep with *AZ Game & Fish* ★
2:30 PM–3:30 PM Birding Pima County with *Jeff Babson* ★
1:30 PM–2:30 PM **Workshop: Sparrows with Homer Hansen** ■ \$35
3:00 PM–4:00 PM **Workshop: So What, You Bird with Drew Lanham** ★
4:00 PM–5:00 PM Tucson's Most Wanted with *Jennie MacFarland* ★
4:30 PM–9:00 PM **Workshop: Go Batty! with Ronnie Sidner** ■ \$45
5:30 PM–6:30 PM Social Hour ◆
6:30 PM–8:30 PM **Keynote Dinner featuring Christopher Cokinos**, \$35 ◆ Details left

SATURDAY, August 17

5:00 AM–4:00 PM Huachuca Mountains ● \$85
5:00 AM–4:00 PM California Gulch Adventure ● \$85
5:30 AM–12:00 PM Las Cienegas NCA ● \$50
5:30 AM–2:00 PM Borderland Specialties ● \$85
5:30 AM–3:30 PM Mt. Lemmon: Desert to Conifers ● \$85
5:30 AM–4:00 PM Sky Islands Naturalist Saunter ● \$85
5:30 AM–4:00 PM Patagonia & Rio Rico ● \$85
6:00 AM–11:00 AM Catalina State Park ● \$50
6:00 AM–11:00 AM Saguaro National Park ● \$50
10:00 AM–3:00 PM **GO WILD! FAMILY ACTIVITIES** ★
10:00 AM–6:00 PM **NATURE EXPO OPEN**
10:00 AM–11:00 AM Hummingbirds with *Karen Krebbs* ★

10:00 AM–6:00 PM **ADVOCACY STATION**
11:00 AM–1:30 PM **TERRACE CAFÉ OPEN**
11:30 AM–12:30 PM Desert Adaptations feat. LIVE ANIMALS for Kids with *AZ Game & Fish* ★ ★
10:00 AM–11:00 AM **Workshop: Desert Landscaping for Wildlife with Kendall Kroesen** ■ FREE
11:30 AM–1:30 PM **Workshop: Learning to Use a Field Guide with Steve N.G. Howell** ■ \$35
1:00 PM–2:00 PM What Bird Is That? with *Doris Evans* ★ ★
2:00 PM–3:00 PM **Workshop: Fall Migration with Homer Hansen** ■ \$30
2:30 PM–3:30 PM Social Snakes with *Melissa Amarello* ★
3:30 PM–5:30 PM **Workshop: Hummingbird ID with Sheri L. Williamson** ■ \$35
4:00 PM–5:00 PM Sky Island Wildflowers with *Meg Quinn* ★
5:30 PM–6:30 PM Social Hour ◆
6:30 PM–8:30 PM **Keynote Dinner featuring J. Drew Lanham**, \$35 ◆ Details left

SUNDAY, August 18

5:00 AM–1:00 PM Mt. Lemmon / Mt. Bigelow ● \$50
5:30 AM–11:00 AM Cienega Creek / Davidson Canyon ● \$50
5:30 AM–12:00 PM Madera Canyon Trogon Trek ● \$50
5:30 AM–12:00 PM Willcox Shorebirding ● \$50
5:30 AM–2:30 PM Birds & Butterflies of Brown Canyon ● \$85
5:30 AM–4:00 PM Patagonia & Sonoita ● \$85
6:00 AM–2:00 PM Hummingbird Safari ● \$85
6:30 AM–9:00 AM Youth Birders' Outing with *Drew Lanham* ● Details left
10:00 AM–11:00 AM The Roadrunner Family Grows Up with *Doris Evans* ★
10:00 AM–2:00 PM **NATURE EXPO OPEN**
11:00 AM–1:30 PM **TERRACE CAFÉ OPEN**
11:30 AM–12:30 PM Rescue, Rehab, Release! with *Tucson Wildlife Center* ★
1:00 PM–2:00 PM Sweetwater Wetlands: Behind the Scenes with *Bruce Prior* ★



SPECIAL 8-PAGE PULL-OUT

CATALINAS / LARS HAMMAR

NATURE EXPO TALKS

FRIDAY, August 16

10–11 AM Tracking Seasonal Patterns in the Sonoran Desert with *LoriAnne Barnett*

Join us for a conversation about observing birds, insects, plants and other wildlife throughout the five (yes, five!) Sonoran Desert seasons.

11:30 AM–12:30 PM Birds of Madera Canyon with *Doug Moore*

Learn about summer canyon birds, seasonal migrants, canyon rarities, and natural history of the Santa Rita mountains.

1–2 PM Reintroducing Desert Bighorn Sheep to the Santa Catalinas with *Arizona Game & Fish*

Desert bighorn disappeared from Pusch Ridge in the 1990s. Habitat improvements since then, source populations elsewhere, and other factors now make reintroduction viable.

2:30–3:30 PM Birding Hotspots of Pima County with *Jeff Babson*

Get the details on where and when to go birding in Pima County, plus tips for finding specialty birds and habitat types from expert birder / educator Jeff Babson. Great for beginners or visitors and newcomers!

4–5 PM Tucson's Most Wanted [Specialty Birds] with *Jennie MacFarland*

SE Arizona is home to a dazzling variety of birds, including some species found nowhere else in the U.S. Get to know some of the Tucson region's most fascinating and iconic birds.

SATURDAY, August 17

10–11 AM Following Hummingbirds in the Southwest U.S. & Northern Mexico with *Karen Krebs*

Conservation biologist Karen Krebs shares her knowledge on hummer ID, behavior, nesting biology, and migration, gained over 26 years of studying wild and captive hummingbirds.

11:30 AM–12:30 PM Desert Adaptations LIVE ANIMAL PRESENTATION FOR KIDS with *Sam Huselton of Arizona Game & Fish*

Learn how animals manage to survive in harsh desert conditions. Educator Sam Huselton will introduce you to a live great-horned owl, gopher snake and desert tortoise, and explain how these and other animals adapt.

1–2 PM What Bird is That? with *Doris Evans*

Size, shape, color, pattern, behavior, vocalization, and habitat are all clues to help us name that bird and more importantly, learn about its place in nature. We will also practice using binoculars and bird books.

2:30 PM Social Snakes! (And Other Things Snakes Aren't Supposed To Do) with *Melissa Amarello*

You may never look at snakes the same way again! See behaviors typically associated with other animals such as birds and primates, like caring for their kids and helping out their neighbors, all caught on camera.

4–5 PM Sky Island Wildflowers of Southern Arizona with *Meg Quinn*

Join Pima County educator and author Meg Quinn for a colorful slideshow survey and learn how to identify some of the region's most common and showy native wildflowers.

SUNDAY, August 18

10–11 AM The Roadrunner Family Grows Up with *Doris Evans*

From nest-building, mating, egg-laying, feeding and finally the fledging of five babies, learn about these captivating icons of our desert and what it takes for nest success!



11:30 AM–12:30 PM Rescue, Rehab, Release! with *Tucson Wildlife Center*

Tucson Wildlife Center rescues, rehabilitates, and releases hundreds of birds and mammals every year. See rescue tools and meet one of their animal ambassadors.

1–2 PM Sweetwater Wetlands: Behind the Scenes with *Bruce Prior*

Ever wonder where all that water comes from? Get the inside scoop on a favorite birding site (and habitat gem of Tucson's water reclamation system) from hydrologist Bruce Prior.



YOUR DOWNTOWN OASIS

Socials, banquets, workshops, and exhibits will all be held at this conveniently located downtown resort hotel, which features a free breakfast, free wireless, free parking, on-site restaurant, swimming pool, and more!
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From I-10, take Congress Street exit 258.



SPECIAL FESTIVAL RATE at the Riverpark Inn: \$62/night + tax (includes complimentary full American breakfast buffet or "Early Birder" breakfast to go). Call 800-551-1466 and ask for the "Tucson Bird & Wildlife Festival" rate. Valid Aug 11–21, 2013.

The Riverpark Inn is a member of Tucson Audubon's **Birds & Business Alliance** and a proud co-host and partner of the Tucson Bird & Wildlife Festival!

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Tucson Audubon; Riverpark Inn

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U.S. Forest Service; Bureau of Land Management; National Parks Service; Pima County Natural Resources, Parks & Recreation; Arizona State Parks.

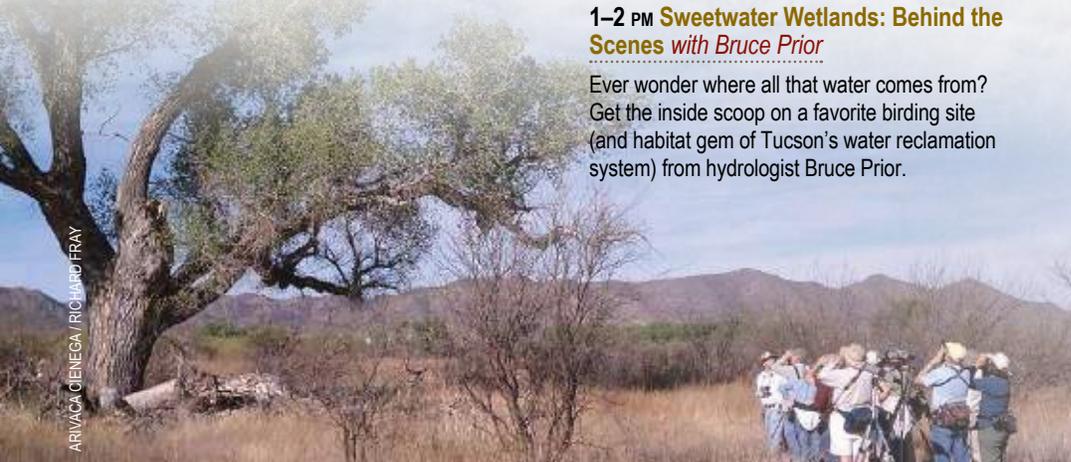


Tucson Audubon
300 E University Blvd, Ste 120
Tucson, AZ 85705

520-629-0510 (voice) • 520-623-3476 (fax)
www.tucsonaudubon.org

GREATER ROADRUNNER / DOMINIC SHERONY

SPECIAL 8-PAGE PULL-OUT



ARIVACA CIENEGA / RICHARD FRAY

ALAN VERNON



RICHARD FRAY

Five-striped Sparrow

Birders in southeast Arizona are lucky to have one of the most striking and rarest breeding sparrows in the U.S. The Five-striped Sparrow is a mostly Mexican species whose range barely extends into Arizona just south of Tucson. It can be the bane of birdwatchers (including myself!) who choose to locate them “out of season” when they are very secretive. Once the summer rains start, nearly inaccessible mesquite and hackberry-filled mountain canyons come alive with this sparrow’s song. Only an estimated 75–100 individuals inhabit places such as California Gulch and Montosa Canyon (the two well-known Five-striped locations), making them hard to find even at their most conspicuous!

So why even try to see a Five-striped Sparrow? Well, because they are a beautiful bird with five white stripes around the face, bold triangular black “whiskers” and a rich, rusty back. First found in Arizona in 1957, birders now come from everywhere to catch a glimpse of this species. Most hear the bird before seeing it, and luckily Five-striped Sparrows are not shy about showing off their large vocal repertoire that may contain up to 200 different songs!

Matt Griffiths, Communications, Habitat Restoration, AZ IBA Program



LAURA STAFFORD

Gilded Flicker

A regular at our Mason Center water feature, Gilded Flicker is one of Tucson’s Most Wanted (Specialty Birds). Have you seen this handsome woodpecker and the golden flash of its wing feather shafts?

Once lumped with look-alike Northern Flicker (which is widespread throughout North America and comes in Red-shafted and Yellow-shafted forms), Gilded Flicker is found from extreme southeast California and Baja California, southeast Nevada, through central Arizona to northwest Mexico. Found singly or in pairs, it frequently forages on the ground for ants and other insects, and also eats fruits and berries.

Closely associated with cactus and yucca plants, this cavity nester/master carpenter is a keystone species of the Sonoran Desert, creating crucial nest holes used by other birds and small mammals. Gilded Flicker uses its strong bill to excavate deep holes toward the top of saguaro arms. The saguaro responds by secreting a sap that hardens into a bark-like shell, defending against water loss, and creating a waterproof lining inside the cavity. This hardened structure, known as a ‘saguaro boot’, was historically used by the desert-dwelling Seri people to carry water.

Erin Olmstead, Development Manager



ALAN D. WILSON, WWW.NATURESPICSONLINE.COM

Harris’s Hawk

I knew the first time I saw a Harris’s Hawk that this was a remarkable bird. I was immediately impressed with the richness of its color. According to color psychology, brown is a serious, down-to-earth color signifying structure and support. What better terms to describe such a beautiful creature, and even more so knowing the nature of this bird’s way of life?

Harris’s Hawks most often nest and cooperatively hunt within a social unit of a small number of birds. This unit typically consists of an alpha female (who may sometimes breed with two males), or a main breeding pair, and a few other non-breeding adults. All adults care for the young. Eventually young may grow up to care for additional broods. These hawks are unique among raptors for hunting in family groups and are only one of two types of hawks in the world that hunt in this fashion. By hunting in groups, they are able to take down larger prey than if hunting on their own. Their style works in such a way where some members of the family group flush out prey and chase it toward other hunters in the group. The structure of the Harris’s Hawk family unit, and the support the birds provide to each other through hunting and raising young, are commendable traits.

Sara Pike, Operations Manager

SPECIAL SECTION

STEPHEN PAIGE



HAPPY VALLEY / PAIGE CREEK DRAINAGE east of the Rincon Mts. Just under 60 miles from downtown Tucson, this basin sits at the eastern foot of the Rincons, providing spectacular views of these mountains. While there is little surface water in either Ash or Paige Creek, both contain larger trees along their drainages which attract residents of mid-level woods along with interesting migrants. Best times of year are winter and

spring; the summers can be a bit hot, dry, and less birdy. Take exit 297 (J-Six Ranch/Mescal Road and drive through the less productive desert scrub ~14 miles to reach a long stretch of larger oaks with some sycamores. Walking along here, you will also come to a dry concrete stock tank but with surface water. This stretch is probably the most productive of the drainage, with birds common to oak woodlands and including Gray Hawk, Wild Turkey, and migrant warblers in season. Driving further, you pass through some ranch areas with grasslands and associated birds – look for Eastern Bluebirds here amongst other species. The road is eventually blocked by a gate, and although access is granted past the gate, I have found the drainage immediately before the gate most productive. A reasonably close area to Tucson, little birded, but with the potential to provide some interesting sightings such as Lewis Woodpecker in winter and migrant warblers such as the Northern Parula we found in spring of 2013. **Tim Helentjaris**

GREAT BIRD PLACES NEAR TUCSON | RINCONS

Arizona's Audacious State Bird, the Cactus Wren

When the United States declared independence in 1776, choosing state birds was not high on the priority list. In fact, nearly 150 years passed before Kentucky stepped up and named the first state bird, on February 26, 1926. Not surprisingly, that first choice was the Northern Cardinal, one of the most recognizable, brightly colored and popular birds in the country. The cardinal was so popular that six other states (all clustered around and near Kentucky) selected the same bird. One would think that competitive and independent states would make a point of choosing unique birds, but one would be wrong. All 50 states now have official birds, but 30 of those states share their selection with at least one other state. Following the seven-state cardinal, six states chose the Western Meadowlark and five the Northern Mockingbird. Other birds shared by at least two states include the American Robin, American Goldfinch, Mountain Bluebird, Eastern Bluebird and Black-capped Chickadee. Playing copy-cat was hardly necessary, since there are plenty of appropriately unique choices among America's birds. In addition, some of the omissions are as surprising as

some of the choices. For example, while two states chose chickens, there are no hummingbirds or raptors on the list.

It should come as no surprise that Arizona is one of just twenty states that chose a unique state bird. After all, this is the state with an official tie (the bolo), an official rattlesnake (the Ridge-nosed) and an official gun, the Colt revolver. In 1931, nineteen years after becoming the 48th state, Arizona's legislature chose the Cactus Wren. It's probably not true that the choice was based on the bird's song, a sputtering, staccato-chugging babble that might be compared with a state legislative session. That 'song', which David Sibley calls "unmusical...like a quacking duck", is just one unique characteristic of the Cactus Wren. While the other eight North American wrens are small, drab, shy and furtive, the Cactus Wren stands alone. He is big, boldly patterned, boisterous, brash and inquisitive. At eight inches, he dwarfs our other wrens, and his bullying behavior is more like a thrasher than a wren. Appropriately, his scientific name is a 10-syllable mouthful, *Campylorhynchus brunneicapillus*, meaning 'brown-capped curved bill'. The Cactus Wren builds multiple nests, most of which are never occupied, and, as you might guess, these nests typically are found in cactus. Here the bird perches, oblivious to the sharp spines, shattering the clear desert air with his staccato song. Limited in the U.S. to the southwest, the wren is widespread south to central Mexico, and a dozen generic cousins can be found from Mexico to Brazil. One of these, the Rufous-naped Wren, made me think I was back in Arizona

as it snatched scraps from my table in Costa Rica.

Far from shy, the Cactus Wren carries a chip on his shoulder and is not one to mess with. They will destroy bird nests and eggs, including those of other Cactus Wrens. I've had my hat knocked off after getting too close to a Cactus Wren nest, and inexplicably another made a high speed landing in the center of my back. I also saw one peck a downed House Finch to death. Like Arizona retirees, they are mostly monogamous, adapt well to suburban desert neighborhoods, and often growl when they meet their mates. This is a bird that, if it could, would sport a bolo tie and carry a Colt. Without question, this was a good choice for the wild west state of Arizona. *Bob Bowers*

Bob is a birder and freelance writer specializing in nature and travel articles. He writes a monthly birding column for an Arizona newspaper, and lives with his wife, Prudy, in SaddleBrooke, in northwest Tucson. He writes a birding and travel blog, www.birdingthebrooke.com, and his email is bobescribe@gmail.com. 

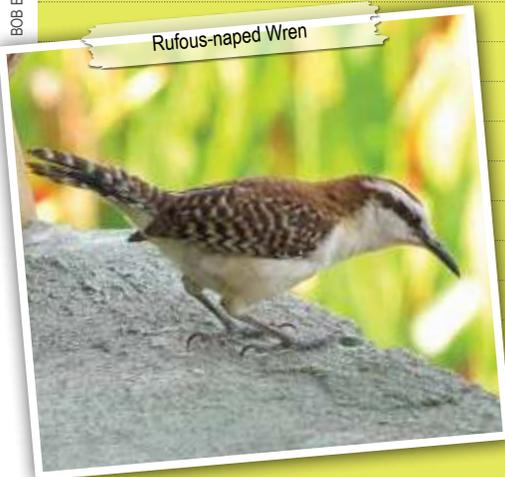


DORIS EVANS



JOHN KENNEDY

Rufous-naped Wren



BOB BOWERS

CONSERVATION AND EDUCATION NEWS

CHRIS MCVIE, PAUL GREEN, KENDALL KROESEN, BÉTÉ JONES, AND JENNIE MACFARLAND

What's New at the Institute of the Environment?



Hot off the press is the new *Assessment of Climate Change in the Southwest United States*, a landmark study about the climate and its effects on the people in the region. The assessment is the latest project to be led by the University of Arizona's Institute of the Environment (IE), which brings together faculty across multiple disciplines to collaborate on projects that address complex environmental issues.

The 506-page climate assessment report, published by Island Press in May, represents the efforts of 120 researchers who describe how climate changes will affect water resources, ecosystems, agricultural production, energy supply, and many other areas in the Southwest. The report also provides input to the National Climate Assessment (NCA)—an ongoing process to communicate climate change science and impacts, designed to help communities create more sustainable and environmentally sound plans for the future. Seven IE-affiliated faculty are NCA authors.

Other flagship IE projects include the Climate Assessment for the Southwest (CLIMAS), the Renewable Energy Network (UA REN), and a \$1.2 million grant to study climate change impacts and adaptation on

Department of Defense facilities in the Southwest.

In 2012, CLIMAS entered its fourth consecutive five-year cycle of funding from the National Oceanic and Atmospheric Administration (NOAA). The 10 principal investigators on the project are focused on improving our understanding of the ways in which extreme events affect water resources, energy production and public health. A related initiative is the new U.S. Department of the Interior Southwest Climate Science Center (SWCSC), a consortium of universities and research institutes that is headquartered at the UA and coordinated by center director Steve Jackson of the U.S. Geological Survey. Jonathan Overpeck, who co-directs IE with Diana Liverman—both scholars with substantial international reputations—is the project's lead researcher.

UA REN is devoted to catalyzing economic development in renewable energy and supporting renewable energy technology development and transfer. Projects include demonstrations of breakthrough research in the Solar Zone at the UA Tech Park, such as concentrated photovoltaic energy systems, which would dramatically reduce the cost of

solar energy and use very little water, and smart grid technologies.

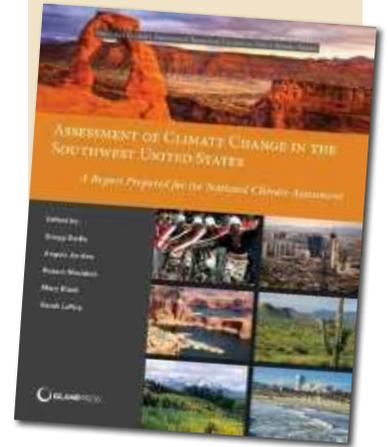
IE also helps coordinate the UA's vast expertise in adaptation to climate variability and change through the development of a cross-campus Center for Climate Change Adaptation Science and Solutions.

The institute also created and maintains the UA's Environment and Sustainability Portal—a gateway to information about environmental research, faculty, events, programs and departments across the campus. The portal features a Green Course Guide to all environment-related classes at the University.

In addition, IE invests in programs that highlight and support graduate research and those that foster interdisciplinary graduate scholarship and science communication, such as the Carson Scholars Program. In addition, IE has worked with entities across campus to invest in 30 new environmental science faculty members since 2009.

Gregg Garfin, University of Arizona Assistant Professor and Assistant Extension Specialist in Climate Science, Policy & Natural Resources—School of Natural Resources and the Environment; Deputy Director for Science Translation & Outreach—Institute of the Environment

AVAILABLE IN THE TUCSON
AUDUBON NATURE SHOP



AZFO seventh Annual Meeting

Sierra Vista, October 4–6, 2013

If you enjoy observing, surveying, or conducting research on Arizona's birds, please plan to attend



the Arizona Field Ornithologists (AZFO) annual state meeting. This year it will be held at Cochise College in Sierra Vista. Both members and nonmembers are invited to attend this enjoyable and educational gathering, which takes place the same weekend as Tucson Audubon's Institute of Grassland Ecology (see page 4).

The meeting will focus on the theme of the "Lesser Known Southeastern Arizona", both during the Saturday session and the Saturday evening dinner and program. Dr. Janet Ruth, the featured speaker at the dinner, will address the topic, "Grassland Birds: 15 years of winter, summer, and migration research in southeastern Arizona." The Saturday session will feature presentations on changing bird status and field research in Arizona, plus reports and future plans for the many AZFO activities. Sunday morning you can participate in mini-field expeditions to birding areas in less birded areas of southeastern Arizona. More details and meeting registration information (as it becomes available) can be found on the AZFO website.

Santa Cruz and San Pedro: Our Once and Future Rivers?

Leaders of the City of Sierra Vista seven years ago approved a development by California's Castle and Cooke on 2000 acres to include 7000 homes and apartments, plus offices, stores, parks and schools. The so-called Tribute project would be just six miles west of the San Pedro River raising alarms that pumping groundwater for these homes will further lower groundwater levels and reduce river flow, resulting in loss of vegetation along the river. Three wells, planned to be located 4.5 to 6 miles from the San Pedro River, will draw water from the aquifer at a depth of more than 600 feet below the surface of the ground. USGS models indicate that during Tribute's first 50 years, up to 30 percent of its pumped water would have otherwise gone to the San Pedro River.

Tribute will eventually use a projected 3300 acre-feet of groundwater per year, to be provided by the Pueblo Del Sol Water Company (PDS) which is also owned by Castle and Cook. Hydrologists believe that excessive groundwater withdrawals in the Sierra Vista area will eventually deplete the aquifer and empty much of the San Pedro, including in the San Pedro Riparian National Conservation Area (SPRNCA), which was just rededicated as a Global Important Bird Area (see p 7). The river maintains a wide diversity of plants, more than 80 species of mammals, several native fish species, 40 kinds of amphibians and reptiles, 100 species of breeding birds and passage for 250 species of migratory birds. An estimated 44,000 people a year visit the San Pedro, and Cochise County benefits to the tune of \$24 million a year from wildlife watchers according to a new survey*.

Arizona state law requires proposed developments in some areas that have adopted mandatory adequacy requirements to prove that they have 100 years' worth of water. Cochise County is one of the few areas in Arizona that have adopted this mandatory requirement. The Arizona Department of Water Resources (ADWR) has determined that Tribute and PDS do meet the

100-year requirement and issued a certificate of water adequacy, arguing that the department does not have to consider any connection between the aquifer and the flow of the river and that it lacks the authority to limit water pumping to protect the river.

The Bureau of Land Management (BLM) challenged the state's decision. BLM manages the 40-mile-long SPRNCA to the east of Sierra Vista, and has an obligation to protect the conservation area. BLM argues that its rights to the river's water, approved by Congress when the conservation area was created in 1988, supersede those of any local entity. It further argued that there is not enough groundwater available to satisfy both the needs of the riparian area and the development, according to court filings. June Shoemaker, chief of BLM's Arizona renewable resources branch said, "Congress designated the conservation area to protect streamflows and their associated values. The state's decision didn't consider the impacts on the river flow." However, ADWR argued that it does not need to consider the BLM's claims to water rights, and the Administrative Hearing Law Judge Thomas Shedden agreed.

As Tony Davis says in his recent article in *High Country News* (February 18, 2013), the dispute, which pits the future growth of Sierra Vista against the last and most important perennial river in the Southwest, could become the first opportunity for Arizona to acknowledge that water availability should limit growth. It could also set a precedent for the question of federal versus state control over water rights.

Quoting John Leshy, a University of California—Hastings law professor, Tony Davis in the *Arizona Daily Star* (May 29, 2013) says that "The state and the county want the economic and other benefits of a San Pedro National Conservation Area but they don't want to protect the river—which is the whole basis for the area. Apparently, it's still true in Arizona that land development trumps all, even if it scoffs at senior water rights and destroys a world-class resource."



A potentially precedent-setting dispute pits the future growth of Sierra Vista against the last and most important perennial river in the Southwest.

LON & QUETA

Despite the clear connection between groundwater pumping and river depletion, Arizona law treats surface water and groundwater as separate entities.

In August 2012, the BLM joined Robin Silver and Tricia Gerrodette, both local landowners, in filing appeals of the state's approval of Tribute, "a very positive sign" according to University of Arizona law professor Robert Glennon.

While PDS has the 100-year certificate of water adequacy from ADWR after the conclusion of one legal objection, the battle over the water withdrawal is not yet finished. ADWR and PDS will have to face off again with the BLM and landowners Tricia Gerrodette and Robin Silver, who say that ADWR did not consider the effect that the projected 3300 acre-feet of water per year withdrawn from the aquifer will have on the flow of the San Pedro River or the SPRNCA.

BLM is currently in adjudication court to establish its water rights in order to fulfill its mandate of protecting the riparian area and the San Pedro River as part of the general adjudication of the Gila River Basin. Competing interests in the San Pedro River Basin pit federal rights holders against each other and state rights holders. Questions include federal versus state jurisdiction regarding the determination of federal reserved rights and uncertainty over the legal and hydrologic definitions of "appropriable subflow". These issues will drive the quantification of water

rights in the Upper San Pedro Basin and will set important precedents for other watersheds where the conflicting goals of preservation of natural resources and urban development meet.

BLM, Gerrodette, and Silver hold that the certificate of water adequacy, which includes the entire PDS service area, should not be granted until the adjudication court reaches a conclusion. That argument moves into a new venue in the Superior Court of Maricopa County. A date for the hearing has yet to be scheduled.

Gerrodette, Silver, the BLM, and others have also filed objections to another much smaller Sierra Vista development—Cañada Vista—seeking a certificate of water adequacy.

The objections are based on the same arguments made against Tribute, which assert that BLM's federal reserved water rights for the SPRNCA should be considered in calculating the 100-year water adequacy. The objections also state that the potential impacts pumping could have on the San Pedro River need to be considered too.

On April 26, ADWR issued a decision to grant a certificate of water adequacy, making the same reasoning offered in the case of Tribute. The decision states, "The Department does not have authority to consider potential impacts on a river or stream from proposed pumping of groundwater by the applicant. The extent of any federal reserved right for SPRNCA is unknown, as is the

impact the proposed pumping may have on such a right. Until the federal reserved rights to claims associated with SPRNCA have been finally adjudicated, it would be impossible to determine whether the proposed pumping would need to be curtailed to preserve SPRNCA, and if so, to what extent.”

Silver, Gerrodette, another resident Dutch Nagle, and the BLM have filed appeals to this decision.

Tony Davis in the *Arizona Daily Star* cites Robert Glennon, as saying that “for BLM to win, it must show with credible computer modeling that Tribute’s pumping will reduce the river’s flow enough to compromise federal water rights. I don’t know that it needs to be a particular subdivision that makes the case but at some point in time (one development) is going to be the straw that breaks the camel’s back. You can’t continue to have huge developments going in when the river is fragile to begin with.”

Coda: *Arizona Republic*, June 10, 2013: “It shouldn’t take more than common sense for the Department of Water Resources to see the impact of groundwater pumping and the importance of ensuring riparian areas continue to maintain their valuable ecosystems.”

Paul Green, Executive Director, Tucson Audubon

Sources

Tony Davis. The BLM fights for the Southwest’s last free-flowing river. *High Country News*, February 18, 2013.

Tony Davis. Dispute looms in Sierra Vista over housing vs. water rights. *Arizona Daily Star*, May 29, 2013.

Economic Contributions of Wildlife Viewing to the Arizona Economy: A County-Level Analysis, a grant funded project by Southwick Associates based on US FWS data and funded by a grant to Tucson Audubon by the Arizona Game & Fish Department.

Adam Curtis www.svherald.com/finding_balance

www.birdingwire.com/releases/290016/
Arizona Republic. A river runs through it (but it may not always), June 10, 2013. www.azcentral.com/opinions/articles/20130607editorial-state-puts-river-risk.html

SunZia Environmental Impact Statement Avoids Issues, Harms Arizona’s Heritage

On June 14, 2013, the Bureau of Land Management (BLM) released the Final Environmental Impact Statement (FEIS) for the SunZia Southwest Transmission Project (available at <http://www.blm.gov/nm/sunzia>). This was a great blow for those of us who treasure the San Pedro Valley and its biological richness. This FEIS includes the BLM’s preferred alternative route, which would construct two 500-kilovolt lines down the west side of the valley for 47 miles, crossing three ranches that have been purchased as part of Pima County’s Sonoran Desert Conservation Plan, and spanning the sensitive lower Buehman Canyon.

The San Pedro valley is the principal migration corridor for birds in the arid Southwest and hosts the greatest mammal diversity in North America. The alternative transmission route—crossing the Galiuro Mountains between the Aravaipa and Galiuro Mountains Wildernesses—is equally sensitive and no more of a solution.

The public has a minimum of 30 days to comment on the FEIS, although the BLM does not legally have to consider or incorporate responses. The Record of Decision is scheduled to be signed on or before September 10. At that time concerned parties will have 30 days to appeal the decision. It is unlikely that the federal government will yield to any challenges, however. Arizona environmental groups are working together on a response.

Once the BLM has finalized its decision, SunZia must move on to the Arizona Corporation Commission and the New Mexico Public Regulation Commission for additional approvals. SunZia must also acquire a host of other federal, state and local permits.

The BLM received around 900 comment letters on the Draft Environmental Impact Statement (DEIS) critical of the project,

demonstrating the immense concern that it has generated. In responding to these letters, however, the BLM summarily dismissed some of the most substantive and critical comments that reviewers made to strengthen and correct the DEIS. The scale of this dismissal is stunning. This oversight would seem to leave the EIS open to legal challenge.

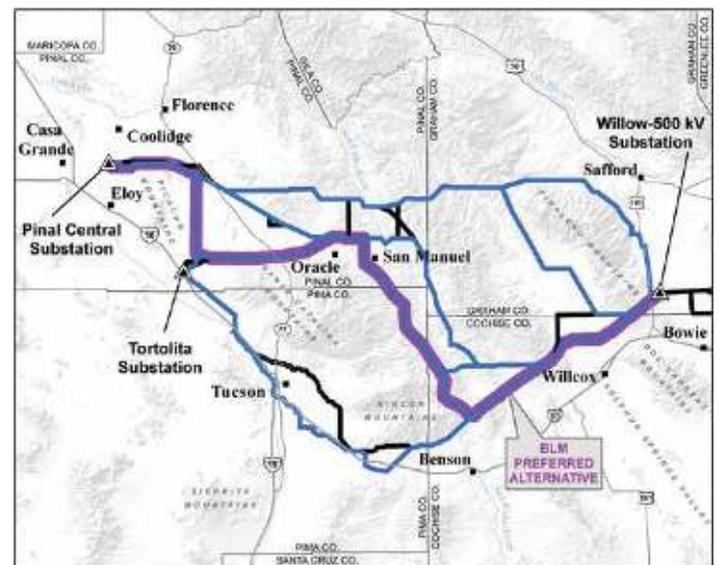
To evaluate SunZia the BLM employed a highly idealized renewable energy scenario that does not consider future overall power needs in the Southwest nor the project proponent’s underlying intentions. In so doing, the BLM is sacrificing an irreplaceable Arizona environmental gem that governmental agencies—including the BLM itself—corporations, public interest groups, and individuals have worked for more than three decades to protect.

The project is also incompletely conceived, having originally been proposed by the SouthWestern Power Group to serve its permitted but not-yet-constructed Bowie, Arizona 1,000-megawatt natural gas-fired

power plant. Because of this, the project stops in east-central Arizona, but its expanded, official purpose now is to transfer power generated in New Mexico to California. To complete the transfer, SunZia would rob Arizona utilities and ratepayers of \$400 million of new transmission lines built for our own use. This would consume transmission capacity vital to Arizona’s solar development in central and western Arizona while subsidizing out-of-state interests for their own gain at a huge cost to Arizona’s environment.

We can find better ways to meet future energy needs and renewable energy ideals than by making these kinds of extraordinary sacrifices and blunders. The federal government has an obligation to evaluate the project based on how utilities will actually use it, not on the proponent’s sales pitch or the wishful thinking of Obama administration policymakers. Without this, the process lacks integrity and thwarts informed public engagement.

Norm “Mick” Meader, Co-Chair, Cascabel Working Group



Top: View of Galiuro Mountains and San Pedro River valley. Above: Map from the BLM’s Environmental Impact Statement showing the proposed San Pedro route for the SunZia Southwest Transmission Project.

Going Down: Rosemont and Our Water

COBALT123



BILL OF ARIZONA -BC

L to R: View of Sonoita Hills from Highway 83; View (from Picacho Peak) of Interstate 10 between Tucson and Phoenix

When you drive to Phoenix from Tucson, you probably notice the ecological devastation—the ground subsidence near Eloy, the dewatering of the once free flowing Gila River, the lack of vegetation and the abundance of dust. This experience is certainly a far cry from the drive south along Scenic Highway 83 on your way to Sonoita. If the Rosemont Mine is permitted and constructed, your Scenic Highway 83 may come to resemble that I-10 nightmare.

The ability for people, and the plants and animals of our region, to thrive depends upon access to adequate amounts of clean water. How would the proposed Rosemont Mine influence the quality and the quantity of water available to people and wildlife in our region? Some of the possible answers to this question are much more scary than you might think.

The Rosemont Hydraulic Sink

The story begins with the open pit created by the mining process. This pit will be more than half a mile deep, cutting down approximately 2400 feet lower than the surrounding Sonoita Plain. Since the bottom of the pit will extend well below the water table into the aquifer, it will dewater the surrounding aquifer in perpetuity as a result of groundwater draining into the pit. The pit will become a “hydraulic sink.”

Models of this cone of depression in the water table predict that it could slowly spread eastward to increase depth to groundwater by up to 980 ft. in the Sonoita area and by up to

660 ft. in the Elgin area. Groundwater declines could extend 25 miles to the east and southeast of the mine. Important seeps and springs upon which wildlife depend will cease to flow. The Draft Environment Impact Study (DEIS) did not consider these dramatic modeling outcomes.

The Sonoita Plain is an area of extensive exurban housing, livestock production, agriculture and vineyards, tourism and historic sites, native grasslands, and natural riparian areas. Most human-related activities in the area rely on groundwater pumped from wells, and all of the grasslands and water-sensitive bottomlands depend on moisture derived from natural processes, all of which are vulnerable to the permanent dewatering that will result from Rosemont’s deep open-pit mine.

The Sonoita Plain, including a portion of Las Cienegas National Conservation Area, has one of the last remaining relatively natural grassland ecosystems of the semiarid American Southwest. Diverse habitats in the area include native desert grassland, riparian/wetland, mesquite bosque, and oak woodland. These habitats support many species, including threatened and endangered species that depend on intermittent-to-perennial flows of streams draining the Sonoita Plain. A lowering of water levels as a result of the Rosemont dewatering could adversely affect these plants and animals, an effect that would be in addition to the anticipated drying caused by climate change.

Congress established Las Cienegas National Conservation Area: “*In order to conserve, protect, and enhance for the benefit and enjoyment of present and future generations the unique and nationally important aquatic, wildlife, vegetative, archaeological, paleontological, scientific, cave, cultural, historical, recreational, educational, scenic, rangeland, and riparian resources and values of the public lands described in subsection (b)... (HR 2941, 2000).*” Clearly, protection of wildlife and riparian areas was one of the key purposes.

In addition to groundwater impacts, we would lose surface waters, leading to reduced riparian-zone areas such as along the Empire Gulch. We can also expect to see a reduction in the density of vegetation that currently supports the high level of biological diversity throughout the eastern slopes of the Santa Rita Mountains, Davidson Canyon, the Sonoita Plain and beyond, areas that we all know and love. One recent estimate is that around 33,000 mature trees, including hundreds of century-old oaks that support a broad array of wildlife, would be lost. In 50 years, the Sonoita Plain could come to resemble areas along I-10.

Loss of amenity value will affect Sonoita, Elgin, and Patagonia, which host a viable economy based on wineries, ranching, small hotels, restaurants, hunting guides, bird watching, and more. The project evaluation process needs to insist upon the development of new models

“If someone said ‘name me a prosperous mining town,’ you’d be hard-pressed to come up with a name”

Dr. Tom Power, former Chairman, Department of Economics, University of Montana.

that are more detailed so that we have a better idea of possible long-term outcomes of the mine’s development before a decision is made.

The Rosemont Pit Lake

The impact of groundwater flow into the Rosemont pit will extend beyond the mine’s life of operations. It will be permanent. Because the pit would extend into the aquifer, the bottom will fill as a pit lake, up to 1,000 feet deep. As is the experience with other copper mines, contamination of the pit lake will exceed standards for wildlife and aquatic species, and may become a potential death trap for migrating birds. Pit lakes have been responsible for significant numbers of recent bird deaths in Arizona. Ducks, geese, and other waterbirds land in them and die as a result.

Rosemont’s Impact on Water Quality

On June 14, 2013, Administrative Law Judge Thomas Shedd upheld the mine’s aquifer protection permit awarded by the state in 2012. The aquifer protection permit is supposed to ensure that groundwater supplies are protected from mining and other industrial activities. Judge Shedd

said that opponents did not show that the Arizona Department of Environmental Quality's (ADEQ) granting of the permit was "arbitrary, unreasonable, unlawful, or based upon a technical judgment that was clearly invalid."

The agency appears to have accepted without question the results of technical reports paid for by Rosemont. Key issues cited in the recent appeal include the ADEQ's:

- Failure to conduct an independent evaluation of the data provided by Rosemont;
- Failure to assess surface water impacts;
- Failure to assess known major modifications to the mine resulting from Forest Service NEPA review of Mining Plan of Operations;
- Failure to impose discharge limits at the actual source of the pollution.

It is unlikely that the state's Water Quality Appeals Board will go against Shedden's decision when it hears the case on July 8.

The water permit will allow Rosemont to discharge materials if it can show that it is using the "Best Available Demonstrated Control Technology" to prevent pollutants from reaching groundwater. The permit includes a provision that allows Rosemont to potentially pollute area groundwater for at least two years before ADEQ even considers setting pollution standards. That's like not posting speed limits on a new road until the entire stretch of road has been completed and is in use. This is not a safe practice, especially since the aquifer standards already exist per statute which could be relaxed in the future if deemed appropriate.

The tailings and waste rock, piled high across 4500 acres of our publicly owned natural landscape, will also influence the quality of our water. We are likely to experience seepage of arsenic, lead, and other toxic elements in liquid leached from waste rock and mine tailings. Water toxic to wildlife could run into Davidson Canyon and Cienega Creek, and then into our groundwater, in the event of a large storm.

Rosemont Water Impacts in the Santa Cruz River Valley

The mine has a permit from the Arizona Department of Water Resources (ADWR) to withdraw 6,000 acre feet of groundwater from the Green Valley area, just east of the existing Farmers Investment Company (FICO) wells where the water table has already dropped dramatically and subsidence is a serious problem. Unlike farmers and developers, mines can pump as much water as they want. Irrespective of the amount Rosemont says that they will pump today, they are not bound to stick to that amount in the future.

The Forest Service's DEIS acknowledges that west of the Santa Rita Mountains, in the Santa Cruz River Valley, the mine facility could adversely affect groundwater availability to public and private wells, especially in the communities of Sahuarita and Green Valley; water supplies to residents and businesses may be reduced. Here the proposed project would pump at least 5,400-acre feet of groundwater annually for 20 years. Rosemont or its successors may well continue in operation beyond the alleged twenty-year operating cycle, which will only further aggravate the water issue. The water table would drop 70 feet in areas adjacent to Rosemont's wells and 10 to 15 feet in areas three to four miles away, affecting up to 350 wells.

Rosemont's recharging of 45,000 acre-feet of Central Arizona Project water in Marana, 46 miles to the north of Green Valley/Sahuarita, between 2007 and 2009, does not benefit or help the local community with its groundwater depletion issues in any way, since the Santa Cruz aquifer flows from south to north. Even if the proposed Community Water/Augusta

"The copper will go to China, the profits will go to the investors, and we'll get left with a massive hole in the ground and, very likely, toxics in our groundwater."

— *Gayle Hartman, President, Save the Scenic Santa Ritas*

CAP pipeline is completed, there is (a) no viable way any of the 45,000 acre-feet can be transferred to Green Valley for recharge without extensive permits and extraction infrastructure, and (b) Community Water's CAP allocation of 2,858 acre-feet is far short of Rosemont's projected annual usage. It remains an open issue how Augusta/Rosemont will fulfill their promise to "ensure neutral impact to local groundwater sources" (source: Rosemont's A Bridge To A Sustainable Future Fact Brochure).

Mitigation for riparian damage

Rosemont needs a Clean Water Act Section 404 permit, issued by the U.S. Army Corps of Engineers, which would authorize the discharge of dredged/fill material in Waters of the United States (WUS). Rosemont would completely eliminate 38.6 acres WUS as tributaries to Davidson Canyon and Cienega Creek. Each of these has been designated as "Outstanding Arizona Waters" by the state of Arizona. Rosemont would also indirectly impact 2.5 acres, and temporarily impact 0.75 acres of potential WUS. In 2009 the EPA identified these waters as "aquatic resources of national importance," and that permanent loss and degradation of water quality and other aquatic ecosystem functions is certain and unavoidable.

EPA has written on its concerns and indicated that the permit be considered for elevation to Washington, DC, and possible veto, should the Corps recommend issuance. At this point, the Corps has not made a decision on the permit, details of which can be found here: www.tucsonaudubon.org/what-we-do/conservation/329-ace.html

We do not believe that losses of such rare and protected aquatic resources can be adequately mitigated. We concur that a detailed functional assessment and analysis of the impacted waters of the U.S. and the regional watershed groundwater would need to be completed before adequate mitigation could be assessed.

For Tucson Audubon's comments on the proposed Rosemont Copper Mine, go to www.tucsonaudubon.org.

[org/news-events/96-consnews/191-rosemontmine.html](http://www.tucsonaudubon.org/news-events/96-consnews/191-rosemontmine.html)

Finally

Are we in our communities really considering allowing the pumping of potable water from our Santa Cruz aquifer and piping it over the mountain, to run a copper mine that will send all of the copper to the Orient for processing, leaving us with a toxic waste dump in our Coronado National Forest, and turning the Sonoita Plain into a dustbowl, all for the promise of 200 jobs?

Tucson is seeking to rebrand itself. We want to become a center for higher-paying, science-based jobs in university research, astronomy, optics, solar, and aerospace. We seek to keep gifted graduates from the University in our community. However, the decrease in the value of the Santa Ritas as a recreation amenity will likely make our community less attractive to companies and others when considering locating here. You owe it to yourself to take some time for a serious and personal reflection on the effects on our water of the proposed Rosemont copper mine. The outcomes of those effects on your quality of life may be rather large.

"Statement of Concern—Ground-water Resources of the Sonoita Plain" as an official public comment of the Sonoran Institute pursuant to the National Environmental Policy Act (NEPA) regarding the Rosemont Copper Draft Environmental Impact Statement.

Paul Green, Executive Director, Tucson Audubon



MATT GRIFFITHS

Attention, Southern Arizona Bat Watchers! Southern Arizona Nighttime Hummingbird Feeder Monitoring Study

We are delighted to report the successful completion of the 2012 hummingbird feeder bat monitoring study in the southern Arizona! In 2012, 55 volunteers in southeastern Arizona participated in this watchable wildlife program. Our network of volunteers extended from Marana to Nogales, Wilcox to Douglas and many communities in between. Half of our volunteers (stationed across southern Arizona) reported bats visiting their hummingbird feeders!

Through this project and your efforts we are better able to protect endangered lesser long-nosed bats (*Leptonycteris yerbabuena*). During the 2012 season, you helped document the distribution and seasonal time period when these bats are visiting feeders. The earliest arrival date that was documented last season was May 22 and the last departure date was November 7 for lesser long-nosed bats in

southeastern Arizona. We were also able to gather important natural history information for these bats through the capture and evaluation of numerous individual bats facilitated by netting at a number of your home feeders.

We hope that the 2013 season will be as successful as past years and that your outstanding contribution of time and energy will continue to make this project a success. As the monitoring season approaches, please continue to keep a vigilant eye on your hummingbird feeders and submit your data online. The information you give us greatly helps us understand these nectar feeding bats. If you are not detecting bats at your feeders this is still important information, and we encourage you

to report this data. Please don't give up; we have volunteers that have monitored for multiple years and find that bats may not be detected one year, but return the next.

This coming season we are looking to extend the boundary of our study further north into Arizona. If you know of others in northwest Marana, Safford, Globe, Oracle, or the Picacho Peak areas who may also be interested in assisting with this citizen science project, please help us recruit them! If you are interested in volunteering again or know of someone who is also interested, you can visit the Town of Marana website, www.marana.com/bats to get more information. Here's a helpful tip: copy and paste your data entry sheets onto your computer, so you have a record



BOB WEINRICK

Lesser Long-nosed bat at a hummingbird feeder

to refer to when filling out the End of Season Summary.

The successes of the 2012 season are directly attributed to the countless hours you all have devoted night after night. We extend our sincere appreciation to those of you who assisted with this project, and encourage you to continue to participate in this annual monitoring study.

Thank you again and we hope to hear from you all this coming season!

Janine Spencer, Environmental Projects Coordinator, Town of Marana



Conservation Corner!

Close Your Loops

The secret to ecological sustainability—whatever your definition of sustainability—is to close as many ecological loops as possible.

Ecological loops, or ecological systems, are “closed” when matter is not exchanged—exported or imported—outside the system.

Desert towns like ours are notorious for being dependent on importing resources from other areas.

There are many examples, like water. We use our local sources of water to excess and throw it away when we're done. Now we have to import water from the Colorado River, to the great detriment to wildlife populations along the lower Colorado River.

We import most of our food resources from far away, and we throw away the used water (graywater), together with yard

clippings and other waste material that could be used to produce compost to grow food. We also ignore natural sources of food growing around us such as pods on ubiquitous mesquite trees.

If you use harvested rainwater to shower and use the left over graywater to water a fruit tree, you are closing an ecological loop. If you eat locally produced food and compost human waste* and use it to improve soil to grow a fruit tree, you are closing a loop. If you trim yard plants and cut up the waste into mulch to grow garden plants, you close a loop.

Start thinking about loops—reusing, recycling, importing less—and let us know your ideas!!

*Kendall Kroesen
Habitats Program Manager*

*The Humanure Handbook: A Guide to Composting Human Manure, Third Edition (available from the Nature Shop)



TUCSON AUDUBON FIELD TRIPS

MATT GRIFFITHS | INTERIM FIELD TRIP COORDINATOR



LARS HAMMAR

Catalina Mountains

See more field trips and expanded descriptions at our website tucsonaudubon.org/fieldtrips or call 520-629-0510 x4.

July

July 20—Saturday 6:00 AM

Empire Cienega

Join Tucson Audubon for an outing around this lush riparian area, hopefully awakened by early monsoon rains. You MUST register with the trip leader Cliff Cathers at AZCliffy@Q.com or 520-982-3273.

July 23—Tuesday 6 AM

Catalina Mountains

We'll stop at various elevations to maximize bird diversity enjoying the desert floor, Manzanita/oak, pine/oak and fir forests that make up Mt. Lemmon. Leader: Gavin Bieber, kingbird77@hotmail.com



ALEX DERR

Madera Canyon

July 30—Tuesday 8 AM

Sierra Vista: Hummingbirds for Beginners

Those new to birding or hummers are especially invited. We'll visit Ash Canyon and Miller Canyon feeders. Sign up starting July 7. Leader: John Higgins, 520-578-1830 jghiggins@comcast.net



August

August 4—Sunday 6:30 AM

Santa Catalina Mountains

Lets hunt for a fall "superflock" of high mountain species in Tucson's own Santa Catalina Mountains. You MUST register with the trip leader Cliff Cathers at AZCliffy@Q.com or 520-982-3273.

August 31—Saturday 8:30 AM

Monsoon Birding & Nature in Madera Canyon

Join naturalist Doug Moore for a nature hike on the lower Carrie Nation/Vault Mine Trail. We'll look for birds, monsoon flowers, herps & insects along the riparian corridor in mid-canyon pine/oak woodlands. Contact Doug to sign up maderaedu@q.com.



September

September 14—Saturday 5:30 AM

St. David and Willcox

We will begin in the riparian habitat in St. David and then head to the Willcox ponds to see what shorebirds are migrating through. We may stop at the Benson ponds on our return. Leader: Dave Dunford, 520-909-1809 ddunford@dakotacom.net



Wednesdays, 6 AM during the hottest months. Sweetwater Wetlands. Join Mike Sadatmousavi for an easy walk to see waterfowl in the hundreds, regular and visiting warblers, and several exciting species hiding in the reeds. Birders of all experience levels welcome! Email mike.sadat@gmail.com to sign up. Check website for switch to later start time

Thursdays, July–August: 7:30 AM, September: 8 AM. Wake Up With the Birds at Agua Caliente Park. A stroll through the bosque and along the ponds. Loaner binocs available, meet in front of the ranch house. For more info call Pima County Parks and Rec., 520-615-7855.

Saturdays, October–May, 8–9:30 AM. Tucson Audubon's Mason Center. Families and birders of all skill levels are welcome. Visit tucsonaudubon.org/masoncenter for details.

See more field trips and expanded descriptions online at tucsonaudubon.org/fieldtrips or call 520-629-0510 x4.

General Information Tucson Audubon field trips are offered at no charge and are led by expert volunteers. For general information call 520-629-0510. For specific information about a trip, contact the leader of that trip. Please dress appropriately for your field trip. Always wear sturdy shoes, a hat, and use sun protection. Bring plenty of snacks and water for yourself. Always bring your binoculars, field guide, and for most trips a scope can be useful. Bring money to cover your share of the carpooling and any required entry fees (e.g. for state parks).

Arrival Times Arrive *before* listed departure times. Trips will leave promptly at the time given.

Carpooling Sites Tucson Audubon strongly encourages carpooling and for some trips it may be required. Check our website for frequently used carpooling sites. You are expected to reimburse the driver for the actual cost of fuel. Drivers and trip leaders are not expected to contribute.

Rare Bird Alert Listen to the latest rare bird alert at 520-629-0510 ext. 3. Report rare birds at 520-629-0510 or rarebirdalert@tucsonaudubon.org

Don't forget to stop in our Nature Shop for your birding supplies.



KENDALL KROESEN

Peppersauce Canyon

September 24-Tuesday 6 AM
Peppersauce Canyon

Among the sycamores, oaks, ash, and junipers, we've had an American Redstart, Olive-sided Flycatchers, and a Broad-tailed Hawk here on previous September field trips. Contact leader beginning September 1. Leader: Doug Jenness, d_jenness@hotmail.com 520-909-1529

September 28—Saturday 6:30 AM
Peña Blanca Lake

It's time to hunt for fall migrants at one of the better traps here in southeast Arizona. You MUST register with the trip leader Cliff Cathers at AZCliffy@Q.com or 520-982-3273.

October

Saturday, October 26—Saturday 7:00 AM
Tubac De Anza Trail



Hopefully a fall cold front or two will have deposited a few migrants along the Santa Cruz River corridor at Tubac. You MUST register with the trip leader Cliff Cathers at AZCliffy@Q.com or 520-982-3273. ■

Check out field trips for the Tucson Bird & Wildlife Festival in your festival insert. Find trip details and meet the leaders at www.tucsonaudubon.org/festival

ADDITIONAL BIRD WALKS IN TUCSON AND SOUTHEAST ARIZONA

For information on weekly regional bird walks from Agua Caliente Park to Ramsey Canyon Preserve, please see our website, www.tucsonaudubon.org/fieldtrips

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Big Bend Nat'l Park, Texas: Colima Warbler short tour April 30–May 4, 2014, \$1195. Leader: John Yerger. Big Bend is one of the most remote birding hotspots in the U.S., and home to some of its most spectacular scenery! It's the only place in the country to find Colima Warbler, the focus of one long day hike. A surprising number of habitats and oases are found within Park boundaries. Ideal for anyone desiring lots of birding and sightseeing on limited vacation time. Lucifer Hummingbird, Painted Bunting and Common Black-Hawk are just a few others we'll seek on this fun-filled adventure!

South Texas: Rarities and Specialties short tour February 26–March 2, 2014, \$1295. Leader: John Yerger. Limited vacation time? This "short tour" will target some of the rarest birds in the ABA region! Our main focus: find mega-rarities in the Lower Rio Grande Valley. In recent years, species included Crimson-collared Grosbeak, Golden-crowned Warbler and Black-vented Oriole. In addition, we'll seek rare residents like Clay-colored Thrush and Red-billed Pigeon. And of course, spectacular South Texas specialties like Green Jay, Altamira Oriole and Buff-bellied Hummingbird will round out the trip! See website for details and on this and other tours.

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Madagascar's Remote North—Pochard & Endangered Endemics 2013: Tour Dates: 19 Oct 2013–05 Nov 2013 (18 days). Tour Price (per person) US\$ 6,475. This "off-the-beaten track" birding tour to Madagascar's remote north concentrates on some of the world's rarest birds and animals, including Sakalava Rail, the recently rediscovered Madagascar Pochard, Helmet Vanga, Madagascar Serpent Eagle, Decken's and Crowned Sifakas, the bizarre Aye-Aye and a wealth of other exciting mammals, reptiles and amphibians.

Northern & Central Thailand—Asian Birding at its Best II 2013: Tour Dates: 30 Nov 2013–17 Dec 2013 (18 days). Tour Price: (per person) US\$4,950. Thailand boasts a fantastic diversity of habitats, ranging from mountains draped with rhododendron forest, to extensive mudflats and dense tropical lowlands resounding with birdsong. Our trip targets an amazing array of migrants and Asian birds including numerous range-restricted specialties. Siamese Fireback, Great Hornbill, Silver-breasted Broadbill, Coral-billed Ground Cuckoo, Blue Pitta, Spoon-billed Sandpiper, Great Slaty Woodpecker,

Giant Nuthatch and Green Peafowl are just some potential highlights of this incredible tour!

SOLIPASO TOURS

www.solipaso.com

Madera: Thick-billed Parrots: August 19–22, 2013, \$1000. Leader: David MacKay. A short trip into northern Chihuahua to see the highly endemic Thick-billed Parrot and Eared Quetzal. Summertime in the Sierra Madre is a sight to see with green meadows, lakes, blue sky vistas and monsoons! The trip starts in Tucson and we bird the pinyon-juniper habitat on the way to Nuevo Casas Grandes. We visit the remote Paquime ruins site, Cuarenta Casas then spend two nights in the Madera area to see the Thick-billed Parrots in their nesting habitat, along with many other high elevation species.

Copper Canyon: September 17–25, 2013, \$2600. Leader: David MacKay. The world famous Copper Canyon is a great destination for summer birding! In Los Mochis, we explore the botanical garden and take a trip out into the Sea of Cortez. From El Fuerte, we board the train with stops in Cerocahui, Cusarare and Creel. Target birds are Eared Quetzal, White-striped Woodcreeper, Mountain Trogon, Rufous-capped Warbler, Striped and Rusty Sparrows and more. We'll have the opportunity to see some of the Tarahumara villages and purchase their crafts. Starts and ends in Los Mochis.

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west, Tubac, Tumacacori, Pena Blanca Lake and Nogales to the south and Green Valley and Tucson to the north. Whether your stay is a night, a week, a month or more, let *A Feathered Nest in Amado* be your home away from home. Birds love it here and so will you!

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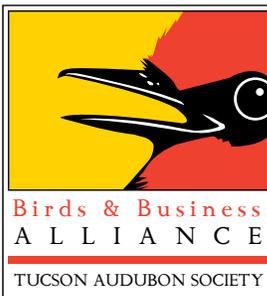
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Classified and display ads are accepted from individual members and members of our Birds & Business Alliance. Visit tucsonaudubon.org/vfly for rates or contact Matt Griffiths mgriffiths@tucsonaudubon.org to book an ad.

BIRDS & BEER. Third Thursdays at Sky Bar: July 18 and September 19, 5-7 PM. Free slice of pizza, beer at happy hour prices, share your bird photos.

SOLAR INVERTER NEEDED. Tucson Audubon's Mason Center needs a new inverter to fit between our new solar panels and the grid. Cost is approximately \$3000. If you can help, please contact Paul Green at 520-209-1801 or pgreen@tucsonaudubon.org.

TUCSON AUDUBON WISH LIST

Habitat Restoration Program:

Box trailer to haul all-terrain vehicle between work sites. Specs:

- "Box trailer" (low metal, metal mesh or wood sidewalls)
- 6 feet wide; 10 or 12 feet long
- 2 axles
- Ramp
- Rated to about 1,500 lbs
- Requires ½-ton pickup with hitch

Multi-channel (10+) data logger (e.g. Hobo U30 USB Data Logger) and temperature sensors

Nature Shops: A basic iPad with the ability to connect to WiFi for off-site events.

AZ Important Bird Areas Program: Garmin GPS hand held units; Portable, hand-held, battery operated speakers for play back bird surveys.

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The World's Rarest Birds

Erik Hirschfeld, Andy Swash and Robert Still. Princeton: Princeton University Press. Pp. 360. ISBN 9780691155968. \$45.

This is a book focused on endangered and critically endangered birds of world, based on BirdLife International's 2012 IUCN Red List. The book begins by providing very useful information on how species get assigned, and moved between, different conservation categories from "extinct" to "least concern."

The authors follow this with a discussion of how bird species are distributed across the globe, and the major threats that they face. Not surprisingly, most of these threats are human created. They end this rather depressing introductory section with a uplifting take on the effectiveness of conservation done right. The rest of the book is divided into geographical sections on each of the continents and one on oceanic islands. Each of these sections begins with a description of conservation challenges specific to these areas, and most have a few pages devoted to specific threatened bird hotspots. These are followed by a short description of the threatened bird species in each region. These descriptions include a photo of the species when available, a map of where it is found, its estimated population size and whether the numbers are increasing or decreasing, and the major threats it faces.

This book is a wonderful read for anybody interested in conservation biology, especially in regards to birds. The descriptions of how birds get monitored so that they can be added to or moved from one conservation category to another was especially illuminating to me, as an amateur conservation biologist. It would be good addition to the reference section of any household library—especially those with children. In addition, I think it is a great guide for travelers (who don't mind the extra weight) interested in looking for rare birds on trips to different areas of the world.

To end on a personal note, in the process of reading this, I became fascinated with the Forest Owlet (*Heteroglaux blewitti*; pp 26 and 137). This species was considered extinct until it was rediscovered in the forests of India in 1997. The book describes it as a small owl, found in 12 highly fragmented areas with an estimated population



Forest Owlet

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size between 50-249. Declines in its population are likely due to a combination of habitat loss and degradation, as well as hunting. A little further research led me to find just one research paper on its biology. Published in *Ibis* is 2005, the researchers Ishtiaq and Rahmani examined the vocalizations and breeding biology of this species. One of the best things about the *World's Rarest Birds* is that it introduces us to many such charismatic species—species we currently know very little about. And time is running out for many of them unless drastic action is taken.

*Reviewed by Dr Chandreyee Mitra,
University of Arizona.*

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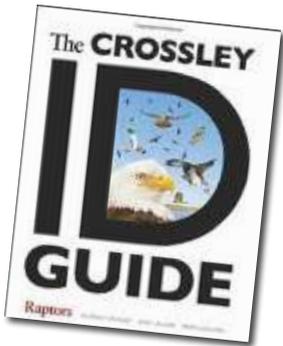
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The Crossley ID Guide: Raptors

Richard Crossley, Jerry Ligouri and Brian Sullivan. Princeton: Princeton University Press. Pp. 286. ISBN 9780691157405. \$29.95.



This volume joins the well-received *Crossley ID Guide: Eastern Birds*, and is designed to be useful for beginners and experts alike. The *Raptors* guide distinguishes itself from other, more general guides by only focusing (as the title suggests) on diurnal raptors of North America—just 34 species. By contrast, general guides present these species in only about 30 pages, so this is a lot more time spent per bird.

Along with a clear, conversational style that's willing to discuss the birds as creatures of beauty (or not—sorry, Vultures), *Raptors* goes beyond simple reference to begin a dialogue and invite readers to learn about these birds actively.

The book describes itself as “a halfway house between reality and traditional guides.” Its first half presents huge photo collages with unobtrusive text, depicting the birds in their typical habitats as male and female, juvenile and mature, near and far, perched, flying and striking. *Raptors* shows not only what the birds look like, but how they look in motion.

In the second half we find range maps, informal character sketches and about ten long, titled paragraphs (*Flight Style*, *Size and Shape*, etc) for each species. There is constant cross-reference, both from a two-column table of contents and between the two sections of the book. Ospreys on page 36 refer you to Ospreys on 190, and vice versa. What's more, the titled paragraphs make it easy to compare molt, for instance, among all 34 species.

A small series of “Mystery Photos” scattered through Part I (with answers in the back) places similar birds beside each other to contrast their differences and let readers test themselves.

Crossley ID Guide: Raptors is an engaging, accessible reference to these fascinating birds that also works as a teaching tool and an invitation for readers to learn and think about raptors as a distinct class with distinct life histories. To raptor enthusiasts, its value is obvious, but even as a “second” guide it will be a fantastic resource.

Feathers: The Evolution of a Natural Miracle

Thor Hanson. New York: Basic Books/Perseus BooksGroup. Pp. 352. ISBN 0465020135. \$15.99 (trade paper).

Widely praised since its publication in 2011, *Feathers* has gone on this spring to be honored with the John Burroughs Medal, awarded for “well-written and illustrated natural history publications.” As you read the book, it's easy to see why.

For a book with a topic as broad as its title suggests, Hanson has created a book that's engaging, lively, well-paced and comprehensive. Assortments of odd trivia—for example, golf balls were originally leather stuffed tight with wet down that hardened as it dried—are woven almost seamlessly into a narrative running briskly over its pages and chapters.



His affable style brings together personal stories (and experiments) with historical investigations, the state of current academic thought and interviews with current experts in the use of feathers in research, commerce and industry. The open, conversational tone at once invites you further into the book while rewarding occasional upward glances to explore whatever details fascinate you.

Hanson sketches his interviewees—academic experts (like Peter Harrison and Richard Prum), a goose down buyer, a New York couturier, an expert fly fisherman and many others—as real people with real occupations who have, in some way or other, a deep appreciation for feathers: their warmth, color, beauty and perfection for the seemingly endless purposes they serve for both birds and people.

In sum, this book manages, without apparent effort, to weave Hanson's documentary-style travels and interviews together with several strands of narrative. He takes us along to learn about the evolutionary history of feathers and birds generally, along with summarizing the attendant scientific debate; to hear personal stories of people encountering beautiful birds and feathers all over the world (and even the Moon); and to explore in depth the always-troubling balance between the economic value of feathers and conserving the birds they belong to.

In fact, *Feathers* reads nothing so much like a film documentary I'd love to watch, and I highly recommend it. A portion of the book's proceeds support bird conservation organizations. ■

Reviews by Eric L M Shuman

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