



The Cactus Wren•dition



Volume LXVII No. 1

Spring - 2018



Western Pondhawk

Photo by Laurie Nessel

Programs

programs

Meetings are held in Scottsdale:

Papago Buttes Church of the Brethren (northwest of 64th Street and Oak Street, which is between Thomas Road and McDowell Road). You may enter from 64th Street, just north of Oak Street. If coming from the south, turn left (west) at Oak Street and then right at the Elks Lodge. Continue north along the eastern edge of their parking lot and turn right into the church parking lot. Look for signs that say "Audubon." Come and join us and bring a friend! MAS holds a monthly meeting on the first Tuesday of the month from September through April.

March 6, 2018

John Alcock

Deer Creek, Mazatzal Mountains
Learn about John Alcock's 10 year-plus study of Deer Creek in the Mazatzal Mountains, where he has been recording the recovery of the south fork trail site from the devastating Willow Fire. Alcock found that the chaparral zone along Deer Creek has made a remarkable rebound from the intense fire that swept through the Mazatzals in summer, 2004. His talk uses material from his recent book, *After the Wildfire: Ten Years of Recovery from the Willow Fire* (University of Arizona Press, 2017).

John Alcock is a Regents' Professor Emeritus in the School of Life Sciences at Arizona

Committees/Support

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Position Open

Bookstore

Mel Bramley
480 969-9893

Hospitality

David Chorlton
480 705-3227

Web Page

Michell Peppers
480 968-5141
burge@burgenv.com

Maricopa Audubon Website

<http://www.maricopaaudubon.org>

**"Conservation is a state of harmony
between men and land."**

Peter Leopold

An Investment in the Future

Bequests are an important source of support for the Maricopa Audubon Society. Your chapter has dedicated itself to the protection of the natural world through public education and advocacy for the wiser use and preservation of our land, water, air and other irreplaceable natural resources.

You can invest in the future of our natural world by making a bequest in your will to the Maricopa Audubon Society. Talk to your attorney for more information on how this can be accomplished.



Deer Creek. Photo by John Alcock

State University, where he taught from 1973 until 2008. He is the author of several books, including Sonoran Desert Spring and Sonoran Desert Summer.

April 3, 2018

Jeff Perry

Least Bitterns at Gilbert Water Ranch
In the spring of 2016, three adult Least Bitterns were spotted around the fishing pond at Gilbert Water Ranch. Since then, Jeff Perry has spent most of his weekends observing and photographing the birds, from the male competing for the female's attention, and a failed nesting attempt that summer, to a successful pairing and raising of two broods in 2017. Jeff will share some anecdotes and images.

Jeff Perry started birding and bird photography while in the Seattle area in the late 1980s. He moved to Iowa City in 1992 and, although he kept an interest in birds in general, he took a particular interest in owl photography. He followed a nearby pair of Barred Owls for three years, and also photographed wintering species, mainly Northern Saw Whet and Long Eared Owls. He grew to enjoy behavioral observations as much as capturing images, spending his spare time learning more about his species of interest and less on increasing his life list. Jeff moved to Phoenix from the east coast in 2009. Having taken a hiatus from photography during the first decade of the millennium he found that the beauty



Least Bittern. Photo by Jeff Perry



On the Cover: Western Pondhawk, female

Focal length 247 mm, 1/400 sec, f/6.5, ISO 160, Canon Powershot SX60 HS by Laurie Nessel, Queen Valley, Pinal County, August 19, 2017.

Laurie says: Pondhawks are known for their hunting skills and can capture and eat dragonflies their own size. They have conspicuous spines on their legs. The Western Pondhawk likes calm waters (preferably with cattails). Pruinos (powdery or dusty-looking) blue males resemble the more common but smaller and unrelated male Blue Dasher. Identify a Western Pondhawk from the front by its green face (the Blue Dasher has a white face) and from the back by the green spots behind the eyes. You can find Western Pondhawks throughout Arizona. Start looking for them in mid-February.

of the desert and species of the Southwest reignited this interest, and he has devoted much of his free time to learning about Arizona birds.

May 1, 2018

64th Annual MAS Banquet and Meeting

Location: Lakeside at Tempe Center for the Arts

6:00 pm Social hour: cash bar, raffle, and silent auction.

7:00 pm Buffet dinner (includes vegetarian option).

Cost: \$28 per person \$25 for "Friends of Maricopa Audubon." To become a Friend, please see back page of this issue. Reservations required. No-shows will be billed. You may pay at the door (cash or check) or mail checks payable to Maricopa Audubon Society to MAS Banquet, c/o Vicki Hire, Treasurer, PO Box 603 Chandler, AZ 85244 PO Box 603 Chandler, AZ 85244. Our agenda will include induction of our new Board and a presentation of the Ninth Annual Herb Fibel Memorial Award for Distinguished Service to the Maricopa Audubon Society.

Banquet Guest Speaker: David Pearson, CUBA: Politics, Conservation, and Birding

Until the last few years, Cuba has been a mystery destination for US citizens. Its wildlife, conservation, and ecotourism are tightly tied to economics, politics, and cultural clashes that are often bewildering and complicated by years of mistrust and lack of communication. This presentation discusses what are the answers and how do we find them?

David Pearson's research focuses on using the interaction of ecology, conservation, ecotourism, and education to develop methods that promote sustainable use of biodiversity. He has studied a range of habitat including coral atolls and desert grasslands. He has worked on a breadth of organisms from crabs to insects, and Paramecia to birds. Pearson's current research concentrates on a small group of insects—tiger beetles—in tropical lowland rain forests. He also works on international environmental education exchanges for graduate students and elementary teachers and students that promote critical thinking skills and appreciation of cultural diversity.



Cuban Tody. Photo by Charles J. Sharpe

President's Message



Mark W. Larson

when I was a youth. The same is true for all of our activities—good people sharing their knowledge of and love for nature.

So, if you are one of these inactive members, I urge you to give it a try. Start by signing up for a field trip. I guarantee you will meet some friendly people and see some fascinating wildlife, including a few birds. I can also guarantee that you will not only learn something, but you will discover a little of what you've been missing!

I would also say that you should not be apprehensive about participating if you are not (yet) an expert in the field. We all had to start sometime and we welcome beginners. The only requirement is an appreciation of the natural world.

At our December monthly meeting we had a very successful book signing for the new *Birds of Phoenix and Maricopa County Third Edition*. Eighty-five copies were sold at the meeting! Sales have now eclipsed 360 copies and at least two bookstores have sold out and ordered more. MAS has sponsored all three editions since 1972. If you like to see birds in the Phoenix area you need to have a copy of this exceptional volume! It is full of color photos, maps and directions to birding locations, and charts that show what birds are common at what seasons.

In April and then again in May I will be leading field trips to Costa Rica. The April trip will be to the same part of the country that Laurie Nessel discussed in her article in the Fall 2017 *Wren•dition*. That trip will include two boat trips, one in a rich freshwater wetland and the other into a diverse mangrove forest on the Pacific coast. The second trip will be to southeastern Costa Rica with elevations ranging from sea level to over 10,000 feet—extreme diversity of habitats and tropical species. If you have wanted to someday visit this extraordinary country at a reasonable cost, contact me to get more information. 🐦

Mark W. Larson
President
MARICOPA AUDUBON SOCIETY
Phoenix, Scottsdale, and Tempe, Arizona

Letter from the Editor

by Gillian Rice



Gillian Rice

Now when going birding, I often leave my camera behind. This is difficult as I love to get special images of birds and their behavior. Using my camera means I can document birds I see, share my experiences with others, and perhaps identify an unfamiliar bird.

With my camera, however, I am so intent upon getting an amazing photo that I miss the moment of watching the bird. Last year, I took an online course in mindfulness. I learned how human beings cannot really multitask and how important it is for our mental and physical health to be aware, and to be “in the moment.” Once a moment has passed, it's gone forever. I now want to luxuriate in special wildlife experiences without my camera, as indeed I used to do.

On a day in late January, I enjoyed watching several birds forage in Desert Hackberry. No camera. Just standing still and quiet. Then the birds coming so close to me I could have reached out and touched them. I didn't need binoculars. A Ruby-crowned Kinglet had alerted me to its presence by chattering and flashing his red crest.

Although I have observed this bird often, I had rarely seen its crest. On the website, *Birds of North America*, I read the male kinglet's scarlet crown patch is usually concealed unless the bird is agitated. But today, silent for several minutes, gleaning insects or larvae, the kinglet flitted among the hackberry's branches. Even though it had stopped chattering, it kept its crest raised all the time. I wondered at this behavior. Was it defending its feeding patch against other birds? Was it communicating with another kinglet? Other birds fed alongside and seemed oblivious to my presence: Black-tailed Gnatcatchers and an Orange-crowned Warbler. How delightful to savor the moment of being close to wild birds – and special ones for me – without distraction and trying to snap an image. These birds move so quickly that I would have been wasting my time anyway and missing an experience.

Photography is a wonderful pastime and I won't always leave my camera at home but I will think twice about using it to photograph every bird encounter.

I hope the coming spring brings you abundant wildlife experiences that give you memories to cherish. The stories in this issue of the *Wren•dition* might provide ideas of things to do and places to go.

Thank you to all our contributors and to the supporting Friends of Maricopa Audubon, without whom the *Wren•dition* would remain a dream. 🐦

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Grocery shopping?

Support Maricopa Audubon when you shop at Fry's Food Stores.

MAS is part of Fry's Community Rewards Program. Register your Fry's VIP card and select Maricopa Audubon #89166 as your non-profit organization at no cost to you. Go to <https://www.frysfood.com/topic/new-community-rewards-program>

Maricopa Audubon Society Field Trips

field trips

Car Pooling: Please make every effort to organize your own car pool, consolidate vehicles at meeting places and/or contact leaders for car pooling assistance. Be courteous to the trip leaders and help cover their gas costs. We recommend that passengers reimburse drivers 10 cents per mile each.

Reminders:

- Avoid wearing bright colors. Wear neutral-colored clothing and sturdy walking shoes.
- Bring sunscreen, sunglasses, head protection, and water.
- Always bring your binoculars. Bring a scope if recommended.
- Submit trip and leader suggestions to the Field Trip Chair, Larry Langstaff.
- Unless stated otherwise, reservations are required.

Day Passes: Many locations in the National Forests require Day Use Passes. For details, see <http://www.fs.usda.gov/main/tonto/passes-permits>

HOT SPOT SATURDAYS

Trips in and around Maricopa County to discover our bird diversity and see what birds are where throughout the year. For full details, contact the trip leader. Limit 8.

March 24: Jewel of the Creek

April 7: West Valley Buckeye area

May 19: Papago Park and Zoo Ponds

Leader: Veronica Heron, v.heron@yahoo.com

TEMPE TOWN LAKE SATURDAYS

Saturday, March 10

Tempe Town Lake-West End

Join up for birding and biking on the west side of Tempe Town Lake to see Western, Eared, and Pied-billed Grebe, then bike down toward the east side of the lake for possible pelican, Osprey and an occasional Bald Eagle along with various other waterbirds and migrating ducks. Watch for nesting behaviors and see if the Cliff Swallows have returned once more to scoop mud off the banks and, as a community, build their mud nests along the bridges. Bring bike, helmet, water, binoculars, and bird book or birding app. Limit 6.

Leader: Bobbe Taber, mindfulbirding@protonmail.com

Saturday, March 3

Southwest Desert Insects Revealed

Join Nico Franz, Curator of ASU's Hasbrouck Insect Collection, on a walk to find spring insects. Location: South Mountain Park, or the McDowell Mountains, or the desert above Granite Reef Dam on the Salt River. Start at 8:00 am. Limit 15.

Reservations: Larry Langstaff, larrylangstaff1@gmail.com

Monday, March 26 – Tuesday, March 27

Rio Rico area, including Ruby Road and Peña Blanca Lake

Two days of birding around Rio Rico, with night at standard hotel. Target destinations include the De Anza Trail around Tubac and Peña Blanca Lake in the Atascosa Mountains; likely stops at Sweetwater Wetlands, and along Ruby Road. Expect sparrows, Red-naped Sapsucker, Bushtit, jays and nuthatches, plus early migrants, including warblers, vireos, and tanagers, and possible rare Montezuma Quail. Costs include hotel, two restaurant meals, gas donations to drivers, and small entrance fees. Difficulty 1-2. Limit 8. Leader: Kathe Anderson, kathe.coot@cox.net

Friday, April 13

Lower Camp Creek

On the way to Seven Springs, north of Scottsdale, Lower Camp Creek usually has a nesting Zone-tailed Hawk pair in the summer. The hawks might have arrived by mid-April. See desert species, and in the creek bottom, under huge shade trees, orioles, tanagers, grosbeaks, and other migrants that frequent riparian areas. Start 5:00 am from Scottsdale and end

at coffee shop about 10:00 am. Difficulty 2-3. Limit 8. Leader: Kathe Anderson, kathe.coot@cox.net

Wednesday, April 25

Pinall Mountain near Globe

Look for spring passage migrants and arrival of summer nesting species in mesquite bosques, chaparral, ponderosa-oak, and Douglas fir habitats. Possible Rivoli's Hummingbird, Dusky-capped Flycatcher, Red-faced Warbler, Black-chinned Sparrow, and Yellow-eyed Junco. Leave 4:30 am and arrive Globe 5:45 am (sunrise at 5:45 am); return 2:30 to 3:00 pm. Bring water and a bag lunch. Short easy hikes on forest roads, but majority of birding near vehicles. Limit: 11 (plus leader) in three vehicles. Leader: Dave Pearson.

Reservations: Larry Langstaff, larrylangstaff1@gmail.com

Saturday, April 28

Sunflower-Mt. Ord

See nesting species like Gray Vireo, Black-chinned Sparrow, Hooded and Scott's Oriole, and Black and Zone-tailed Hawks. Going up Mt. Ord look for the six "Arizona warblers" as well as migrating Hermit and Townsend's Warblers. Bring lunch. Difficulty 2-3. Limit 8.

Leader: Charles Babbitt, 602 840-1772,

cjbabbitt@cox.net

Thursday, May 10

Big Sit at the Salt River

For a change of pace, sitting by the Salt River during peak migration seems like fun. Spend an hour at each of the Granite Reef and Coon Bluff recreation sites. Common desert species like Gila Woodpecker, Abert's Towhee, and Verdin, plus some waterfowl. Possible migrants and summer residents include Lucy's and other warblers, Bell's Vireo, orioles, flycatchers, and tanagers. Bring your own chair! Start 5:30 am near Salt River and end about 8:30 am. Difficulty: 1. Limit 10.

Leader: Kathe Anderson, kathe.coot@cox.net

Friday, May 11 through Sunday, May 13

Greenlee County

Habitats in far eastern Arizona include Chihuahuan desert scrub, riparian areas along the Gila River, agricultural fields, chaparral, juniper woodland, and mixed pine/oak woodland. Bird life here is poorly understood. Saturday is Global Big Day and all data collected will be submitted to eBird to improve information on bird abundance and distribution in Greenlee County. Depart Mesa early Friday to start birding Greenlee County that same day. Full day of birding on Saturday. Cover as many areas and habitats as possible, striving for the greatest species diversity. Sunday morning includes another stop before returning around noon. Stay two nights in Duncan, which has limited rooms. Therefore, please register by April 1, 2018. Difficulty: 1-2. Limit 6, plus leader.

Leader: Gordon Karre, karhop1@msn.com

Wednesday, May 15

Patagonia and Harshaw Canyon (Santa Cruz County)

Look for nesting riparian and Mexican species such as Thick-billed Kingbird, Varied Bunting, Eastern Bluebird, and Violet-crowned Hummingbird. Leave 3:30 am and arrive 6:15 am (sunrise at 5:30 am); return 4:00 to 5:00 pm (those who want to go down the day before can meet us there). Bring water and a bag lunch. Limit: 11 (plus leader) in three vehicles. Leader: Dave Pearson.

Reservations: Larry Langstaff, larrylangstaff1@gmail.com

Wednesday-Friday, May 23-25

Flagstaff area

Meet 5:00 am to drive north, with two nights at moderately-priced hotel in Flagstaff. Spend first part of Wednesday at Kachina Wetlands, then the Arboretum at Flagstaff, to have a picnic lunch and enjoy that site. Kachina Wetlands can be full of surprises, but waterfowl, raptors, bluebirds and swallows are predictable. At the Arboretum, possible robins, hummingbirds, and higher elevation warblers (Red-faced?). Back in town, visit a site or two before dinner. On Thursday, explore Raymond Ranch Wildlife Area (for mammals), Walnut Canyon National Monument, and possibly Picture Canyon. The last day, probably head to the Lamar Haines Wildlife Area on the way to Snowbowl for possible Williamson's Sapsuckers, Red-breasted Nuthatches, and Clark's Nutcrackers, before lunch in town. Leave for home about 2:30 pm. Difficulty: 1-2. Limit 8.

Leader: Kathe Anderson, kathe.coot@cox.net

Saturdays, May-October (May 26, June 23, July 28, August 18, September 22, October 27)

Family Walks in Papago Park: Dragonflies and Butterflies

Learn to identify local butterflies including Painted Lady, Queen, and Fiery Skipper as well as common dragonflies and damselflies such as Blue Dasher, Flame Skimmer, Blue-ringed Dancer, and Familiar Bluet. Easy, one to one and a half hour strolls around the lakes. Children welcome. Bring binoculars (close-focus preferred), water, and hat. *Common Dragonflies of the Southwest* by Kathy Biggs on sale for \$10.00. Meet 7:00 am May-September, 8:00 am October at Lake 2. No reservations needed.

Leaders: Janet Witzeman and Laurie Nessel, laurienessel@gmail.com



Widow Skimmer. Photo by Laurie Nessel

Tuesday June 5

Payson/Rim Road 300

Meet 5:00 am in Fountain Hills to drive to Payson, for a quick stop or two in town before heading north to the Rim Road. See high elevation birds, woodpeckers, nuthatches, and summering tanagers, vireos, and warblers. Picnic on the Rim. Return about 3:00 pm. Difficulty: 1. Limit 8.

Leader: Kathe Anderson, kathe.coot@cox.net

Saturday June 9

Dudleyville and Aravaipa Canyon (Pinal County)

Look for nesting Mississippi Kite, Black Hawk, Rufous-winged Sparrow, and many riparian and desert species. Leave 4:00 am and arrive 5:30 am (sunrise 5:15 am); return 2:00 - 3:00 pm. Bring water and a bag lunch. Limit: 11 (plus leader) in three vehicles.

Leader: Dave Pearson.

Reservations: Larry Langstaff, larrylangstaff1@gmail.com

Chiricahua Springtime

by David Chorlton

Night Wind

After dusk, the wind tumbles
out of the sky, bounces
off a rock face, slips
between the bare limbs on an oak,
skids along the stream
in Turkey Creek, and whets itself
on stones until
its edge is sharp enough to fit
between a window and its frame.

Cold Front

A mountain vanishes.
A hummingbird appears.
Sunlight turns to sleet.
Underneath the house
a black-tailed rattlesnake
coiled in winter's dust
is a long, slow pulse
waiting out the cold.

South Fork

A leaning sycamore repeats
the same long note when it scrapes
against a pine turned black
in last year's fire beneath bright
rock walls that wash up against
the sky, with the weight
warmed out of them
by afternoon sun.

Leafing

For the first ten feet
from the ground up
the tree is hollow bark
large enough for standing in
and charred, then the edges
come full circle where the trunk
resumes its slender
passage from an unbroken root
to an unfolding leaf.

Warmth

The midday warmth has coaxed
the snake out of her darkness.
A few scales spill
onto the grass where it touches
a break in the foundations.
She nestles her face
on her rattle for as long
as the light soaks into her, then
peels herself back out of sight
from the first inch of shade
to pass over her face.



Black-tailed Rattlesnake. Photo by David Chorlton

Sandhill Crane

by Jasper Younger-Howard

Upon seeing her he stretched his wings wide
All princes desire to find a mate
Desiring a queen to be by his side
Would it be true love; would it be fate?

As princes oft do, he took a great bow
And began pumping his long, graceful neck
Her heart he needed to truly wow
Dancing, each movement gracefully in check

Finally leaping high into the air
Flashing brightly, he was brilliantly dressed
Of him she finally became aware
He had passed the final, most daring test

Soon both lovers were never to part
Mating for life, they were one in their hearts



Sandhill Crane Photo by Jasper Younger-Howard

poetry

Essential Companion to Local Birding

by Charles J. Babbitt

All photos by Tom Gatz



L to R, Janet Witzeman, Troy Corman, Tommy DeBardeleben, and Laurie Nessel

Birds of Phoenix and Maricopa County Arizona Third Edition

by Janet Witzeman and Troy Corman, with a compilation of birding areas by Tommy DeBardeleben and Laurie Nessel. Phoenix, Arizona: Maricopa Audubon Society, 2017. 228 pp. ISBN: 9780965456616, spiral bound, \$26.95, available at Changing Hands Bookstore, www.buteobooks.com, and the Desert Botanical Garden gift store. Discounted price of \$25.00 at MAS monthly meetings.

Maricopa Audubon Society has just published the much anticipated third edition of the *Birds of Phoenix and Maricopa County*. Birders will find this book an invaluable source of updated

information on birding locations, changes in species status and habitat, and species accounts for all 459 recorded Maricopa County species. The book includes color photographs of 27 of the 33 new birds that have been added to the county list since publication of the second edition in 1997.

Over half of this new edition is devoted to species accounts. They have been updated and substantially enhanced with additional information regarding seasonal occurrence, abundance, and habitat preference. Observation dates and



Book signing at the January MAS meeting

observer information is provided for many accidental and casual species. Readers will appreciate the bold, easy-to-read bar graphs that appear on every other page making it easy to refer back and forth between bar graphs and the species accounts. Each individual bar graph has a calendar and abundance legend.

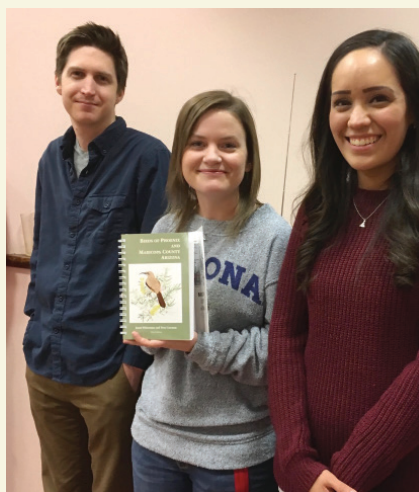
This edition, like the second edition, has a section on habitat and species status changes. It gives birders, especially those new to the area, an interesting perspective on the changes that have occurred in Maricopa County over the last two decades. It is hard to believe that just twenty years ago there were no Eurasian Collared-Doves and virtually no Rosy-faced Lovebirds both of which are now well established. In 1997 the Neotropic Cormorant was considered a casual visitor. Today the Gilbert Road Pond in the east valley probably has the largest known colony

of nesting Neotropic Cormorants west of Texas. Also of interest are the number of species that are increasingly overwintering and others like Cliff Swallow that are arriving at nesting areas much earlier in the spring.

Almost a third of the new edition is devoted to an updated and expanded birding areas section. It divides the county into six geographic areas with a total of 81 different birding locations. At the beginning of each section is a general area map. Individual birding areas contain detailed driving directions along with species occurrence, habitat description, and other useful information. This section is sprinkled throughout with color photographs of birds, habitat, and locations. New to this edition are symbols designating facilities available at each birding location. At the end of the birding areas section are several pages describing the different habitats found in Maricopa County along with two pages of color habitat maps.

This excellent and well-documented book was a collaborative effort by many people. Special thanks go to Janet Witzeman whose faithful and meticulous record keeping and authorship of previous editions made much of it possible. 🐦

Charles Babbitt is a long-time member of MAS and contributed bird sightings and other information to this edition.



L to R, Joshua Swartz, Tiffany Swartz, Stephanie Dominguez



Delectable eats for the book-signing event. L to R, Marilou Peavley, Laura Miller

SONORAN DESERT WALKING STICK

by Vicki Hire



Sonoran Desert Walking Stick Photo by Vicki Hire

I was surprised and excited when my husband, Ron, found this Sonoran Desert Walking Stick at our Queen Creek property! Considering its defensive ability to blend with a Creosote bush, I wondered how many times there was one in plain sight that I did not see.

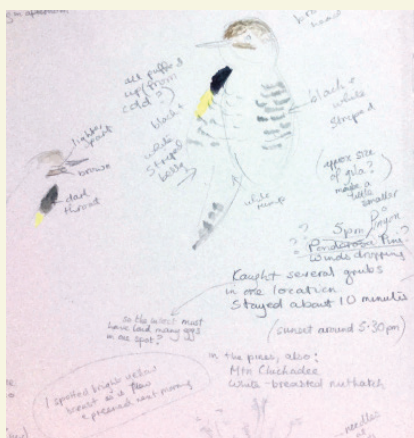
The Sonoran Desert Walking Stick is primarily nocturnal. It blends in with plants and shrubs upon which it feeds. This one probably feeds mostly on Creosote bushes in the desert. Parthenogenic, females can reproduce without males. Only about 1 in 1,000 are male. The walking stick's predators are birds, reptiles, spiders, and bats. This insect's defensive tactics are numerous. It has a camouflaged body that can remain perfectly motionless, especially during the day, with its forward and back legs outstretched, as if it were a twig of its host plant. It can flex its legs, swaying its body from side to side like a twig blowing in the wind. It can also play dead and fall to the ground, or sacrifice a leg if it is grabbed by a predator. The walking stick feeds nocturnally, when there is less of a risk of being detected by a predator, and is capable of discharging a foul-tasting blood from its leg joints, or regurgitating an evil tasting liquid through its mouth. 🦋



Immature male Rufous Hummingbird. Photo by Michael Searcy, <http://michael-searcy.pixels.com>. This hummingbird was first seen on November 20 and overwintered at the Desert Botanical Garden. Perched on the Quiver Tree, he guarded food plants in the Garden Portal. Perhaps he will develop his adult plumage before he leaves the Garden to migrate to the northwest.

by Gillian Rice

"My" mystery woodpecker flew on to the same area of the trunk where I had watched it the day before. It showed a bright yellow breast that I had been unable to see in yesterday's fading light. This should be a good field mark, I thought, and added it to my sketch. I had a vague recollection of a bird called



My sketchbook notes

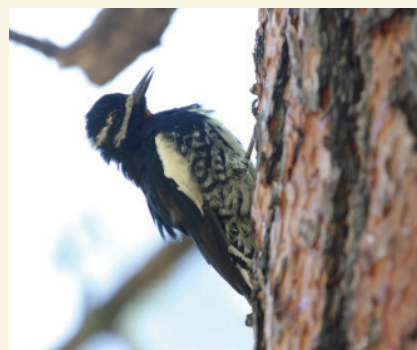
At home, editing the article on the Cavity Conservation Initiative (see page 10), I decided to google “cavity-nesting birds in Arizona.” One of these is Williamson’s Sapsucker, a bird I hadn’t noticed when trying to identify my mystery woodpecker. One look at the female of the species sent



*Female Williamson's Sapsucker.
Photo by Gillian Rice*

I felt less embarrassed about my earlier identification attempts when I learned more. The Cornell Lab of Ornithology's All About Birds website explains that in most species of woodpecker the sexes differ in appearance only subtly, often with the male having red somewhere the female doesn't. Williamson's Sapsucker is

I learned more about sapsuckers:



*Male Williamson's Sapsucker Photo
by Matt VanWallene*

An identification lesson learned. For the future, I resolved not only to take field notes and make sketches, but also to be much more diligent and patient when researching, especially with respect to habitat and range. 🦅

For tips and instructional videos on how to identify birds, visit <https://www.allaboutbirds.org/building-skills-the-4-keys-to-bird-identification/>



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It Takes a Village (And a Little Duct Tape) to Save a Baby Hummingbird

by Tom Gatz

Last year, in February, Tracy, a Horticulture staff member at the Desert Botanical Garden, spotted a female Anna's Hummingbird building a nest on a low, spindly branch of a grapefruit tree just outside of the Development Office in the Center for Desert Living. The immediate nesting area was cordoned off by Andrew, the Garden's Safety Coordinator, to minimize disturbance by overly-enthusiastic photographers and a shade umbrella was added.

Unfortunately, a freak hailstorm dislodged the tiny nest a short time later, now with two babies precariously hanging on for dear life. What to do? Julie in the Development Office contacted me, I tracked down Paul Halesworth of WildWing Rehabilitation, and he briefed me on nest repair 101.

I called Julie back and relayed his advice and the women of Development sprang into action. Julie just happened to have duct tape (camo patterned, no less) in her nearby car and coworker Paula assisted her in taping the nest back into position. Mom returned to feed the babies. Whew!

A few days later the nest tipped again and sharp-eyed Development staff Darcy and Christine heard and then spotted one of the babies on the ground beneath the nest. To hold the baby while we again reconstructed the nest with more duct tape, a temporary 'cradle' was fashioned by coworker Pam out of the bottom portion of a paper cup lined with tissue from Deborah's desk. This time, much of the soft nest-lining of plant material had been lost. Darcy raided the Development office first aid kit for gauze and Brittany provided stuffing from a pillow. We tucked the remaining baby back into its refurbished nest and mom

immediately began to feed it. I got down on my hands and knees to see if I could find the other baby. No luck. Mom briefly landed on my hat; I would like to think it was to say "thank you" but more likely to let me know it was time to move away from the nest area.

A few days later, I checked the nest and noticed some bare areas in the nest with no soft lining and a

small hole developing on one side of the nest. I headed over to the Volunteer Headquarters, rummaged through our collection of old hummingbird nests that we use for educational display and found the flattened remnants of a nest consisting of soft plant fluff, tiny mesquite leaves and spider webbing. It was no longer suitable for display, but perfect to line the jury-rigged nest. I gently pressed the material into place around the little guy



A hummingbird nest held together with duct tape and love. Note camo-patterned duct tape in lower right-hand corner of photo. Photo by Michael Searcy, <http://michael-searcy.pixels.com>

and stood back until mom returned to feed it again.

The Development staff along with Garden member and photographer Michael Searcy continued to keep a watchful eye on the nestling. On the morning of March 20, it fledged, resulting in a collective sigh of relief from all of us. It was just wonderful how everyone pitched in; it reminded me that one of the core values in the Garden's mission statement is "Stewardship: To protect and preserve desert plants, animals, and habitats." No specific mention of the use of duct tape in carrying out that stewardship, but I think it was implied.

If you find a baby bird in distress, keep it warm, dark and quiet and call WildWing Rehabilitation (480 893-6660) or Liberty Wildlife (480 998-5550) for guidance.

Tom Gatz has been a MAS member since 1981. 🐦

Partnerships Grow Efforts To Help Cavity-Nesting Birds

by Gillian Martin



Woodpecker and bluebirds. Photo by Peggy Honda

In 2012 the Southern California Bluebird Club created The Cavity Conservation Initiative (CCI). Our response to the steady increase of nest boxes that compensated birds for the accelerating removal of dead trees had a formidable mission. How could we persuade a land manager to care about the habitat value of a dead tree? Harder yet: how could we, as untrained arborists, suggest safe ways to retain a dead tree? Could we really change public perceptions of a dead tree?

Surprisingly, the first years were the easiest. Orange County Parks agreed to adopt a policy to retain more dead trees. We provided a training program for their tree contractor on what dead trees had the most habitat value and which features were helpful to wildlife. Gradually, several golf courses and other property managers in the region agreed to do the same. The CCI's Wildlife Tree signs had a very positive impact. These signs seemed to avert complaints and sometimes were a catalyst for unexpected praise. Out-of-state orders for the signs have grown steadily. With them have come gratifying stories of advocacy.

We used customary strategies to change public opinion: articles in newsletters, public speaking programs, and community events. When the CCI received grants from the Edison Electric Company, the Fund for Wild Nature, and Pasadena Audubon, we partnered with Sea and Sage

Audubon to develop a science-based educational kit for fourth and fifth grade teachers called *The Wonderful Life of a Dying Tree*. The kit is one of several that Sea and Sage Audubon loans to elementary school teachers. We hope that, as future generations grow, so might their appreciation of birds and dead trees. But Sea and Sage Audubon went further. They appointed a board member to work with the CCI.

Along came a quiet, diminutive wildlife photographer who

frequented our regional parks at dawn—Peggy Honda. She has the passion and ethics that birders applaud. Peggy offered her services to monitor a dead tree in a local park. Her devotion to the task over two years resulted in a seven-minute video titled *This is The Tree*. The video is on the CCI's website. It delights all viewers who often go on to share it.



Oak Titmouse. Photo by Peggy Honda

A daunting obstacle developed. The spread of highly invasive, non-native beetles and pathogens began to affect both native and non-native trees in southern California. The result has been the unprecedented removal of millions of trees. When the trees affected by the beetles die, they cannot be retained as habitat because removal and treatment of the wood is important in managing the spread of disease. The loss of the trees' immediate ecological benefits as well as the promise of natural age succession and decline of the trees has been painful to accept.

But hope has risen again thanks to another partnership with the tree care industry. In summer 2015 a unique opportunity emerged to help birds in new ways. The CCI and West Coast Arborists, (the County Parks' tree contractor, which also operates in Arizona), found mutual benefit in forming a state-wide partnership to develop Best Management Practices (BMPs) to

avoid harm to nesting birds. (This naturally includes saving standing dead trees when possible.) The partnership became the Tree Care for Birds and Other Wildlife project (TCB) <http://treecareforbirds.com>. About 200 volunteer stakeholders in California have joined, many of whom provided input on the just-completed BMPs. Will this partnership be a model for other states? We hope so. The largest fiscal supporters of the project have been CAL FIRE, the Britton Fund, and several Audubon chapters. The task ahead is to promote the BMPs to municipalities and other public and private property managers who hire tree care providers.

A key to strengthening this partnership for birds has been to learn the language and challenges faced by the arboriculture industry. To do so, we joined the Western Chapter of the International

Society of Arboriculture. We have access to training programs, publications, and other resources. Participation gives us opportunities to write articles for several industry newsletters and to speak at conferences. We plan to invite arborists to bird festivals, to attend Audubon meetings, and to write articles useful to conservationists.

What is the best way to move forward? Conservation scientists stress that if a species needs help we can best serve that species by addressing the natural conditions necessary to maintain it, and in so doing, support the other species that also need those conditions. Lay people find nest boxes an emotionally rewarding and easy way to help cavity nesting birds. Though good for scientific study and helpful for species with diminishing populations, nest boxes are nevertheless a sad substitute for a dead tree. Long term, they are not a sustainable nor an ecologically beneficial solution. For now, saving dead trees and creating healthy, diverse urban and natural forest systems is the best option. The CCI sees the arboriculture industry as a critical partner in that direction. 🐦

Gillian Martin is the Director of the Cavity Conservation Initiative. Contact her at: gillian.martin@cavityconservation.com For further information, visit: <http://cavityconservation.com>



Short-leaf pine in North Carolina. Photo by Tommy Richey



Ladder-backed Woodpecker Photo by Gillian Rice



Connecting with nature makes Arizona a fun and better place to live!

Compiled by Gillian Rice and Vicki Hix

Photos by Matt VanWallene



Abert's Towhee



Male House Finch



Male Northern Cardinal

Bird Courtship – Dating 101

Did you know that when birds want to find a mate they communicate in special ways? The male bird wants to let a female know that he is the best and can help her create the healthiest, strongest chicks. Courtship behaviors help a female to choose her mate and also strengthen the bonds between an already mated pair.

Did you know that a male bird's bright plumage is a sign of health and strength? Male Northern Cardinals with brighter red breasts are more successful at feeding nestlings.

Did you know that birds often do special "dances" and flight displays to show they are the best mates? A Northern Mockingbird gives a flight display from his high singing perch. While singing, he jumps up, flaps his wings, flies several feet above his perch, and then glides down with his wings open to the same or a nearby perch. The male Anna's Hummingbird does a spectacular dive display in front of a female. He flies straight as high as 100 feet and then plunges back down, using his outer tail feathers to make a special sound, an "explosive squeak."

Did you know that birds sing to attract a mate? One of the signs of the breeding season, usually in springtime, is birdsong. Although male House Finches sing year-round, they increase their singing in the breeding season, and sing while perching and flying.

Did you know some birds sing duets to strengthen their pair bond? Abert's Towhees, which usually mate for life, perform "squeal" duets and accompany each other in all activities during the breeding season. Pairs of Great Horned Owls, that might mate for five years or more, also sing duets that last 10 to 60 minutes. In spring, you might be able to find a pair of Greater Roadrunners by hearing their clacking calls to each other as they forage in the same area.

Did you know some birds such as the Northern Cardinal and the House Finch engage in "courtship feeding?" This behavior usually occurs when a pair have chosen one another as mates and the male offers food to the female during egg formation, when she needs extra nutrition.

Did you know that allopreening, which means grooming or cleaning of another bird, occurs between birds during courtship? Mourning Doves will gently nibble each other's feathers around the head and neck. Such close contact indicates that one bird will not hurt the other and helps them to bond. During allopreening, birds perch close together and lean on one another.

Source: <https://birdsna.org>



Greater Roadrunner

Green Scene Go Take a Hike

The Desert Botanical Garden is a great location for spring bird watching. Verdins, Cactus Wrens, Mourning Doves, and Phainopeplas are busy nest-building. Curve-billed Thrashers and Northern Mockingbirds sing from high perches. You might hear Greater Roadrunners cooing or clacking. After birding, look for butterflies among the wildflowers and check out the Garden's pond for dragonflies. Picnics are not allowed at the Garden, but the Patio Café is a super place to see more birds – ground squirrels, too! Remember, look up above Garden Butte for Red-tailed Hawks and possible American Kestrels. Go to www.dbg.org to plan your visit.

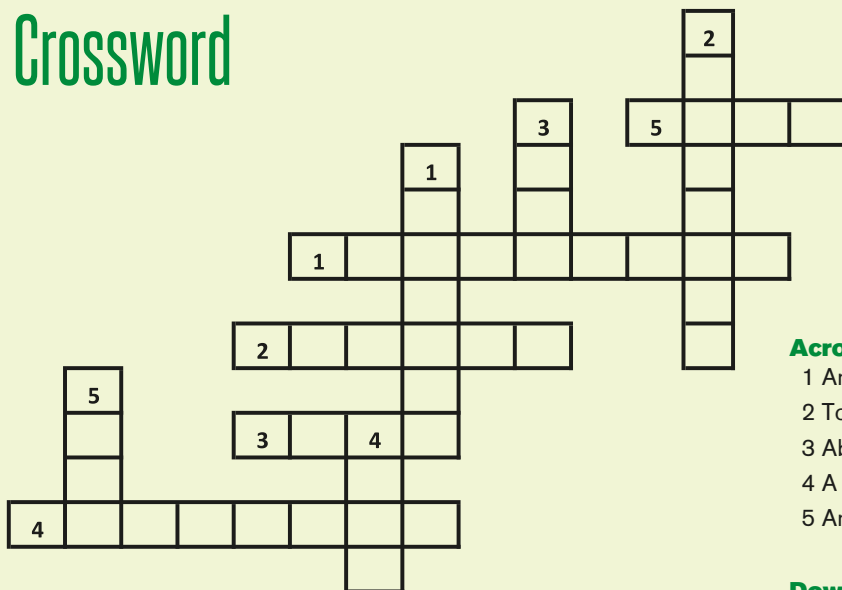
green scene

Guess this Bird



Clue: This seed-eating social bird feeds in small groups.

Bird Courtship – Dating 101 Crossword



Mourning Doves. Photo by Gillian Rice

Across

- 1 Another word for dating
- 2 To hunt or search for food
- 3 Abert's Towhees usually mate for _____
- 4 A bird's activity or performance
- 5 Another name for partner

Down

- 1 Another name for bird feathers
- 2 The call a pair of roadrunners make to each other when searching for food
- 3 Two birds singing together is called a _____
- 4 Male birds often offer extra nutrition or _____ to females during egg formation
- 5 A type of courtship display by the male Anna's Hummingbird

Answers on page 19



Wacky Waddling Waterfowl: A Correction

Remember in the last Green Scene (Winter 2017), we said that ducks' feet have no nerves or blood vessels? Well, a couple of readers corrected us on this. Ducks do have both nerves and blood vessels in their feet. It turns out it's pretty amazing how ducks and many other birds can tolerate cold.

Here's how: They have a counter-current heat exchange system between the arteries and veins in their legs.

Arteries deliver oxygen-rich blood from the heart to the tissues of the body. Veins are blood vessels that return blood from all around the body towards the heart.

Ducks have closely-intertwined arteries and veins in their legs. As blood in the arteries travels towards the feet, heat flows from this arterial blood to the blood in the veins. The arterial blood cools and blood in the veins gets warmer. This results in relatively cool blood flowing through the feet and so the ducks' feet don't have much heat to lose to the surrounding icy water. Waterfowl also have fewer nerves in their feet, making their feet less sensitive to cold. This enables ducks and geese to stand on snow or ice for lengthy time periods.

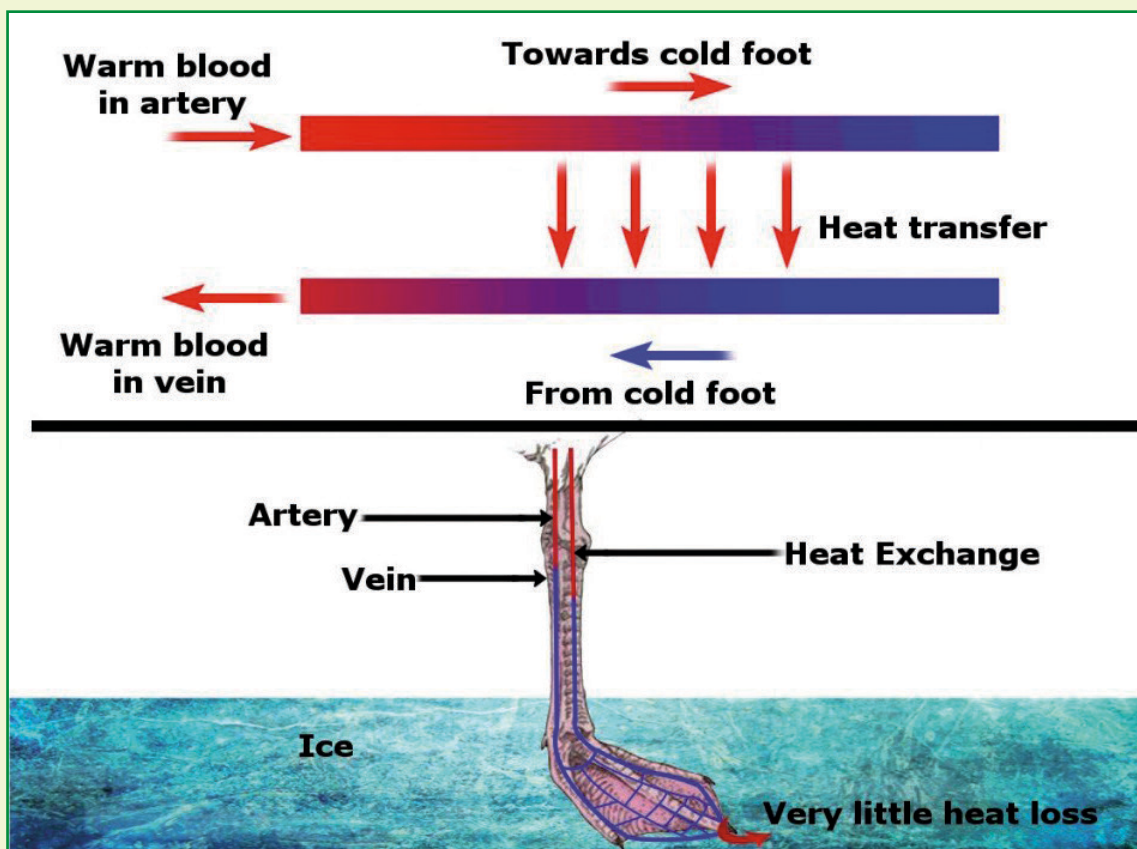
The same system works, but in the opposite way, in the heat of the Sonoran Desert. In the strong sun, shallow water can become considerably hotter than the body temperature of a foraging bird. It can transfer some of the heat from blood in its veins to the arterial blood flowing to the feet. This reduces the temperature of blood in the veins before it enters the bird's main body. This flow also maintains the feet temperature above normal, closer to the water temperature. The small temperature difference reduces the heat flow from the water to the feet. 🦆

For more details see:

Pelletier, TC. (April 22, 2010). Why don't ducks' feet freeze? <http://askanaturalist.com/why-don't-ducks'-feet-freeze/>

Collucy, J.M. Understanding waterfowl: the five senses. <http://www.ducks.org/conservation/waterfowl-research-science/understanding-waterfowl-the-five-senses>

Thank you to our regular columnist, Tom Gatz, who helped me research these fascinating adaptations of ducks and other birds
– Ed.



Source:

Why do birds' feet not freeze during winter? <http://sciabc.us/S98lg>

UNINTENDED CONSEQUENCES

by Paul and Gloria Halesworth, WildWing Rehabilitation

The adult Great Horned Owl exhibited the tell-tale signs of possible poisoning: on the ground during daylight hours, eyes very dilated, erratic and lethargic movement, and virtually no resistance to being captured. The Great Horned Owl was the first of five birds of prey that we rescued in the spring of 2016 in Ahwatukee, all of which presented with the very similar symptoms of possible poisoning. By the time they are easily caught, it is much too late for a successful outcome. Not only do the adult birds not survive, but all of the hatchling/nestling/branching young who were fed pieces of the rat also perish. It is heartbreaking to see the little ones literally bleed out through their feathers.

With the spread of roof rats throughout the greater Phoenix area and suburbs, sad situations like this are unfortunately happening more and more frequently, decimating entire families all at once. It is not known what a devastating effect poison is having on our native squirrels and other rodent populations.

According to the medical website verywell.com, most rat poisons are similar to the commonly used blood thinner, Warfarin. Depending on the type of poison used, it may take several days for the rodent to expire. The suffering rat is most vulnerable by being out during daylight hours, weak, stumbling around, losing muscle control, all the while internally hemorrhaging to death. It is during this long process that the rat is being picked off by owls at night and hawks during the day. It is not known how many more animals -- dogs, cats, carrion-eating birds (vultures, crows, ravens) die from having secondary contact with this poison.

When we have given public presentations about birds and rehabilitation, we always bring up the subject



A Great Horned Owl at the Halesworths' house, being triaged prior to transport. Photo by Paul Halesworth

of inappropriate use of rodenticides. The reactions to this information is most always the same: "I never thought about that!" With the rat population exploding and ever expanding its territory, each of us will need to deal with this sooner or later.

We offer the following non-poison advice. If you have any kind of fruit trees, pick the fruit as soon as possible. Do not leave any fruit on the tree. Do not leave dog or cat food outside overnight. Use only live traps outside or possibly an electronic rat zapper, but only if birds have no access or if the unit has no power from dawn to dusk.

If you suspect rats in your attic, use a large, old-fashioned "spring rat trap" baited with a small amount of peanut butter. The trap itself should be secured to an attic floor joist to prevent the caught

rat from dragging it off and then dying in your attic where you can't find it, which is a whole other really disgusting decomp/fly story! Please, never, ever use a spring trap outdoors or even in your garage. We have been forced to euthanize Gila Woodpeckers, a Western Tanager, Curve-billed Thrashers and others due to a severed leg(s) and snapped off beaks caused by snap-traps, ignorance, and/or stupidity.

Should you find yourself faced with a rat situation, before you take any action, use common sense, think about the FOOD CHAIN, and remember all actions may have absolutely heart-breaking, unintended consequences. 🦉

Paul and Gloria Halesworth have 16 years of experience rehabbing many bird species, and help other organizations with rescue and transport.

Superb Adaptations Equal Survival

by Gail Cochrane

All photos by Laurie Nessel

Dragonflies are magnificent insects, otherworldly in appearance. Consider their diaphanous wings, the metallic patina on their slender abdomens and their enormous bulging eyes. There is a special quality of time when one comes across dragonflies as well: sunny still places, where water trickles nearby.

Dragonflies and damselflies are among the most ancient creatures alive today. Fossils of dragonflies date back over 300 million years, to a time before dinosaurs. Human cultures over the ages have included dragonfly images in art, pottery, poetry, and myth. In the Southwest, Hopi Indians revered the dragonfly as a shamanic symbol of water, fertility, and abundance. Navajo and Zuni people honored the dragonfly for being a fierce predator, swift and capable, and possessed of the ability to dart quickly in one direction and then another.

The scientific name for the family of dragonflies and damselflies is Odonata, or toothed one. Odonata has two suborders.

Anisoptera are the dragonflies. Seven dragonfly families live in the Southwest and North America. These include Skimmers, Emeralds, Darners, and Clubtails. Within these families are 128 distinct species of the insect. Dragonflies are heavy bodied and hold their four wings extended out from their bodies. Their protruding eyes usually touch in the middle. You will

generally see dragonflies alone, unless mating. Zygoptera is the suborder of damselflies. Five families live in North America, four in the Southwest. Damselflies are smaller and frailer and hold their wings folded together over or alongside their bodies. Their large eyes are on the sides of their heads. They are more likely to swarm together and are found near still water.

The adult phase of this predatory insect lasts only a few fleeting weeks. The dragonfly hunts on the wing, capturing prey in basket traps, formed by dangling, haired legs. Patrolling the edges of streams and ponds,

males hunt, guard their territories, and look for mates. Females hunt, receive mates, and lay millions of eggs. Some species cast the tiny eggs from the abdomen onto the water below while others deposit them on the surface. Mating couples may be seen flying while still attached together. When they separate the male often hovers near to protect the female while she dips her abdomen into the water, placing her eggs on the surface. The eggs sink at a dreamy pace to the bottom where they adhere. The juveniles that emerge are most mysterious creatures.

The aquatic juveniles live in streams, ponds, and marshes. The faces of juvenile Odonata resemble masks of bared fangs. This hunter snatches prey in a bizarre movement of these remarkable mouthparts. The entire lower jaw shoots out to the prey and with a swift sideways twist snaps shut on the unlucky. Odonata feed on small invertebrates, small fish, and even tadpoles.

As a nymph, the damselfly breathes with three feathery gills that protrude from the end of its abdomen. A dragonfly nymph has a shorter bulkier abdomen than a damselfly and the gills are internally located. The insect expands and contracts its abdomen to move water over the gills. For rapid bursts of jet propulsion, water can be squirted from the back end.

The juveniles of various dragonfly families employ different strategies in the hunt. Brightly patterned Skimmer nymphs crawl on the bottom looking for prey. Green Darner nymphs give chase while swimming. Clubtails lie just under the surface of the sandy bottom sensing vibrations from approaching prey.

Odonata larvae molt from six to 15 times and may live underwater for a year or longer. Each molt allows for the nymph to expand in size while adult features are developing. There will come a day when the nymph gorges with water and climbs onto a rock or up the stem



Remains of dragonfly exoskeleton



Blue-ringed Dancer, female

of a plant. The exoskeleton splits open and the adult emerges, without gills, and with two gigantic eyes. It hangs in place as new legs, wings, and a long slender abdomen slowly dry and harden. Then it lifts into the air, reborn as a superbly designed flying machine.

Dragonflies are among the fastest flying insects. They are highly maneuverable, able to fly forwards, backwards, hover, and turn 180 degrees. Their forward and hind wings beat in opposite directions enabling remarkable feats of aerodynamics. The visible veins in their wings add strength and flexibility.

Exceptional visual responses and agile flight help dragonflies avoid predators such as birds, lizards, frogs, spiders, fish, and other dragonflies. The head of the dragonfly is almost all eyes which provide visibility 360 degrees around the creature. More than 80% of the Odonata brain is used in analyzing visual data gathered by the compound eyes.

This superbly adapted order of insects holds an important niche in riparian habitats. The presence of dragonflies and damselflies is a good indication of a healthy ecosystem. Next time you are hiking or birding near water, watch for the insects or their exuviae, the husks of the juvenile exoskeleton, abandoned at the moment of transformation. 🦋

Gail Cochrane is Manager of the Roosevelt Center of Sustainability, a STEAM education venture of the Roosevelt School District.



Flame Skimmer



This is a damselfly nymph that has emerged from the larval environment (water) but not yet shed its exoskeleton. This is a very unusual find, since nymphs usually emerge at night to avoid predation in their vulnerable teneral (soft-bodied) state.

Conservation Update

by Mark Horlings

Mount Graham Red Squirrels

Maricopa Audubon Society (MAS) and its allies have struggled for years to protect Mount Graham and the endangered Mount Graham Red Squirrel. The squirrel is endangered primarily because of habitat loss. Publicity and litigation eventually limited the University of Arizona's proposed telescope complex to three telescopes built instead of the proposed 27 on the mountain's summit within the heart of the squirrel's high elevation spruce-fir Critical Habitat.

After an outbreak of beetles and a 2004 fire, the squirrels now live lower on the mountain in the mixed conifer forest zone. Last summer's Frye fire destroyed even more of the squirrels' habitat. Only about 35 squirrels are believed to survive. A captive breeding program is in its early stages.

MAS recently filed a Petition to Expand Critical Habitat with the US Fish and Wildlife Service (USFWS) to include the lower elevation's mixed conifer forest now favored by the squirrels. USFWS must respond to our petition by March 14.

Southwestern Willow Flycatcher

USFWS recently reaffirmed that the Southwestern Willow Flycatcher qualifies as a subspecies and that its Endangered Species Act protection will continue. That protection, won after years of litigation by MAS and others, includes designation of about 1200 miles of riverbanks in five states as Critical Habitat. The National Audubon Society and others deserve credit for organizing opposition to a 2015 petition seeking to delist the subspecies.

The USFWS Report rejecting the petition found the bird deserved protected status as a subspecies based on songs, plumage, and genetics. About half the breeding pairs now nest in tamarisk, not willows. The report also noted that cattle have degraded 80% of the flycatcher's original habitat.

In 2016, MAS Vice President Robin Silver and his allies won a federal district court case forcing the US Department of Agriculture (USDA) to provide mitigation for their flawed release of the tamarisk leaf-eating beetle into the flycatcher's range.

USDA had introduced the beetles to control invasive tamarisk despite the risk that the beetle would wipe out

tamarisks serving as flycatcher nesting sites and further imperil the birds. The beetles did precisely that, handing MAS and its allies victory in a lawsuit MAS regretted the need to bring. Tamarisk beetles have now been detected as far south as the Hassayampa River Preserve in Wickenburg.

Mitigation based on the final lawsuit order is being negotiated. MAS hopes to add new protections and restoration for the Middle Gila, the Lower San Pedro, the Rio Grande and the Virgin Rivers. We are meeting with federal officials to finalize and implement the actions most likely to save this endangered bird.

Migratory Bird Treaty Act

Treaties between the United States, Canada, Mexico, Japan, and Russia require the different countries to protect migratory birds. The Migratory Bird Treaty Act (1918) implements this treaty in the US. It has been effective, used, among other things, to impose a \$100 million fine after the Deepwater Horizon oil spill.

Last December, the Department of Interior issued a 40-page opinion reinterpreting the Act. The opinion reversed an opinion issued in the closing days of the Obama Administration which held that the Act can be violated by incidental and unintentional bird deaths as well as by deliberate hunting.

As a practical matter, in a modern industrial society, birds are threatened more by chemical spills, oil drilling residue, and pesticides than by poaching. The USFWS has used the MBTA to compel industry to adopt remedial measures and to impose fines. Under the new interpretation, those programs will stop.

Criminal enforcement of the MBTA has not been without controversy. Criminal punishment normally requires intent. Several federal appeals courts held that the MBTA applied only to an intentional killing or taking of migratory birds. Other courts held that intent was not required or that the necessary intent was not to kill birds but only to do the act, such as leaving fracking fluids exposed to migrants, which caused death.

The US Supreme Court is specifically charged with resolving conflicts like these among the federal courts of appeal. This dispute will almost certainly arrive there soon. Unfortunately for birds, if the case is heard during the current Administration, the government will argue against its own authority to enforce the MBTA. 🐦



Green Scene Puzzle Answers

Answer to Guess this Bird

Lesser Goldfinch. You can attract these birds to your backyard with feeders stocked with Nyger seed and a bird bath. The male's singing activity reaches its maximum during courtship, nest-building, and egg-laying and then declines as incubation proceeds. The male feeds the female on the nest while she is incubating the eggs.

Answer to Bird Courtship – Dating 101 Crossword

Across

1. courtship
2. forage
3. life
4. behavior
5. mate

Down

1. plumage
2. clacking
3. duet
4. food
5. dive

Green Scene School Projects

If you would like to apply to the MAS Education committee for funding for a school natural history project or field trip, please contact Jasper at yellowbirdphilosophie@gmail.com

Help MAS with an Employer Matching Gift

Many Maricopa Audubon members aren't aware that their employers may include a matching gift program in their benefits package. Programs vary from business to business, but they generally offer a dollar-for-dollar match when an employee makes a personal gift to a nonprofit organization like Maricopa Audubon Society.

Please visit your human resources department or charitable giving department to see if this opportunity is available to you. You usually have to fill out and submit a form, which is sometimes done online. If you have already made a donation to MAS in the past year, you may be able to get a matching gift after the fact from your employer for up to 12 months later. 🐦

Sign up for the e-newsletter!



To receive updates and supplements to *The Cactus Wren•dition*, sign up for the monthly (September to May) e-newsletter. It includes meeting and field trip reminders, special events, and citizen science projects. To subscribe, contact laurienessel@gmail.com

Note: We do not use the email list for anything other than the described purpose.

IMPORTANT NOTICE

Nominating Committee Formed

by Mark Larson

The Bylaws require me to appoint a Nominating Committee prior to election of the Board of Directors. This year the elections will take place at the General Membership Meeting on Tuesday, April 3, 2018. Any adult member in good standing seeking nomination will have his or her name placed in nomination by the Nominating Committee. If you are interested in serving, call any member of the Nominating Committee and to express your interest in running for a particular position on the Board. Your name will be placed on the slate as a candidate for that position, and the Nominating Committee will announce your candidacy.

All Board positions, except the *Wren•dition* Editor, are elected by the membership. Our Bylaws also require that nominations be open from the floor at our annual elections. As a courtesy, please let the Nominating Committee know in advance of your interest. Please do not nominate someone unless you have his or her consent and know that he or she is a member in good standing of this Chapter. To learn more about the job description for any particular Board position, please feel free to contact the Board member who currently holds that position. Contact information for current Board members may be found on the back cover of this issue. The Nominating Committee is: Mel Bramley, 480 969-9893, Brian Ison 602 909-054, and Marceline VandeWater, 602 689-4356. 🐦

Hybridization Between Two Toads Along the Agua Fria River

by Brian K. Sullivan

Arizona is home to a number of toads, typical members of the toad family, Bufonidae, as well as the classic desert dwelling spadefoot toads (Family Scaphiopodidae) famed for their rapid developmental rates as larvae. One of the lesser known attributes of many toads is that they often retain the ability to interbreed (hybridize) with even distant relatives. In the Sonoran Desert, hybrid individuals have been documented between a surprising number of forms, including Sonoran Desert and Woodhouse's toads, Great Plains and Red-spotted toads, and even Red-spotted and Sonoran Green toads (Fig. 1). When two species retain the ability to interbreed, it challenges the traditional definition of a species, a concept largely predicated on maintenance of reproductive incompatibility (see sidebar). However, this complex and often controversial topic, termed "the species problem", is beyond the scope of this article about the dynamics of hybridization between two toads of the arid Southwest.

In central Arizona two toads hybridize commonly: Arizona and Woodhouse's toads. Though clearly distinct species, generally occupying different habitats, they interbreed in most every well-studied zone of overlap. Near Phoenix, Woodhouse's Toads prefer standing water along major riparian corridors, such as the Salt and Verde rivers, whereas Arizona Toads prefer

riparian corridor. Arizona Toads were the primary, large (3-4" length) toad occupying the Agua Fria River when Woodhouse's Toads arrived.

By the 1980s when I began observations around Lake Pleasant, an area of hybridization between these two species was established about six miles south of Black Canyon City, just above the upper limit of the lake, presumably based on the inability of Woodhouse's Toads to move farther upstream in the absence of further habitat alteration. In the light of previous patterns of colonization by Woodhouse's Toads of riparian corridors following dam construction, my colleagues and I predicted the secondary expansion of Waddell Dam (1980s) would result in additional upstream movement of the hybrid zone and consequent population replacement of Arizona Toads by Woodhouse's Toads. By the early 1990s, Woodhouse's Toads had indeed expanded their range, and we documented the upstream shift of the hybrid zone to the vicinity of Black Canyon City.

Beginning in 2008, my colleagues and I returned to fieldwork to assess movement of Woodhouse's Toads upstream along the Agua Fria River. We expected to find the area of hybridization along the river near Black Canyon City to have shifted to predominately Woodhouse's Toads, with some

indication of upstream movement of their genes into otherwise pure populations of Arizona Toads (termed "introgression"). Based on evidence from physical characteristics and one form of genetic information (mitochondrial DNA), we concluded that contrary to expectations, Woodhouse's Toads had not replaced Arizona Toads near Black Canyon City over the past two decades (i.e., from 1992 to 2012). These analyses, however, left open the prospect of significant genetic consequences for Arizona Toads upstream from the hybrid zone as a result of genetic introgression from Woodhouse's Toads. Hence, we developed a second means of assessing genetic interactions, microsatellite markers (nuclear DNA), and used those to quantify levels of population genetic variation and structure among populations of Arizona and Woodhouse's toads, and their hybrids. We examined these new markers for the same two sampling intervals spanning twenty years, beginning in 1992 at the close of the Waddell Dam expansion project and then a second period, from 2009 through 2012.

Results from the analysis of microsatellites corroborated that during the 1990s sampling interval, a moderately high level of genetic differentiation existed between Arizona and Woodhouse's toads from the lowermost and uppermost sampling sites, with an emerging hybrid zone separating these pure populations near Black Canyon City as previously described. However, samples collected in 2010s within the same region showed that the opposite population shifts occurred from our initial prediction, and demonstrated



Fig. 1. Hybrids between Sonoran Desert and Woodhouse's toads (top left); Woodhouse's and Great Plains toads (top right); Great Plains and Red-spotted toads (bottom left); Red-spotted and Sonoran Green toads (bottom right).

flowing water along smaller streams such as the Hassayampa and Agua Fria rivers. Prior to large-scale habitat alteration in the Southwest (i.e., damming of most rivers), these two toads avoided hybridizing due to habitat separation at all but a handful of sites. Northwest of Phoenix, Woodhouse's Toads most likely gained access to the lower reaches of the Agua Fria River during the 1930s or 1940s after the initial placement of the Waddell Dam two decades prior substantially altered the



Fig. 2. Calling male Woodhouse's (upper left) and Arizona toads (upper right), and two hybrids between them (lower panels). The pair of individuals representing two different hybrid events show the striking consistency among these truly "intermediate" forms (relative to their respective parental species).

that in less than twenty years, based on microsatellite variation, there was a surprising and substantial unidirectional increase (genetically at least) of Arizona Toads, and that the hybrid zone revealed almost complete absence of Woodhouse's Toads near Black Canyon City. Overall, our results suggest Woodhouse's Toads are not migrating beyond Black Canyon City, and have not impacted upstream populations of Arizona Toads via genetic introgression.

It is unclear what specific ecological differences between these two Southwest toads drive the obvious differences in their respective responses to environmental disturbance. They have similar diets, and as juveniles and adults, spend considerable time near riparian corridors in the more arid regions of the Southwest, such as the vicinity of the Agua Fria River. Juveniles of both species forage during the early evening from spring through the summer, often taking advantage of summer rains to move considerable distances into areas adjacent to the floodplain. Differences in the larval stage may be critical to the response of these two species to the construction of an impoundment and the corresponding reservoir. Larvae of Arizona Toads are largely solitary, and found in habitats with flowing water, while larvae of Woodhouse's Toads are gregarious, occurring in large groups in a wide variety of pond and pool habitats, where they appear tolerant of high levels of disturbance and variation in water chemistry, temperature, and turbidity. Thus, human disturbance likely favors Woodhouse's over Arizona toads, but additional study is necessary to evaluate factors accounting for the containment of hybrid zones in the absence of further habitat modification. For the moment, however, our study has confirmed that in the absence of additional, direct habitat modification, along the Agua Fria River Arizona Toads appear to be holding the line against Woodhouse's Toads near Black Canyon City. 🦎

Brian K. Sullivan is Professor and Adjunct Curator, Herpetological Collection, Center for Biodiversity Outcomes, Arizona State University.

Reference:

Sullivan, B. K., J. Wooten, T. D. Schwaner, K. O. Sullivan, and M. Takahashi. 2015. Thirty years of hybridization between toads along the Aqua Fria River in Arizona: I: Evidence from Morphology and mtDNA. *Journal of Herpetology* 49:150–156.

What's a Species and Why Does Hybridization Matter?

For most of the 20th century, biologists agreed that the species are defined by their shared gene pool, and recognized by the traits that facilitate this reproductive compatibility. Thus, frogs or birds living in different regions might be considered the same species if they have the same calls and courtship behavior because those traits imply mate recognition and genetic compatibility.

More recently, biologists have come to question the view that different species necessarily differ in their reproductive traits, especially if they are separated geographically. Many otherwise unrecognized species have been documented in which significant genetic divergence has occurred without the divergence in reproductive compatibility required by the traditional species concept.

Newer species concepts accept that especially for populations diverging in areas separated by some geographic barrier, divergence between lineages may be decoupled from reproductive behavior, and as a consequence, some species may retain the ability to interbreed in future interactions.

When human actions facilitate hybridization between two species, in some instances the species that is more tolerant of ecological disturbance can replace the other, an outcome documented in some Southwest habitats occupied historically by Arizona Toads but recently colonized by Woodhouse's Toads. 🦎

Nature through the Artist's Eye: Judy Studwell

Judy Studwell's subtle style creates a personal connection between her subject and her audience. Many people believe the eyes are the windows to the soul. When you look into the eyes of the animals she paints you feel this capturing of the moment in time when you believe you can experience the animal's thoughts and feelings. This invites you to think about the subject's life and gain a deeper appreciation of the animal.

Having been involved in many artistic endeavors, it was her passion for photography that fueled her interest in expanding her efforts in art. A trip to Africa in 2013 inspired her to share this amazing experience.

Living in the shadow of the Tucson Mountains, she is passionate about preserving the desert she calls home. A graduate of the Arizona-Sonora Desert Museum Art Institute, Judy's focus has been primarily on inhabitants of the Sonoran Desert region. Her work is featured in the Arizona-Sonora Desert Museum's Ironwood Gallery collection.

Whether the subject is majestic African wildlife or the unique grandeur of the Sonoran Desert and its much different wildlife inhabitants, Judy strives to personalize the story of each individual animal. She endeavors to inspire the audience to make a personal connection with nature.

Judy is a signature member of Artists for Conservation, a group of international artists dedicated to raising awareness and support for conservation organizations around the world and who pledge a portion of sales of their work to that organization's efforts.

To learn more about Judy's art, visit www.artistsforconservation.org or contact her at judystudwellafc@gmail.com 🐦



Noble Barn Owl

Graphite and watercolor, 27"x23"

The Barn Owl's stately stare conveys to me the suggestion of superiority, of nobility, "the wise old owl." I was inspired to paint this owl which is part of the educational program at the Arizona-Sonora Desert Museum, not only because I fell in love with its heart-shaped face and its impressive wing span capable of silent flight, but because I believe in conservation through education. Living birds and animals have a universal draw for people of all ages. Seeing a live bird or animal can make a real connection, an indelible memory that will last a lifetime. It can inspire people to love and live in harmony with nature because of that personal connection.

"Noble" was part of the Artists for Conservation's international exhibition in Lanwan Art Museum, Lanwan Eco Art Park in Qingdao City, China. China is making efforts to enforce protection of endangered species from exploitation and poaching. Hopefully this kind of exhibition collaboration will bring people closer to nature through art.



The Lookout

Southern Yellow-billed Hornbill

Graphite and watercolor, 20"x26"

In Africa in 2013, I began my adventure into the wilderness, apprehensive and excited. I was excited to have the incredible opportunity to view the iconic symbols of Africa... the lion, leopard, giraffe, the massive elephant, animals so endangered that my children's children may never see them in the wild. Indeed I saw all this and so much more. To my surprise I found myself in awe of the incredible diverse picturesque birds unique to the extreme habitats of the African landscape. One morning I spotted this hornbill perched on a snag, seemingly the outlook over its territory.



Shy Ringtail

Watercolor on Dura-lar, 14"x17"

This three-pound, very shy and highly elusive animal is the official Arizona state mammal; although it's likely you will never see one in its natural habitat. The Ringtail is nocturnal and seldom seen during daylight hours. It takes up residence near fresh water, often in riparian areas, under cover of rocks and caves. Your best chance to see one is on a moonlight or sunrise hike.



Spirit Mountain Lion

Charcoal and pastel on Dura-lar, 14"x17"

The Mountain Lion is one of our most iconic species in the desert southwest, symbolizing all that is wild in nature. Many myths and misconceptions govern how people perceive Mountain Lions. These myths and misconceptions have a negative impact on efforts taken to protect them. Public opinion plays an important role in conservation efforts. Trophy hunting and habitat loss are the biggest threats facing Mountain Lion populations. Public support for the Mountain Lion is essential for its long-term survival.



Ethereal Gray Hawk

Watercolor and graphite, 22"x30"

This elegant raptor lives predominantly in Mexico and South America, but a small population can be found in southern Arizona in the spring and summer months. Nesting pairs are increasing because of conservation efforts. Fellow birders have reported seeing them in the Madera Canyon area south of Tucson. My reference for this painting was the Gray Hawk that is part of the Arizona-Sonora Desert Museum Raptor Free Flight program. The original is part of the museum's permanent collection.



Little Buddy Desert Tortoise

Watercolor and graphite, 21"x18"

This handsome tortoise feeds on blossoms from the Desert Willow tree in my yard in Tucson, Arizona. It only emerges from its burrow in the summer months. I start looking forward to its visits about the time the monsoon season begins. Desert Tortoises can be in danger of attack from Coyotes, Bobcats, and Mountain Lions, but mostly are at risk from development, road construction, and human activities degrading their habitat. Each year I see this little buddy I hope it is not the last.

Maricopa Audubon Society

P.O. Box 15451

Phoenix, AZ 85060-5451

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miscellaneous

Monthly Meeting

First Tuesday of the month, unless otherwise announced, September through April, 7:30 p.m. Our meeting place is Papago Buttes Church of the Brethren, 2450 N 64th Street, Scottsdale, AZ (northwest of 64th Street and Oak Street, which is between Thomas Road and McDowell).

Please contact a board member if you have any questions, or check out our web site at www.maricopaaudubon.org. Pre-meeting dinners (September through April) are held at Rolling Hills 19th Tee Restaurant, 1405 N. Mill Avenue, starting at 6:00 p.m.

Membership Information and How to Receive *The Cactus Wren•dition*

Two distinct memberships exist: membership of the National Audubon Society (NAS) and membership of the Friends of Maricopa Audubon Society (MAS).

To become a member of the NAS please go to:
www.audubon.org/audubon-near-you

We send *The Cactus Wren•dition* to all current members of NAS if you are assigned to or choose MAS as your local chapter. NAS provides MAS \$3.00 per year for each member assigned to us.

To become a Friend of MAS, please pick up a form at the book sales table at our monthly meeting or download the form from our website,
<http://maricopaaudubon.org>

For specific questions please contact our Membership Chair.

Submissions

Copy for *The Cactus Wren•dition* must be received by the editor by e-mail, by January 15, April 1, July 1, and October 1. Articles not received by the deadlines may not appear in the upcoming issue. Email to: *The Cactus Wren•dition* Editor, Gillian Rice: editor.wrendition@yahoo.com

Opinions

The opinions expressed by authors in this newsletter do not necessarily reflect the policy of the National Audubon Society or the Maricopa Audubon Society.

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Maricopa Audubon Board

PRESIDENT

Mark Larson

13585 N. 92nd Pl.
Scottsdale, AZ 85260-4333
480 310-3261
larsonwarren@gmail.com

VICE PRESIDENT

Robin Silver, MD

P O Box 1178
Flagstaff, AZ 86002-1178
Phone: 602 799-3275
FAX: 928 222-0077
rsilver@biologicaldiversity.org

SECRETARY

Veronica Heron

602 579-7093
v.heron@yahoo.com

TREASURER

Vicki Hire

PO Box 603
Chandler, AZ 85244
602 463-9219
vicki.hire@gmail.com

FIELD TRIPS

Larry Langstaff

416 W. McNair St.
Chandler, AZ 85225
480 710-0431
Larrylangstaff1@gmail.com

PUBLICITY

Open

CONSERVATION

Mark Horlings

334 W. Palm Lane
Phoenix, AZ 85003
602 505-3455
mhorlings@cox.net

PROGRAMS

Laurie Nessel

1632 E. Cedar St.
Tempe, AZ 85281
480 968-5614
laurienessel@gmail.com

MEMBERSHIP

Scott Burge

8869 S. Myrtle Ave.
Tempe, AZ 85284
Work: 480 968-5141
Home: 480 897-8608
Cell: 480 227-3965
Fax: 480 345-7633
burge@burgenv.com

EDUCATION

Jasper Younger-Howard

480 993-8694
yellowbirdphilosophe@gmail.com

EDITOR

Gillian Rice

602 375-8831
editor.wrendition@yahoo.com

Audubon Online

see us on the Web at:

www.maricopaaudubon.org

