



# The Cactus Wren·dition



Volume LXV, No. 2

Summer - 2017



***Black-throated Sparrow***

*Photo by Skyler Russell*



# Programs

programs

**Meetings are held at:** 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 either 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.

**September 5, 2017**

## Wendsler Nosie, Sr. From Oak Flat to DC

On July 5, 2015 Wendsler Nosie, Sr. took the San Carlos Apache Stronghold on a caravan from Tucson to Washington, DC to request the federal government support a bill introduced by Arizona congressman Raul Grijalva to save Oak Flat. But in December 2015, Sen. John McCain slipped the land grab bill through Congress by burying it in the must-pass



Wendsler Nosie, Sr.

National Defense Authorization Act (NDAA). Hear about the Apache Stronghold trip to our nation's capitol, the resistance at Oak Flat, and the fight to protect the land and water for future generations from two foreign mining companies.

**October 2, 2017**

## Cathy Wise Plants for Birds

This fall planting season, don't forget your feathered friends! Attract more native birds to your yard by planting some easy care favorites and making other simple additions. Learn Phoenix-based tips and tricks and hear



Cathy Wise

success stories from National Audubon's Plants for Birds program nationwide. This interactive program will have you laughing and leave you inspired to plant.

Cathy Wise is Audubon Arizona's Education Director and works out of the Nina Mason Pulliam Rio Salado Audubon Center. Cathy has studied birds throughout the southwest with agencies including the US Forest Service and the Utah Division of Wildlife Resources. As a wildlife biologist for the Arizona Game and Fish Department, she co-authored the Arizona Breeding Bird Atlas and changed more than a lifetime's worth of flat tires doing field work. Cathy strongly believes that conservation begins with education and works daily to reconnect

people with nature through birds. She is an avid climber and backpacker. Cathy graduated from the University of California, Davis with a BS in Avian Sciences.

**November 7, 2017**

## Erik Anderson Effects of Plant Invasions on Grassland Birds

For the past few years, Erik Anderson has studied how shrub encroachment and nonnative grasses affect density, nest



Erik Anderson

success, and community composition of birds in southeastern Arizona's arid grasslands, among the most threatened ecosystems in North America. Erik will present an overview of how plant invasions are changing grasslands throughout the world and discuss his research, field work, and preliminary results.

Erik Andersen is a PhD candidate in the Wildlife Conservation and Management program at the University of Arizona. Erik has conducted ecological and avian research throughout North America for multiple federal, academic, non-profit, and tribal entities. He enjoys travel and has spent over two years abroad chasing birds and exploring the world's natural areas.

**December 5, 2017**

## Craig Anderson's Big Year

Arizona Audubon volunteer Craig Anderson invites you for an armchair experience of his Big Year. He'll explain why he dedicated 2016 to his own pursuit of bird species across a wide range of habitats in Arizona. Craig visited more than two dozen of our state's 46 Important Bird Areas to amass his own record and to focus attention on the Important Bird Area program. Hear anecdotes about the most memorable places he visited, his favorite bird sightings, and learn how you can support conservation and biodiversity in Arizona.

Craig Anderson has birded Arizona for over 45 years but during his Big Year discovered additional and unique places to bird in our state.

## Committees/Support

### Arizona Audubon Council Rep Position Open

#### Bookstore

Mel Bramley  
480 969-9893

#### Hospitality

David Chorlton  
602 253-5055

#### Web Page

Michell Peppers  
480 968-5141  
[burge@burgenv.com](mailto:burge@burgenv.com)

### Maricopa Audubon Website

<http://www.maricopaaudubon.org>

**"The mountains are calling  
and I must go."**

*John Muir*

## 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.



### On the Cover: Black-throated Sparrow

Focal length 200 mm, 1/5000 sec, f/2.8, Canon EOS 7D, by Skyler Russell, Deem Hills Recreation Area, March 2017

**Skyler says:** "My wife and I recently discovered Deem Hills, and our now-regular sunset walks have become solace in the midst of busy lives. These elegant desert sparrows are always there to accompany us. They are often heard before they are seen: a high-pitched song as they flit in small flocks effortlessly through the desert undergrowth."

For more of Skyler's work, see [www.skylerussellphotography.com](http://www.skylerussellphotography.com)

# President's Message



Mark W. Larson

We are living in a time of uncertainty, especially with regard to the environmental laws that have protected special places and brought back species that were on the brink of extinction. My message to you, the members of the Maricopa Audubon Society, is-- do not despair!

We may be in for a rough patch during which business interests run amok on our land, but I believe that our nation has built a strong foundation of environmental stewardship that will transcend short-term greed and avarice.

That means now more than ever, we as an organization and as a part of a nation, need to stand up to be counted among those who will not compromise our hard-won victories in conservation and environmental education.

As your President, I urge you to get involved in your community at whatever level suits you, as a volunteer or as a standard-bearer for environmental awareness. Remember the words of Chief Seattle, "We do not inherit the Earth from our ancestors; we borrow it from our children."

What kind of a world do you want to leave for your children and their children? 🐦

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

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## Letter from the Editor

by Gillian Rice



Gillian Rice

You might receive this summer issue of *The Cactus Wren•dition* a little later than usual. I am writing from England because of an unplanned visit home for a family emergency. Silver linings of dark clouds are ever-present, however. As I help my father recover from a fall, I enjoy the beauty of my parents' traditional English garden, with the promise of new life this summer: birds are busy nesting and raising young; tadpoles wiggle in the pond; butterflies flutter; and bumble bees forage. My goal here is to learn to recognize by song every bird species present in the garden. This will help me to identify elusive birds hidden among thick foliage. A challenge when the birds insist on singing at the same time!

I read that in urban environments some birds sing louder because noise levels are higher. To prosper in health and wealth, we all adapt to new situations. The flora and fauna with which we share our planet evolve in response to human behavior. Recent research by Marina Alberti of University of Washington and her colleagues suggests that cities might play a major role in contemporary evolution by hastening certain changes in wildlife (animals, plants, fungi, and other organisms). For instance, modifications in climate, artificial lighting, and availability of food all drive change in the timing and duration of reproduction in some bird species. Of note is that, in comparison with natural and nonurban human systems, changes in urban systems are of greater magnitude.

In our summer edition Science Corner, Robert Hobbins focuses on artificial lighting, its impacts, and steps we can take to mitigate light pollution. Tom Gatz considers the impact of urbanization on a lizard and Brian Sullivan patrols his backyard to learn more about an urban exploiter, the Arizona Bark Scorpion. But Melinda Louise takes us on a journey far away to the natural wilderness of Yellowstone as she shares her experience of seeing wolves for the first time. Humans are always close at hand, however, and often with sad consequences.

Savor the beauty of the poetry and photography in this issue. Gather the young members of your family and share the fun of Green Scene. Marvel at the versatility of our award-winning featured artist, Neil Rizos. And last, but certainly not least, be inspired to act for our environment by Laurie Nessel's memories of the great Arizona conservationist, Frank Welsh.

My gratitude to all contributors, without whom this publication would not be possible. And a special thank you to the professional photographers who have shared their work with us free of charge. 🐦

## Are you a Friend?

Do you enjoy reading *The Cactus Wren•dition*? Are you a "Friend of Maricopa Audubon?" Or have you renewed your membership this year? Please support Maricopa Audubon by becoming a Friend. Please see the back page of *The Cactus Wren•dition* for full details. Your contribution will help fund the publication of the *Wren•dition*. Thank you for your support!



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# 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>

## Monday June 5

### Verde River and Rio Verde Ranch

Start 5:15 am in Fountain Hills, explore a few sites along the Verde River, ending at Box Bar for an early packed lunch. In addition to desert birds, hope to see the influx of summer visitors along the river, including Yellow Warblers, Bell's Vireos, Summer Tanagers, and Blue Grosbeaks. Finish noon in Fountain Hills. Limit 8.

Leader: Kathe Anderson, [kathe.coot@cox.net](mailto:kathe.coot@cox.net)

## Monday, July 17

### Sedona

A day focusing on Red Rock State Park and Sedona Wetlands. Start 4:30 am from Scottsdale, make a quick stop at Page Springs Fish Hatchery before heading to Red Rock State Park and Sedona Wetlands. In addition to some higher elevation residents (Hairy and Acorn Woodpeckers and Woodhouse's Scrub-Jays), we'll concentrate on neotropical migrants such as tanagers, warblers, flycatchers, and summertime hawks. Bring a bag lunch. Return about 3:30 pm. Difficulty: 1-2. State park entrance fee \$7.00 per person. Limit 8.

Leader: Kathe Anderson, [kathe.coot@cox.net](mailto:kathe.coot@cox.net)

## Saturday, August 12

### Pinal Mountain near Globe

Want to escape the desert heat for a trip to Pinal Mountain for fall migrant warblers and hummingbirds and summer residents? Find between 85 and 100 species of birds. Leave Tempe at 4:30 am, and return about 3:00 pm. Bring water and a bag lunch. Short easy hikes along forest roads, but the majority of birding will be near the vehicles. Limit: 11 (plus leader) in three vehicles.

Leader: Dave Pearson. Reservations: contact Larry Langstaff at [larrylangstaff1@gmail.com](mailto:larrylangstaff1@gmail.com) or call or text 480 710-0431.

## Wednesday-Friday, August 16-18

### Idyllwild (San Jacinto Mountains, CA)

A three day trip seeking higher elevation birds including Band-tailed Pigeons and Red-shouldered Hawks. Also Acorn Woodpeckers with the possibility of White-headed Woodpeckers. Nearby Lake Hemet can offer surprises, such as Caspian Terns, along with waterfowl. Stops to and from Idyllwild break up the long drive and provide desert species. Leave Scottsdale 5:00 am, Wednesday, and return 4:00 pm, Friday. Cost includes two nights accommodations, meals, entrance fees, and a gas donation (remember this is a summer vacation destination). Difficulty: 1-2. Limit 8.

Leader: Kathe Anderson, [kathe.coot@cox.net](mailto:kathe.coot@cox.net)

## Saturday, August 26

### Sabino Canyon Monsoon Season Insects

Want to know the arthropod secrets of Sabino Canyon? Margarethe Brummermann, who provided an amazing program on arthropods at January's meeting, will guide an easy walk in the late afternoon along Sabino Canyon, then host an after-sunset black-lighting activity until about 10:00 pm. Lights shown on a suspended ground-level white sheet will make moths, beetles, and other insects visible. Monsoon rains multiply the species in addition to the those attracted to the creek. After-sunset viewing may include owls and Poorwills. Bring a flashlight and wear seasonally-appropriate clothing. Limit 15. Difficulty: 1-2. Travel time is about 2 1/2 hours to Sabino Canyon. Van rental may be possible; otherwise, please car-pool.

Reservations: contact Larry at [larrylangstaff1@gmail.com](mailto:larrylangstaff1@gmail.com) or call or text 480 710-0431.

## Sunday, Sept 3

### Glendale Recharge Ponds

Expect to be hot, and hot on the trail of returning shorebirds. Leave Scottsdale 5:00 am to arrive in Glendale before sunrise. Prowl the wetlands hoping for the usual variety of birds: ducks, raptors, and water-loving species like Black Phoebe, pipits, and swallows. Hope for an abundance of shorebirds returning from points north. Perhaps some unusual species for the desert, like Dunlin or Whimbrels. Go over our list in a cool indoor spot. Return to Scottsdale by 10:00 am. Difficulty: 1-2. Limit 8.

Leader: Kathe Anderson, [kathe.coot@cox.net](mailto:kathe.coot@cox.net)

## September/October, date TBA

### Stewart Mountain Desert Tortoise Quest

Have you ever seen a Sonoran Desert Tortoise in the wild? Increase your chances of stumbling upon one of these iconic desert creatures by searching in their preferred habitat after a summer monsoon. We are not

setting an exact date for this trip near Saguaro Lake until the conditions are right. We will collect email addresses and phone numbers and contact you one day before or possibly the morning of the walk. It could be a weekend or weekday. Learn about the behavior, life cycle, and status of this keystone species. Difficulty: 4 (steep, rocky terrain, and hot, humid weather). Bring snacks, sun protection, hat, sturdy hiking shoes, and plenty of water. Start near daybreak and return by noon. Limit: 10. Leader: Laurie Nessel, [laurienessel@gmail.com](mailto:laurienessel@gmail.com) or 480 968-5614 to get on the call list.

## Third Sundays: May 21, June 18, July 16, August 20, September 17, October 15

### Beginning Butterflies and Dragonflies at Gilbert Riparian Preserve at Water Ranch

An outstanding area for beautiful butterflies, dragonflies, and damselflies. Learn to identify local butterflies including Painted Lady, Queen, and Fiery Skipper as well as common dragonflies and damselflies such as Western Pondhawk, Flame Skimmer, Blue-ringed Dancer, and Familiar Bluet. Suggested \$5.00 donation to support the Gilbert Riparian Preserve. Bring binoculars (close-focus preferred), water, and hat. *Common Dragonflies of the Southwest* by Kathy Biggs on sale for \$10.00, color checklists for \$1.00. All ages welcome. Easy. Meet 7:00 am May-September, 7:30 am October at Rattlesnake Ramada (south of the parking lot, west of the bathrooms). The preserve is east of Greenfield Rd., south of Guadalupe Rd., just east of Gilbert Public Library (park there if the GRP lot is full).

Leaders: Janet Witzeman and Laurie Nessel

## Second Saturdays, June 10, July 8, August 12

### Tempe Town Lake

Do you enjoy walking around Tempe Town Lake, yet are not sure of what birds you are seeing? Bird watching trips at the far east side of Tempe Town Lake each second Saturday, 8:00 a.m. to 10:30 a.m. See a variety of waterfowl, herons and egrets, cormorants, shorebirds, and songbirds with the possibility of a Bald Eagle, an Osprey, or a Brown Pelican. Each month bird sightings will change as spring migration progresses into summer. Walk slowly mostly along a paved or gravel trail. Participants should have good mobility and balance. Bring binoculars and a bird book if you have them, as well as sun protection and water. Difficulty 1-2. Limit 8.

Leader: Bobbe Taber, [taberbobbe@gmail.com](mailto:taberbobbe@gmail.com)



# Field Trip Favorites



**S**afety first. If bad weather, car issues or road hazards indicate that a trip should be cancelled, postponed or rearranged—do it! Most participants would rather be safe than sorry!

We've all been on great field trips – and we want to make them even better! Look for Field Trip Favorites in *The Cactus Wren•dition*, and please, whether you're a leader or a participant, send your comments and suggestions for your favorite tip to Kathe Anderson at [kathe.coot@cox.net](mailto:kathe.coot@cox.net). Thank you! 🦅

## American Kestrel

By: Jasper Younger-Howard

*Perching on the wall with subtle disguise  
Blending in to all of his surroundings  
A majestic sight despite his small size  
With razor sharp talons and sturdy wings  
He gazes at me with fire in his eyes  
Feathers shining bright blue, grey, red, and gold  
Locked in his talons a mammal, his prize  
To catch such large prey he must be quite bold  
Soon he lifts up into the cobalt blue  
Taking with him the remnants of his feast  
As if an unseen sign gave him his cue  
A small yet formidable feathered beast  
Of all the raptors he is the smallest,  
Yet arguably one of the strongest*



American Kestrel (male). Photo by Jasper Younger-Howard

## Awakenings

By David Chorlton

*A window turning orange in the dark  
signals the city  
awakening, and traffic  
makes the sound of diluted thunder  
one stop light before sunrise.  
The oleander bushes begin  
their early chatter  
and power lines call  
softly from the alleys. A robin interrupting  
his migration rests  
on a street scented with acacia  
beneath a tree where  
a White-winged Dove who stayed  
at this latitude for winter  
holds on to a branch  
about to break into leaf. While the human day  
gathers momentum, a towhee  
scratches earth and a Cooper's Hawk  
breaks out of hiding. Three blocks south,  
outside the Circle K, a man rolls up  
his blankets, and as he takes the first  
steps into waking life  
the grackles on the parking lot move aside  
to let him pass, raising their beaks  
to pour their voices out toward the sky.*

### 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](mailto:laurienessel@gmail.com)

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



# Frank Welsh: A Conservationist's Life Remembered

By Laurie Nessel

Imagine going to Coon Bluff and finding cactus-studded hills surrounding a massive reservoir instead of a lush riparian habitat. Were it not for Frank Welsh and a small group of dedicated conservationists, Orme Dam would have inundated miles of precious bird habitat, Bald Eagle nest sites and most of Ft. McDowell Yavapai tribal land. On January 22, 2017, Maricopa Audubon Society (MAS) lost a distinguished member and dear friend.

Born in 1934 in Philadelphia, PA, Frank Welsh served in Korea and the GI Bill enabled him to achieve a civil engineering degree from Villanova University. He worked for the US Forest Service surveying for roads in Coconino National Forest. After his father died, he returned to Pennsylvania to work for the Army Corps of Engineers.

The deserts and forests of Arizona beckoned and in 1967 Frank began work for the City of Tempe. He turned down a lucrative job with Dow Chemical to stay in Arizona. Frank's thirst for knowledge and desire to understand society motivated him to obtain a JD from ASU where he studied water resources. As a law clerk for the City of Tempe, he discovered that Tempe had significant water rights and would not benefit from the Central Arizona Project (CAP), a three billion dollar federal scheme to transport water from the Colorado River to central Arizona. Included in the project bill were five Bureau of Reclamation flood control and

For 14 years, Frank calculated facts to counter lies, and strategized how to use them to fight the CAP. He held news conferences, renting the convention plaza with tiers of supporters behind him; lobbied in Washington; formed coalitions of disparate interests; and presented slide shows to chambers of commerce, rotary clubs, Democrats, and

Republicans. He proved a genius at working every possible angle to garner support and publicity.

During the lunch break at a public hearing on the Orme Dam Draft Environmental Impact Statement (DEIS) in 1976, Frank and cohorts put red tape over the dam model after learning the dam site was riddled with geologic faults.

When they said we need water for our growing population, he proved that we have a water supply for 7-12 million people. When they said we need water for agri-business, Frank countered that we don't need a multi-billion dollar scheme to pump water uphill using energy from the Navajo Generating Station that pollutes the Grand Canyon. We should be growing crops by the Colorado River



Frank Welsh

and protecting recreational tubing on the Salt River. Frank's cost/benefit analysis didn't meet the US Army Corps of Engineers standard of 1 to 1 rate of return. Agriculture used 89% of the water and returned 2% to the state economy. Then came the two 100-year floods in a row (1979 and 1980) and the call for Cliff Dam to control flooding on the Verde River. Frank proved we don't need costly, damaging new dams, but more bridges and modifications to the existing Stewart Mountain and Roosevelt Dams. He told the Bureau of Reclamation (BoR) engineers that they didn't need to build Cliff Dam to protect Bartlett Dam, just spillways at Horseshoe Dam. The engineers said, "We don't build those" and Frank replied, "Why not, the Corps does." We don't need to narrow the flood plain so the Salt River bed can be developed in Phoenix at tremendous profit. We need open space for public recreation. In 1981, Frank along with Bob Witzeman, Carolina Butler, Ron Shilling, Scott Burge and others, won the battle to stop Orme Dam, one of the biggest David and Goliath victories of the era.

When Bald Eagles chose the site of Cliff Dam to nest, Frank joined forces with Maricopa Audubon Society (MAS). Frank was the perfect consultant for MAS with his passion for nature, his engineering background, which deals with facts and logic, and the law which....doesn't. Twenty percent of the 15 nesting pairs of bald eagles in the entire southwest would have been wiped out by Cliff Dam. An environmental coalition that included MAS sued, charging that the BoR failed to include mitigation and alternatives in the DEIS as required by the National Environmental Policy Act. In 1987, Cliff Dam was removed from "Plan 6." The New Waddell Dam was built and Roosevelt Dam was raised instead. Even though Frank figured

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**Frank said, "Excuse me, if we were to eliminate all the federal subsidies on agriculture, ranching, and mining, we wouldn't have to worry about the environment. It wouldn't be destroyed."**

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water storage dams. A man of principle, Frank published his findings even after they were quashed by a city councilman. He resigned before being fired.

Determined to defeat the CAP boondoggle, Frank co-founded "Citizens Concerned about the Project" (CCAP) in 1971. Frank sacrificed a cushy civil engineering career to lead a frugal, meaningful life as CCAP's president, saying: "What I do is more important than how much money I make." He became the voice of other engineers around the state who couldn't challenge the CAP without consequences because they worked directly or indirectly for the federal government.





that 30' would suffice, they were battle weary and didn't fight the 77' height increase at Roosevelt.

Frank's campaign to defeat the CAP are featured in two books, *Press Releases of the Maricopa Audubon Society and its Friends and Allies, 1973-1991 Vol. 1* (available on the MAS homepage) and *How to Create A Water Crisis, 1985*, by Frank Welsh with a forward by Stewart Udall. Both are compelling reading for any student of water policy, Arizona history, and conservation strategy. This excerpt illustrates Frank's pithy incisive style: "To build projects to rescue surplus crops makes even less sense than paying farmers not to grow surplus crops." Frank became an internationally recognized authority on water resources whose analyses were cited in numerous publications including *Cadillac Desert: The American West and Its Disappearing Water*, by Marc Reisner.

After the stunning victory over Orme Dam, Frank joined the fight against a Canadian mining company threatening to de-water Haunted Canyon, a rare, perennial desert stream with a 90% canopy that flowed from the east side of the Superstition Wilderness. Thanks to the 1872 mining law, for five dollars an acre, a foreign company can buy public land, mine, pollute, divert, and de-water it. I was continually impressed with Frank's perspicacity in yet another David and Goliath battle. On a hike to introduce people to Haunted Canyon, we spied a tiny, green spider on a hedgehog flower. Frank said, "Ah yes, a crab spider. She ambushes pollinators." I hadn't realized there were spiders that didn't weave webs. Frank sparked my curiosity and started my obsession with arachnids and other arthropods, and flora. He was so concerned about sand verbena that he urged MAS to organize a field trip to a small, undisturbed parcel on the north side of the Salt Riverbed east of 51st Avenue. It was March 2008: surrounded by the urban architecture of bridges, powerlines, fuel tanks, and rubbish was a blanket of wildflowers that Frank wanted to protect. It was common knowledge that Frank was fond of herps, but he was a naturalist enamored with and protective of all of nature, as was his namesake, St. Francis. The sand verbena was a ruse to pique our concern about a precious remnant of nature amidst the wanton destruction of a desert river.

Frank was also concerned that mismanagement of State Trust Land leads to sprawl, notably Superstition Vistas, the planned million resident development on trust land between Apache Junction and Florence. To involve citizens in the wise management of state trust land, he helped organize Cost II: Conference on State Trust Lands at ASU law school in 1999. With the Arizona Grazing Clearinghouse, Frank also fought against the abuse of public BLM land by dry land grazing.

Frank was a visionary. He imagined a Salt River Valley ringed by a cool agricultural belt using salty Salt River or nutrient rich recycled water, saving money on fertilizers. Buildings would rise up, not spread out into the desert. Thirsty cotton and alfalfa can be replaced with arid land crops. Arizona would sell Colorado River water to California and use the revenue to eliminate

property tax. The Gila River would be restored and used for recreation, water transportation, and aquifer recharge. Thanks to a deal signed with Phoenix in March 2017, this restoration is starting to happen decades after drying out. Ending subsidies would encourage water conservation and lawns would be supplanted with desert flora. Back in the sixties, he envisioned a dam at the old Ash Ave Bridge in Tempe with shops spanning the lake (this was before Rio Salado was an ASU project). He suggested eradicating invasive crayfish by suspending the sale of fishing licenses until the crayfish were gone. He believed that the environment should hold equal sway to economics when considering public projects. He recalled a Republican Committee meeting with Congressman Matt Salmon, where flaming conservatives were railing against environmentalists and Frank said, "Excuse me, if we were to eliminate all the federal subsidies on agriculture, ranching, and mining, we wouldn't have to worry about the environment. It wouldn't be destroyed." The room got very quiet.

He lamented that the feds traded land that became Sedona for parcels of timber; that special interests and lawyers write water policy, not engineers; that he couldn't stop the CAP or abolish the BoR. But Frank's efforts paved the way for the BoR to reassess their mission, and even begin decommissioning dams for wildlife.

We will miss Frank's quick wit, sly grin, and efficacious advocacy. He will be remembered for his incisive questioning of the featured speakers at our monthly meetings, which often increased our understanding of the topic or stirred up more questions. And that is the essence of Frank- he questioned everything.

As Scott Burge so eloquently put it, "When you see a cottonwood tree by the river, think of Frank. When you see a Lucy's Warbler returning in the spring, and 25 miles of riparian streamside, think of Frank." He may have been a small man, but in my eyes, Frank Welsh was a giant, a hero. Consider Frank's assessment of the prolonged battles against the system: "The most important thing is to think outside the box and don't think because it's always been done this way, that it's right. Challenge the system because you live in a great country for crying out loud, the best there is. The best there ever was. It's not in good times right now and we need some people to come through and stand up for what's right."

A grand gesture to remember Frank's legacy would be to participate in the annual Orme Dam Parade in November, where, in gratitude for saving the Yavapai tribal land, MAS has an esteemed position just behind the leading Honor Guard.

Frank is survived by his wife, Barbara, who graciously tolerated his collection of lizards and such in the freezer. Donations in memory of Frank Welsh can be made to: Sierra Club-Grand Canyon Chapter, 514 W. Roosevelt St., Phoenix 85003, or Muhammad Ali Parkinson's Center, Attn: N. Bivens, 240 W. Thomas Rd, #302, Phoenix 85013. 🐉



# The Wolves of Yellowstone

By Melinda Louise



*A Gray Wolf howls to its pack mates on a cold morning of -15F. The rest of the pack was bedded down on a nearby ridge.  
Photo by Steve Hinch*



*911M the alpha male of the Junction Butte Pack leading the pups back to the den area. He was not the father of the pups, but their grandfather, as both litters were from his daughters, 907F and 969F; a male will not breed his daughters. Later in the year 911M was killed by a rival pack (the Prospect Peak Pack) and males from that pack are the new breeding males with those females. It is still not certain who is going to be the new alpha male. Photo by Doug McLaughlin*

Tears were streaming down my face. I was looking at wolves through a spotting scope in Yellowstone. I've always loved hearing stories and watching videos about wolves, but had never seen them in nature. It was almost more than my mind could accept. I was in the country's first National Park and I was watching wolf pups, yearlings, and adults from across a rise in the Northern Range of Yellowstone.

I had arrived a few days early before starting my summer job as a tour guide. I would spend the next five months living and working out of Old Faithful Village. What an adventure. And the wolves were an incredible start to my summer!

When President Ulysses S. Grant signed the Yellowstone National Park Protection Act in 1872, the new law not only preserved the compelling thermal features, but also protected all the region's wildlife and their habitat. An effective natural ecosystem had evolved over millions of years. In the not too distant future, all that would change.

The early westward-expanding mindset focused on "conquering" nature and by the early 1900s most wolves in Yellowstone had been eradicated, as had most of the other predators. Little did we realize in



those early days the “web” that gradually develops when an ecosystem is left alone to progress naturally.

Over the years, our definition of “natural” evolved. An initial step placed the wolf on the newly-created Endangered Species Act in 1974. With our greater understanding of the importance of natural predators as a necessary component of nature, in the mid-90s, wolves were reintroduced into Yellowstone.

From 1995 to 1997, biologists released 41 wild Gray Wolves from Canada and northwest Montana into Yellowstone. Those original wolves have now died, but their descendants number around 100 (with over 500 in the Greater Yellowstone Ecosystem, which consists of Yellowstone National Park and the outlying National Forests surrounding the Park). Wolves are highly social animals and live and work in their family units or packs. Doug Smith, project leader of the Wolf Restoration Project, explains that wolves hunt in a “risk averse fashion.” Elk and bison are much bigger than wolves, so wolves hunt vulnerable



*This was wolf 889F. She was born to the Mollie's pack in Yellowstone National Park but became a lone wolf after being injured. 889F was one of the rare wolves that did not mind humans and she would often come close enough to curiously check us over. This lack of fear eventually got her killed when she left the park and walked through a yard in Cooke City, Montana. 889F was quite thin and suffering from a previous bullet wound when she was killed. (Note: 889F wore an ugly GPS collar with a huge white box on it - because of her beauty, the collar was removed during image post-processing.) Photo by Deby Dixon*

animals. Wolves look for advantages and seek out the lame, young, and old elk and bison.

For me, one of the many wonderful things about living in Yellowstone all summer was being able to see the wildlife. We arrived that first morning in the Park before sunrise. Already many “wolf watchers” had scopes set up to observe the early morning activities. These citizen scientists report the wolves’ locations and behaviors to the National Park Service biologists. We have such a rare and wonderful opportunity to be able to observe Yellowstone’s wildlife in a natural environment: many of the animals’ activities often take them near roads. Because of that, the kind of research done by the Wolf Restoration Project is unprecedented.

We’re able to observe how ravens often lead wolves to dead or dying animals. Once the animal is more accessible for eating by scavengers such as eagles, magpies, and, of course, the ever-present ravens, coyotes and foxes try to sneak in for leftovers. Often, a

big grizzly comes marauding in, chasing the wolves off their kill.

But the unforgettable thrill is watching those rambunctious wolf pups playing with the yearlings responsible for caring for them. Or, viewing how the pups come running to gang up on the returning adults and begin licking their mouths when they



*Wolf 926F is the alpha female of the Lamar Canyon pack and daughter to famous wolf, ‘06, who was shot and killed by a Wyoming hunter in December 2012. 926F has had a rough life and has lost several alpha males over the past three years. She has also lost most of her pups - out of 13 known pups, only one is still alive, a female called Little T who remains with her mother. 926F is a very popular wolf in Yellowstone and people follow her adventures on a daily basis, via social media. Her current mate is 949M, a male from the Beartooth pack in Wyoming. Photo by Deby Dixon*



*The well-loved wolf 755M rose to fame as the alpha male of the Lamar Canyon pack, father of 926F, the current alpha female, and became more famous through his many trials and tribulations of finding a new mate after the female ‘06 was shot and killed by a hunter in Wyoming. 755M recently became the alpha male of a third pack, after losing his second mate to younger male wolves in 2016. Eight years old, he has six offspring and one granddaughter living in Yellowstone. Photo by Deby Dixon*



# The Wolves of Yellowstone cont.

arrive from the hunt, the process they use to get the adults to regurgitate the pups' part of the kill.

I still get teary watching the wolves in Yellowstone, but I have a greater understanding now of why we have such an incredible chance to observe these amazing animals in their natural setting. I'll never tire of the spectacle of nature in Yellowstone National Park.

## To learn more:

Smith, Douglas and Gary Ferguson. 2012. *Decade of the Wolf, Revised and Updated: Returning the Wild to Yellowstone*. Lyons Press.

*A Peak Experience Watching Wolves in Yellowstone National Park*  
<https://www.nps.gov/yell/learn/ys-24-1-a-peak-experience-watching-wolves-in-yellowstone-national-park.htm>

Q & A: Wolves, Doug Smith  
<https://www.nps.gov/yell/learn/photosmultimedia/qa-wolves.htm>

Melinda Louise is a tour guide in Yellowstone National Park in the summer months, and a docent at the Desert Botanical Garden during the rest of the year. For further information, check out her blog, [GallopingHorseBlog.com](http://GallopingHorseBlog.com)



The famous "White Lady," the alpha female of the Canyon pack. She turns 12 this April and has been with her mate, 712, for nine years - longer than any other alpha pair in the park. This pack resides in the Old Faithful area of the park but frequently travels all over. Photo by Deby Dixon



The former Lamar Alpha pair 992M and 926F. Photo by Doug McLaughlin

# Arizona Mexican Gray Wolves

The Mexican Gray Wolf (*Canis lupus baileyi*) is a rare subspecies of the North American Gray Wolf. Once common throughout the southwest, the Mexican Gray Wolf had virtually disappeared from Arizona by the 1950s.

Almost all historical records of Mexican wolves occurred in Arizona's mountainous woodlands above 4500 feet. Traditionally, wolves have not persisted in areas that do not support large ungulate prey animals. Following European settlement, wolves were eliminated gradually as livestock production became more common and depredations increased.

In 1977, the US Fish and Wildlife Service began efforts to conserve this rare wolf subspecies. Finally, in 1998, 11 captive-reared Mexican wolves were released into the Blue Range Wolf Recovery Area (BRWRA) in eastern Arizona.

The Mexican Wolf Reintroduction Project is a cooperative effort between five co-lead agencies: Arizona Game and Fish Department, White Mountain Apache Tribe, US Animal and Plant Health Inspection Service - Wildlife Services, US Forest Service, and US Fish and Wildlife Service.

The Project's primary goal is to re-establish at least 100 wild wolves within a portion of their historical range, located in east-central Arizona and western New Mexico. Its secondary goal is to manage wolves and their habitat in a manner that will not negatively impact the lifestyles and economy of local residents. The cooperating agencies closely monitor and study the reintroduced wolves, contributing to their conservation as a whole. Full recovery of the Mexican wolf subspecies likely will require additional reintroduction projects elsewhere, and may take several decades to accomplish.

The Mexican wolf packs average around three to five wolves, whereas the Yellowstone wolf packs are larger with an average of around 10 animals.

With the birth of the first wild-born litter from a wild-born parent in 2002, the Mexican Wolf Reintroduction Project entered a new phase, whereby natural reproduction began to replace the need to release captive-reared wolves. By the end of 2016, surveys identified at least 113 Mexican wolves in the BRWRA.

Missing from our Arizona landscape for more than 30 years, the haunting howl of the Mexican wolf can once again be heard in the mountains of the southwest.

## Learn more:

Mexican Wolf Reintroduction & Management  
<https://www.azgfd.com/Wildlife/SpeciesOfGreatestConservNeed/MexicanWolves/>

Mexican Wolf Natural History  
[http://www.azgfd.gov/w\\_c/wolf/naturalhistory.shtml](http://www.azgfd.gov/w_c/wolf/naturalhistory.shtml)

US Fish & Wildlife Service, The Mexican Wolf Recovery Program  
<https://www.fws.gov/southwest/es/mexicanwolf/>

See what Arizona Game and Fish Department and its federal, tribal, and private partners are doing to recover the endangered Mexican Gray Wolf:  
<https://www.youtube.com/watch?v=TU4HkloCRo4>

Listen to Mexican Gray Wolves howling at:  
[http://www.azgfd.gov/w\\_c/es/WolfHowls.mp3](http://www.azgfd.gov/w_c/es/WolfHowls.mp3)

Harding, Larisa E. et al. 2016. Genetic management and setting recovery goals for Mexican wolves (*Canis lupus baileyi*) in the wild. *Biological Conservation*, 203: 151-159.  
<http://dx.doi.org/10.1016/j.biocon.2016.09.018>



# Photos from the Field



*It was so exciting to see four Harris's Hawks one March morning on my desert property. This photo shows two of them, an adult and a juvenile with its prey (a rabbit) that was a bit big and he eventually dropped it. I think I was as shocked as the young bird. He flew up and sat on a wire alongside the adult hawk and they both stared out across the landscape. I could only watch for a few minutes before I had to leave for work, wondering if they were able to reclaim their catch. Photo by Vicki Hire*



*Sonoran Desert Tortoise females emerge in early February to bask and forage, feeding on virtually all available plants, including showy annuals when they happen to be blooming as they were this spring. They continue to feed on these plants, even as they dry, though tortoises need additional water to process the tinder dry seed pods and stalks they consume in April and May. This female slipped into the shade after feeding on poppies and lupine in the sun for over an hour during a mid-March morning; her limbs are fully extended to maximize heat loss. Photo by Brian Sullivan*



*My husband and I were at a local garden shop (Lowe's), when we heard a lady say "Did you hear that?" I looked up and there was an adult Great Horned Owl carefully watching over her fledgling as it was "branching" out on the garden net above me. My husband ran back to our car and got my camera while I watched this adorable baby stretch its wings and peer over the net at me as if to say "Who are you?" Photo by Vicki Hire*



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

Compiled by Gillian Rice and Vicki Hire



green scene



*Hummingbird preening its back feathers.*

*Photo by Gillian Rice*

## Green Scene Go Take a Hike

On a summer weekend day, get up bright and early and head to Hassayampa River Preserve at Vulture Mountains Recreation Area. When you visit this birder's paradise, you will also spot many species of lizards. Search for tracks of the animals that drink at the water's edge: Javelina, raccoon, deer, and maybe even mountain lion! Learn about the plants and animals in the preserve at The Arthur L. Johnson Visitor Center. Don't forget to take a snack to eat in the shady picnic area.

Call (928) 684-2772 to learn about docent-led walks or visit <https://www.nature.org/ourinitiatives/regions/northamerica/unitedstates/arizona/placesweprotect/hassayampa-river-preserve.xml?redirect=https-301#thingsToDo>

## Dem Bones, Dem Bones, Dem Bird Bones 🎵

**Did you know** birds have a smaller number of bones than mammals or reptiles? Many birds' bones have fused together making their skeletons more rigid. Birds have a fused collarbone, known as the wishbone. You may have seen a turkey wishbone from your Thanksgiving Day dinner.

**Did you know** the major bones of flying birds are hollow, which means they are filled with air spaces? This makes the bones lightweight so the birds don't get tired from carrying their own weight. "Struts" that crisscross inside a bird's bones provide structural strength. This is crucial so that a bird can withstand the enormous mechanical stresses of takeoff, flight, and landing.

**Did you know** birds have no teeth? Their bills are much lighter than teeth. And, if you weighed all the bones in a bird's body, they would weigh less than all its feathers. That is not only because their bones are hollow, but also because birds have evolved to have fewer bones, and fewer jointed bones. A bird's skull is usually less than one percent of its total body weight.

**Did you know** that penguins are different because they have very dense and heavy bones? They have huge scapulae (shoulder blades) so they can pull themselves powerfully through water. Loons also have solid bones and can dive to depths of 600 feet.

**Did you know** birds have a keeled breastbone? The breastbone is long and shaped like a ship's keel, which runs from the front of a ship to the back and supports the whole framework of the ship. The keel part of the bird's breastbone acts as an anchor for the bird's strong wing muscles. Even though chickens are not strong fliers, you can see the keel on the picture of the chicken skeleton.

**Did you know** the Wandering Albatross has the longest wingspan (up to 11 ft 6 in) of any bird? Its wing bones are very long and very straight, like those of an airplane. It can glide on wind currents for hours without rest or even flapping its wings.

**Did you know** birds have more neck vertebrae than a giraffe? The giraffe has seven neck vertebrae. Most birds have 13 to 25 of these very flexible bones. That flexibility allows a bird to turn its head and see danger from many directions. It also means the bird can bend its neck to preen its feathers on its back.

**Did you know** a bird walks on its toes? The part of a bird's leg that bends backwards when it walks is an elongated ankle. Birds' knees are usually hidden under their feathers. Their knees bend the same way as yours do.

Knee

Keel



*Chicken skeleton. Image courtesy of the ASU Natural History Collection.*

## 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 Younger-Howard at [yellowbirdphilosophie@gmail.com](mailto:yellowbirdphilosophie@gmail.com)



Wandering Albatross, Drake Passage, Southern Ocean. Photo by Nigel Voaden



Turkey wishbone. Photo by Vicki Hize



Common Loon. Photo by Dale Rehder, Courtesy of USFWS

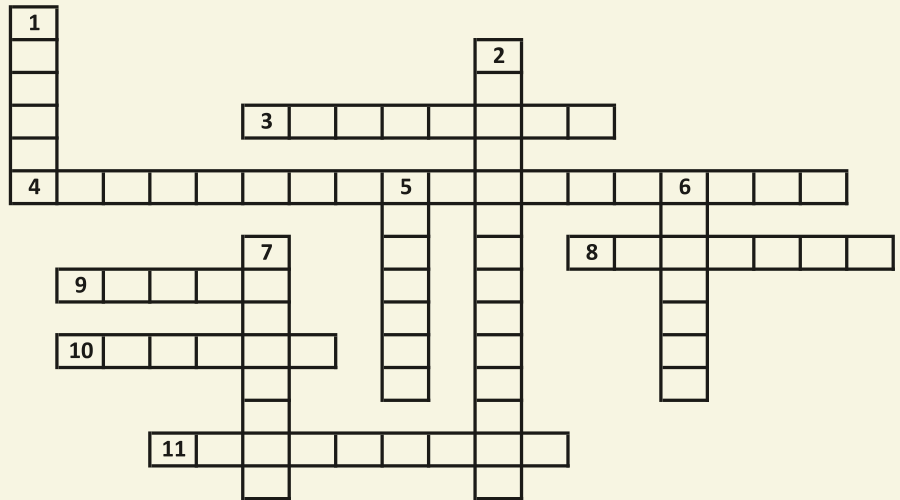
## Guess this Bird



Photo by Gillian Rice

Clue: This bird of arid lands forages on trees, shrubs, agave stalks, tree yuccas, and cacti for insects, including beetles and their larvae, caterpillars, and ants.

## Dem Bird Bones Crossword Puzzle 🎵



## Green Scene True or False?

- T F 1. Birds have teeth inside their bills.
- T F 2. Birds have fewer bones than we do.
- T F 3. Most birds have solid bones.
- T F 4. A bird's skull is 20% of its body weight.
- T F 5. Birds' knees are usually hidden under their feathers.

Answers on page 19

**Send us your photos!** Did you take a hike or a field trip? If so, we'd like to hear about it! Send us your nature photo and a brief description of where and when you took the photo. It's ok if you aren't sure what species the bird or other creature is – just say so and we'll help you identify it.

### Across

- 3. Name for a bird's fused collarbone
- 4. This bird has the longest wingspan up to 11 ft 6 in
- 8. The keel on the breastbone is the anchor for a bird's flight \_\_\_\_
- 9. The bones of penguins are different because they are very \_\_\_\_
- 10. These crisscross inside the bones of birds to make them stronger
- 11. Hollow bird bones are filled with \_\_\_\_

### Down

- 1. Major bones in most birds are lightweight because they are \_\_\_\_
- 2. Huge scapulae in penguins allow them to swim powerfully
- 5. Birds have more neck vertebrae than a \_\_\_\_
- 6. An albatross can glide on wind currents for hours without \_\_\_\_
- 7. The bones in a bird's body weigh less than all its \_\_\_\_

Answers on page 19



# Arizona Bark Scorpions: Block Walls Favor These Urban Exploiters

By Brian K. Sullivan

As suburban sprawl enveloped the Sonoran Desert on the northern edge of Phoenix in the 1970s and 1980s, I often passed through the area to survey amphibians, finding many main roads were still dirt tracks, surrounded by largely uninhabited desert. When I moved to my current home near Lookout Mountain in the early 1990s, I found Western Banded Geckos (*Coleonyx variegatus*) on the property but no introduced Mediterranean Geckos (*Hemidactylus turcicus*) even though the latter were common to older developed neighborhoods to the south and west. I was disappointed to find the most numerous organisms in my backyard then were house crickets, *Acheta domesticus*, and I was happy when an old friend “house gifted” my wife and me five Mediterranean Geckos to initiate “biological pest control.” This use of natural means to control pests was a huge success: those few geckos proliferated, and the cricket population collapsed.

I took pride in not using insect spray for 15 years, but over that time, witnessed the extirpation of ground dwelling Western Banded Geckos—cats are widely accepted as the agent of their decline in urban areas of the Southwest, and my yard was no exception.

By 2013 something more dramatic was amiss. That year my Mediterranean Gecko population crashed as dramatically as the house crickets before them. In the 1990s, I easily detected a half dozen of those introduced geckos on a given night, but in 2013 I went weeks at a time without seeing one.

On the first night I systematically surveyed my backyard to document their absence, I noticed two species unknown before on my property: Arizona Bark Scorpions (*Centruroides sculpturatus*) and Black Widow Spiders (*Latroctus* spp.). Having kept careful track of the nonhuman, neighborhood inhabitants the previous 20 years, I'd been keenly aware of the presence of scorpions at houses not more than a few hundred meters distant, those adjacent to a nursery. My sons had seen them during sleepovers in the mid-1990s. I was suspicious when the arrival of the scorpions and Black Widows coincided with the loss of the geckos.

These two particular arachnids, Black Widow Spiders and Arizona Bark Scorpions, are “urban exploiters,” organisms that seem to benefit from anthropogenic activities. Just as Mediterranean Geckos thrive in human environments (hence, “house geckos”), so too do these smaller, chitinous<sup>1</sup> eight-

legged predators. It is thought that scorpion numbers are held in check in more natural, undisturbed desert habitats by larger scorpion species acting as predators, but those species—ironically, with a less painful (to humans) sting—die out in human-altered habitats. I was concerned: had the scorpions played some role in the decline of the geckos? And, what could be done to reduce scorpion numbers?

The surprise of finding a number of scorpions that night in 2013 prompted me to action.

I decided to undertake a study of microhabitat preference of scorpions by surveying my backyard each night, with the goal being identification of their preferred refuges (which I might then remove). I constructed a datasheet, having identified a handful of microhabitats that I imagined might be the local source for my scorpions: wood pile (railroad ties), rock pile (stacks of thin flagstone in storage), block walls (surrounding yard), and house (stucco).

After we began finding scorpions in the house—not just the yard—my wife joked it was “her or the scorpions!” I didn't think she was serious, but I decided to link my surveys of microhabitat use with a program of manual removal (capturing scorpions by hand—well,

forceps). I retained the scorpions to be euthanized and placed in my teaching collection, where they might be put to some use (e.g., dissection by students of invertebrate zoology). To conduct my surveys, I habitually walked through the backyard, examining the block wall and scanning the few piles of debris, using a flashlight to detect scorpions (they were easily seen, so I never tried the legendary blacklight approach). I recorded the location of all scorpions detected each night from early April through October, conducting almost 300 fifteen-minute surveys over three years (2014 through 2016).

During the first two seasons, scorpion numbers remained high, ranging from one to as many as five scorpions in a single night in both years, with no detectable downward trend. In those first two years of removal, 2014-2015, I found an average of two scorpions on each night of survey. By contrast during the final year, 2016, I often found no scorpions, and averaged less than one individual per night; by September of 2016, I often went for an entire week without finding a single scorpion. Overall, 97% of all scorpions (478!) encountered were on the block walls (465); 0% on wood or on stones, and 2% on the house (14) with 1% moving on the ground (4). I was shocked: not only were the



Arizona Bark Scorpion near refuge on block wall, a crack between blocks. Note tail is held to side, in line with the body, which enables the scorpion to grasp and hold prey in its pedipalps and then sting with the tail within the confines of a narrow crevice. Photo by Brian Sullivan

presumed microhabitats largely vacant, but an anthropogenic artefact, my block wall, with 177 square yards of surface area, yielded almost 500 scorpions in three seasons of collecting. Additionally, my results negate the notion that physical removal in lieu of spraying is an effective strategy for scorpion reduction; not until the final, third year was there any reduction, and even that was incomplete. I do not attribute the eventual decline of scorpions to my success as a “predator:” the majority of my neighbors, overwhelmed with scorpions, began monthly spraying in 2016. Not only had I noticed a decline in the scorpions I was hunting, but crickets as well. Perhaps the scorpions were affected by the spraying (depleting their prey if not killing them outright) as much as by me removing them. As with most studies, additional data over the coming years will shed more light on the interactions contributing to the dynamics of this relatively simply ecosystem.

What inferences can I draw from my three field seasons with scorpions? Scorpions were not in the usual spots, at least not those that I expected. I had been misled by an “urban myth” regarding scorpion abundance in suburban Phoenix: ask any representative of the pest control industry. In addition to spraying your yard, they will invariably suggest that you remove wood piles, palm fronds, and similar debris to eliminate refuges used by the scorpions. Homeowners might have any number of reasons for removing such items, but a reduction in scorpion hiding spots would not be one of them, at least if my results are any indication. Radio telemetry studies in Tucson, in which 18



*Arizona Bark Scorpion on a block wall. Note the pincer-like pedipalps used for grasping prey (immediately prior to stinging with tail tip), and the eight “walking” limbs. Photo by Rob Bowker*

adult scorpions were outfitted with tiny radio transmitters, allowed the researchers to follow individual scorpions, and determine that they spent 97% of their time on or in (via the cracks and suture points) block walls. The results of these studies by University of Arizona researchers (Bibbs et al., 2014a,b) strongly corroborate my observations.

My results also indicate that if a homeowner desires to remove scorpions with as little disturbance to the local environment as possible (some services do suggest this approach), capturing and

removing scorpions as I did, it would take an extraordinary commitment, over multiple years, and literally dozens of hours of painstaking labor. Further, as noted above, the overall reduction I observed may have been a consequence of other nearby events (e.g., neighbors spraying) rather than my efforts alone. An all too typical problem with “natural field experiments,” I was unable to control all factors affecting my study.

I wish I had better advice to offer those Phoenix area residents plagued with scorpions—the sting is not something to be wished on anyone (though I’ve yet to experience it myself). Once scorpions arrive, I do not know of a “quick fix” via any of the widely used methods, including spraying, individual removal, alteration of habitat (plastering the block wall to eliminate many crevices?), or any other efficacious means of reducing scorpion numbers. Perhaps a native predator, tolerant of suburban landscapes, will be identified and added to our “biological control” tool box. 🐞

*Brian Sullivan is Professor, Adjunct Curator for the Herpetological Collection, and a Senior Sustainability Scholar at Arizona State University.*

<sup>1</sup>Arthropods differ from vertebrates in possessing an outer exoskeleton rather than the inner endoskeleton we are familiar with in our own bodies. An arthropod’s exoskeleton is composed primarily of chitin, which is an invertebrate structural molecule, whereas keratin is a vertebrate structural molecule in hair, fingernails, feathers, and rattlesnake tails, etc.

## References

- Bibbs, C. S., S. E. Bengston, and D. H. Gouge. 2014a. Exploration of refuge preference in *Centruroides sculpturatus* (Scorpiones: Buthidae). *J. Environ. Entomol.* 43: 1345–1353.
- Bibbs, C. S., S. E. Bengston, and D. H. Gouge. 2014b. Activity trends and movement distances in the Arizona Bark Scorpion (Scorpiones: Buthidae). *Environ. Entomol.* 43: 1613–1620.



*An amblypygid, an arachnid relative of scorpions (no sting) with enlarged raptorial pedipalps for capturing prey. Note that the anterior most limbs are antenniform, used as “feelers” rather than for locomotion like most eight-limbed arachnids. I encountered a few of these each year while scanning my block walls. Photo by Brian Sullivan*





# URBAN LIZARDS

By Tom Gatz

*Mediterranean Geckos, one of the most widespread species of lizard in the world, make a squeaking noise when captured or fighting and the males make an "advertising" call of several clicks to attract females. Photo by Jim Rorabaugh*

A study by herpetologists at ASU found more lizard species in the affluent parts of the Phoenix area than in the less expensive neighborhoods. Do lizards prefer to live near homes with marble countertops and original artwork? Unlikely. The researchers observed that the extensive desert landscaping on the larger lots in the more upscale areas of town not only provided more native habitat; these pricey areas of town were also often closer to natural desert habitat and in cooler microclimates. They suggested that this temperature difference might also help account for the greater diversity of lizards in these areas. They said that our high summer temperatures can limit lizard foraging activity to only one hour a day and that even a small decrease in temperature may allow lizards extra time to forage for food before they need to seek shelter.

For those of us eking out an existence in the more modest (and often hotter) areas of town, we usually only have two species of lizards in our smaller backyards: the native, diurnal Ornate Tree Lizard that finds shelter in our cinder block walls and the non-native, nocturnal Mediterranean Gecko that comes out at night to hunt insects around our patio lights. Mediterranean Geckos were likely inadvertently introduced to

Phoenix and other warm-weather areas of the world when they (or their eggs) were transported here in potted plants. Unlike our native Banded Gecko that is terrestrial, the Mediterranean Gecko is a climber, and is mostly found in the more urbanized parts of town.

The most commonly seen native lizard in town is the Ornate Tree Lizard. These are the little guys scurrying around on your cinderblock walls on warm mornings hunting insects. For the longest time I incorrectly assumed that if tree lizards were so abundant and widespread in Phoenix area backyards, they must also be one of the most common lizards in the open desert areas outside of town. Not so. In fact, the ASU surveys found no tree lizards at all in the flat, dry, open desert areas just outside of Phoenix. Tree lizards need vertical habitat such as trees and large boulders that are mainly found in wooded areas along our rivers or in rocky areas such as South Mountain. Fortunately for tree lizards our landscape trees, cinder block fences, tile roofs and stucco walls are almost perfect substitutes for their natural habitat, providing niches for foraging, sunning, egg laying, and escape cover. Unintentionally, we likely have increased the numbers of at least this one native lizard species as a result of urbanization. 🦎

*Tom Gatz has been a MAS member since 1981.*

**Acknowledgement:** Thanks to Brian Sullivan for reviewing this article.

This article previously appeared in *Gatherings*, the newsletter for volunteers at the Desert Botanical Garden.

## Reference

Ackley, J. W., J. Wu, M.J. Angilletta Jr., S.W. Myint, and B. Sullivan. 2015. Rich lizards: How affluence and land cover influence the diversity and abundance of desert reptiles persisting in an urban landscape. *Biological Conservation*. 182:87-92.



*Although well camouflaged when viewed from above, Ornate Tree Lizards do pushups to display their colorful underbellies to attract mates and intimidate rivals. Photo by Jim Rorabaugh*

# Conservation Update

By Mark Horlings

## APACHE LEAP SPECIAL MANAGEMENT AREA

The 2015 Defense Authorization Act required the Forest Service to transfer the land Resolution Copper Company (RCC) wants to mine near Superior to RCC. The Act also directed the Forest Service to designate the nearby Apache Leap escarpment and surrounding lands as a Special Management Area, still within Tonto National Forest but off limits to mining.

The 800 plus acres to be included offer trails for hikers, rockfaces for climbers, and dramatic views for all. Apaches honor the area as a site where warriors chose suicide over surrender to the US cavalry.

Public meetings last year and again in April sketched out the Forest Service's plans and schedule. Access will still be permitted but the number of roads will drop. Cattle grazing will still be allowed on one existing allotment but prohibited elsewhere. Cultural sites will be identified and preserved. Fencing will isolate the Special Management Area from surrounding public and private land. No overnight camping will be allowed. An Environmental Assessment of the Forest Service's plans will be written, published, and approved by December, 2017.

Apache Leap towers a couple thousand feet above Superior, too close even without the mine to qualify as wilderness. Nevertheless, the escarpment offers unique scenery and accessible recreation close to town.

At the April hearing, public questions challenged Forest Service plans to spend five years before isolating cultural sites and to restrict access and recreation. Perhaps the best question simply emphasized what was clear from the map: that the heights of Apache Leap will lie a quarter mile, or at the widest point a half mile, from RCC's mine and the eyesore it will create.

## RESOLUTION COPPER MINE TAILINGS

At public meetings during March, the Forest Service outlined its plans to accommodate the waste from RCC's proposed mine. RCC hopes to cover almost 400 acres of the Tonto National Forest to a depth of 500 feet. The tailings pile will lie just north of Highway 60, visible from the highway and Boyce Thompson Arboretum. MAS members who joined Laurie Nessel's April field trip to this area, or have explored on their own, know that spring 2017 brought an exceptional burst of wildflowers to the area RCC proposes to bury.

MAS, the Arizona Mining Reform Coalition, and others sued after the Forest Service approved test drilling in the tailings area based on a simple Environmental Assessment. The San Carlos Apaches also sued. Oral arguments are scheduled for June 7, 2017. MAS members who can attend to support

our side should contact Mark Horlings at [mhorlings@cox.net](mailto:mhorlings@cox.net) or 602 505-3455 to confirm the date, time, and courtroom address. Court hearings frequently get rescheduled, so please stay in touch.

## VIVA LA VERDE! FILM DEBUTS

VIVA LA VERDE!, a 58 minute documentary film, celebrates the Verde, Arizona's last free-flowing (at least above Horseshoe Dam) river. Filmmakers Gary Beverly and Hugh Denno devoted five years to understanding and filming the river. Their time and attention show.

The stunning scene of the Verde's headwaters and wildlife sets the stage for animated explanations of groundwater, hydrology, and the water cycle. Arizona's lost rivers, the Santa Cruz, Gila, and Salt, get short memorials within an overall positive message. Robin Silver, MAS Vice President, explains how ground and surface waters mingle in nature but remain separated under Arizona law.

Congratulations should go Prescott Audubon Society for its role in nurturing the film. MAS can also take pride in the work of Bob Witzeman, Robin Silver, and others to defeat plans for the Orme and Cliff Dams.

The film stresses the benefits of native plants, household conservation and rainwater harvesting. Many voices - Native Americans, scientists, academics, activists, ranchers, homeowners, and even a mayor - contribute.

At its February meeting, the MAS Board of Directors granted \$1000 to assist in the film's distribution. Groups which want to show the film can make arrangements through VIVA LA VERDE's producers at [www.huemanproductions.com](http://www.huemanproductions.com).

## Grocery shopping?

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

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# Astonishing Adaptations

By Gillian Rice

## ***Beaks, Bones & Bird Songs:***

### **How the Struggle for Survival has Shaped Birds and their Behavior**

by Roger J. Lederer. Portland, Oregon: Timber Press, Inc., 2016. 280 pp., ISBN: 9781604696486, hardcover, \$24.95.

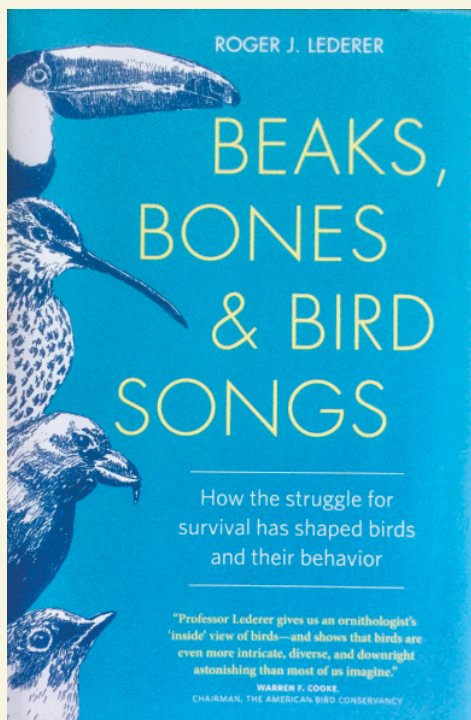
In May and July, starlings squawk and squabble outside my window. I hurry outside to harvest my black mission figs because starlings know when the figs reach the delicious sweet taste of perfect ripeness. How?

In *Beaks, Bones & Bird Songs*, Roger J. Lederer gives me a clue. He explains the unique way that birds perceive the world. Some birds can find food items based upon the amount of reflected UV light. Various fruits contain anthocyanin (a blue, red, or purple pigment,) an antioxidant. As the fruits ripen, anthocyanin levels, the caloric value of the fruits, and UV reflectance all increase. Because the plants evolved to be bird-dispersed, ripe berries signal the bird with UV. Might my figs be sending messages birds can read but I cannot?

The purpose of *Beaks, Bones & Bird Songs* is to describe and illustrate the abilities, adaptations, and behaviors birds use to survive. Lederer interprets ornithological research for a non-scientist, like me. Acute vision is the predominant sense of survival in birds. A starling's eyes constitute 15% of the weight of its head (compared to our eyes at only one percent of our head-weight).

Lederer tells how the sense of hearing is better developed in birds than in any other terrestrial vertebrates. A Great Gray Owl can hear the rustling of a mouse beneath 13 inches of snow. We can learn from birds. While our hearing declines with age and exposure to loud noises because of damage to and loss of sensory hair cells, birds preserve their hearing through regeneration of their hair cells. Scientists are developing methods to regrow ear hair cells in humans.

An innate ability to fly is a survival skill for the majority of birds. Lederer details adaptations that allow birds to fly. These include skeletal adaptations, the breathing process, a bird's metabolic rate and energy usage, muscle adaptations, and feathers. Some birds achieve astonishing feats of flight during migration. Cranes fly twice a year, not around, but over the Himalayas, at 30,000 feet. Bar-tailed Godwits fly nonstop from Alaska to New



Zealand. Scientists using miniature GPS transmitters found that albatrosses could fly for thousands of miles using dynamic soaring<sup>1</sup> with little energy expenditure.

Weather can disrupt birds' lives just as it does ours, but birds cannot retreat to air-conditioned or heated buildings. Birds have adaptations, however, that allow them to respond to a range of temperatures. For example, Lederer points to the Toco Toucan, a tropical South American bird that captures small animals and picks fruit with its huge bill. Another special function of this bill, demonstrated by scientists using infrared thermography, is to radiate heat.

In every ecosystem, each bird species occupies a niche, characterized by the bird's relationships with living and non-living variables in its environment.

These variables include climate, food, competitors, predators, and vegetation structure. While some birds can live almost anywhere (House Sparrow), others have narrow niches (Osprey). Lederer examines how birds of the same species and different species survive in communities. For example, diverse birds forage in unique ways and in specific parts of an ecosystem. When describing this phenomenon, scientists group birds into "foraging guilds."

Reading this book has made me look at birds in a new way. I understand more about their special adaptations and find myself telling friends and family about the amazing things I have discovered. Lederer writes that although the most immediate threat to birds is habitat destruction and degradation, he is optimistic. He gives examples of recent adaptations by birds to increasing challenges posed by humans.

Also, people help birds. Birdwatching is the fastest growing outdoor activity. Most birdwatchers want to incorporate birdwatching into their everyday lives, from observing the bird feeder to looking out for birds during an early morning walk. I agree with Lederer that education is the primary force in encouraging people to protect birds and to be partners with them in their survival. His book is a superb tool in that education process. 🐦

<sup>1</sup> Learn more about dynamic soaring by watching the IEEE video, *Dynamic Soaring: How the Wandering Albatross Can Fly for Free* at <https://www.youtube.com/watch?v=uMX2wCJga8g>

# A Friendly Voice

By David Chorlton

**Birds and Birdwatchers: 100 Brief Essays** by Gerry Rising. CreateSpace Independent Publishing Platform, 2016. 268 pp., ISBN: 978-1537160016. Available at Amazon, \$12.95 paperback, \$6.95 Kindle edition.

Learning about birds for me began as a matter of eavesdropping while hiking trails in Madera Canyon and elsewhere. First I noticed someone stopping, binoculars raised, to look intently at a certain bird, and soon that person shared some information on what he or she saw. Such casual encounters led to conversations the content of which built up over time to a body of knowledge that enhances my experiences today. *Birds and Birdwatchers* works in a similar way, through Gerry Rising's essays. As casual as their tone may be, the

information they convey builds into a set of useful references collected over his eight decades of birding.

The book is a labor of affection and chronicles experiences many of us will recognize, as in this account of viewing turkeys: "One summer morning recently my wife and I had an experience that is becoming increasingly common in Western New York. I had just come into the kitchen for breakfast when Doris frantically

motioned me over to the window. She whispered, "There's a turkey in our backyard." Sure enough, just as I got to the window a big gobbler noisily flapped up over our juniper hedge, its beard barely clearing the top branches." The momentary delight is felt whether the bird is a rarity or not. This is a volume of plain speech that invites the reader to dip in wherever a section heading invites interest and promises an accumulation of insights and information.

If you wonder, for example, how Kirtland's Warbler got its name, you can start with this: "Jared Potter Kirtland was an 18th century Ohio physician whose biological avocations earned him several natural history honors. Kirtlandia, the journal of the Cleveland Museum of Natural History is named for him as are two species, Kirtland's water snake and Kirtland's warbler." On page 238 an essay on botulism begins, with an explanation of the nature and extent of that problem to birds. Elsewhere, we find advice on lighting windows during migration season or points to consider regarding wind turbines and their threat to birds.

Some of the news will be old news to some, such as the reflections on John James Audubon's use of guns to study birds and the happier advent of Christmas Bird Counts and photography, but a reminder of how birding activities have developed is always relevant as we look to the future. The unpredictability of where we are going from one essay to the

next, adds, at least for me, to the pleasure of turning the pages. A nicely illuminated day from way back invokes nostalgia when Gerry Rising as a boy was shown some migrating warblers. "The colors were stunning: yellows, reds, and blues against intricate black and white patterns. And there were twenty to thirty of each kind." This experience proved difficult to replicate, but it did lead the author to tell more about migration and its influencing factors.

All in all, the book is good company, especially for anyone traveling to the author's home region in western New York. 🐦



## Green Scene Puzzle Answers

### Answers to True or False

1. False. Birds have bills instead of teeth because bills are much lighter than teeth. Birds need to be as lightweight as possible so they can fly.
2. True. Many birds' bones are fused together.
3. False. Most birds have hollow bones to make it easy for them to fly. However, diving birds like penguins and loons have dense bones so they can dive and swim under water to find prey.
4. False. A bird's skull is usually less than one percent of its total body weight.
5. True. Birds have knees that bend just like ours but we usually cannot see them.

### Answer to Guess this Bird

Ladder-backed Woodpecker. Woodpeckers peck, probe, and pound against trees to find their food. Why don't they get headaches? Roger J. Lederer, author of *Beaks, Bones & Bird Songs* (see page 18) explains three reasons. First, the skull is a sponge-like matrix of bones that helps to absorb blows. Second, the lower jaw bends a little, reducing the shock. Lastly, the hyoid bone (a bone to which the tongue connects) acts like a seatbelt, preventing excess movement of the bird's head. New helmets for Army tank drivers and bicyclists are being designed based upon this woodpecker characteristic.

### Answers to Dem Bird Bones Crossword

#### ACROSS

3. wishbone
4. Wandering Albatross
8. muscles
9. dense
10. struts
11. airspaces

#### DOWN

1. hollow
2. shoulder blades
5. giraffe
6. resting
7. feathers



# Disappearing Dark Skies

By Robert Hobbins

Light pollution is a pervasive worldwide problem. Yet except for research academics, professional astronomers, and some environmental groups, few know this term and its effects.

Artificial light at night includes streetlights, communication towers, flood lights, office buildings, electronic billboards and other man-made night lighting. Light pollution is any negative effect of artificial light at night and includes glare, light trespass, decreased visibility, and energy waste. Light pollution is a growing regional and international problem. Eighty-three percent of the world's population live under light-polluted skies and one-third have lost the ability to see the Milky Way at night (Falchi et al., 2016).

In the US, these numbers are even worse: 90% of the US population lives under light-polluted skies and 80% have lost the ability to see the Milky Way (Falchi et al., 2016). Figure 1 is a map of artificial night sky brightness in North America and Figure 2 shows the amount of night sky brightness in Arizona. Not many remote areas remain where we can escape to experience a pristine dark night sky.

Artificial lighting is increasing worldwide at a rate of six percent annually (Hölker et al., 2010). Benefits include increased working hours, night-time sports and recreation, and road safety. However, these benefits come at the cost of negative ecological and biological effects on humans, animal, and plant life (Rich and Longcore, 2006).

Migratory bird fatalities due to collisions with brightly-lit structures at night is one well-documented example of the adverse ecological effects of artificial light. Under foggy and overcast conditions, migratory birds often get disoriented because they lose navigational cues such as the stars and moonlight (Avery et al., 1976). While disoriented they become attracted to and collide with brightly-lit structures. Longcore et al. (2012) estimate the number of avian fatalities due to collisions with communication towers is 6.8 million fatalities per year. Longcore et al. (2013) found that passerines constituted 97.4% of all deaths at communication towers in the central and eastern US, with the greatest proportion being warblers (Parulidae, 58.42%), vireos (Vireonidae, 13.4%), thrushes (Turdidae, 7.7%) and sparrows (Emberizidae, 5.8%). Longcore et al. (2013) also found that thirteen of the twenty most frequently killed bird species by percent of population are identified as endangered or Birds of Conservation Concern.

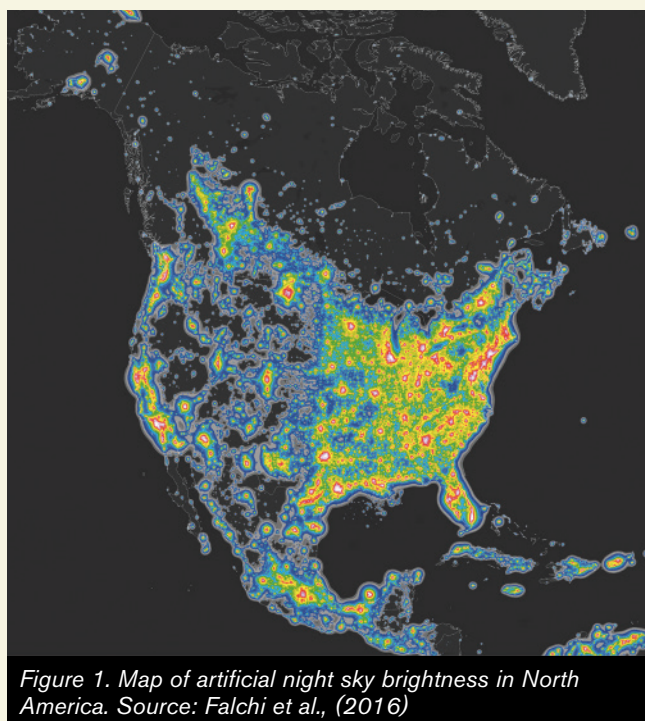


Figure 1. Map of artificial night sky brightness in North America. Source: Falchi et al., (2016)

Figure 3 shows the distribution of annual species mortality by species population size. Proper design of communication tower lighting at night is essential for the health of many species of migratory birds.

In September 2016, a diverse group of stakeholders met to discuss and plan for the conservation of Arizona's pristine dark night skies. Representatives from city planning departments, parks and recreation departments, the astronomy community, ecologists, sustainability scientists, tourism professionals, and other concerned citizens discussed this problem from social, ecological, technological and political perspectives to assess the issues and propose

sustainable solutions. Participants shared their understanding of light pollution and its impacts during the meeting. From this, I developed various diagrams showing "mental models of light pollution" that mapped the relationships between ideas and words mentioned by people with different backgrounds (an astronomer or an ecologist, for example).

I combined all of the participants' mental models into a master conceptual model of light pollution (Figure 4). This master model shows that light pollution and artificial lighting

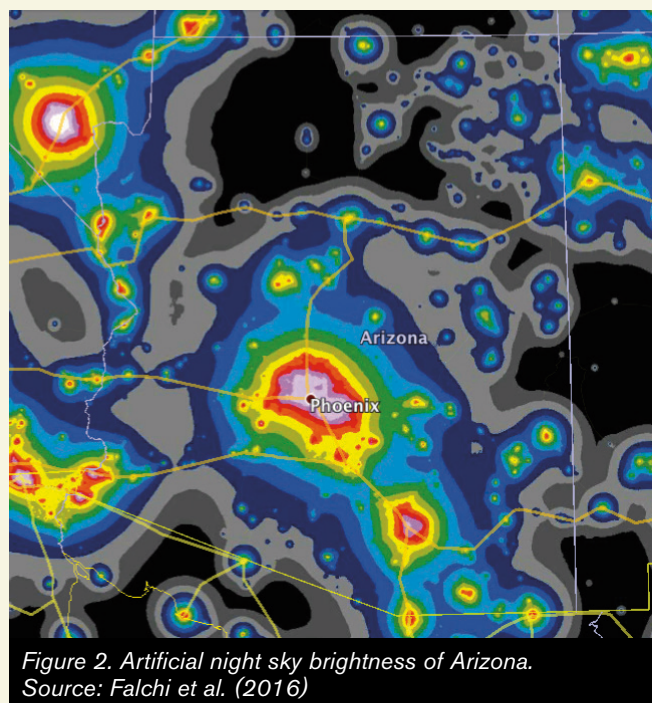


Figure 2. Artificial night sky brightness of Arizona. Source: Falchi et al. (2016)

is a complex problem including trade-offs between governance, human health and wellness, technology, ecology and nature, economics, and astronomy. The problem cannot be considered as just an ecological problem, an energy problem, or an astronomy problem. In order to curb light pollution in our state, we must work together across academic, business, community, and political sectors to weigh the costs and benefits of potential solutions to this growing problem. The master model developed during my study may be used by diverse stakeholder groups to decide how to work collectively to create solutions for the preservation of this resource.

I encourage members of the Maricopa Audubon Society to get involved in helping our state to find sustainable solutions. Individually, as a homeowner or business owner, you can take steps now to help. These include: (1) light only what you need, (2) use energy efficient light bulbs and only as bright as you need, (3) shield and direct lights down, (4) only use light when

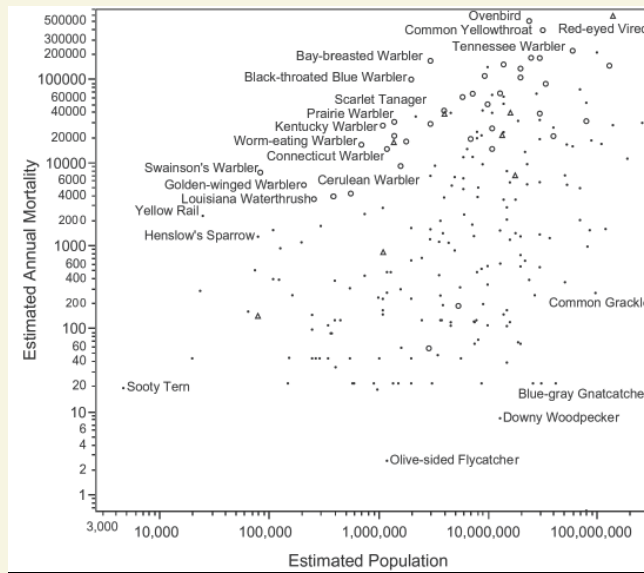


Figure 3. Relationship of estimated population size of bird species killed at communication towers to estimated annual mortality at communication towers. Circles represent warblers and triangles represent vireos (Longcore et al., 2013, p. 416).

you need it, and (5) choose warm colored lights. Lastly, as light pollution is not a very well-known problem, simply sharing this information with others to raise awareness will go a very long way in helping to mitigate its effects. 🐦

For additional information on the Phoenix Area Chapter of the International Dark-Sky Association see: <https://www.facebook.com/idaphoenixarea>

Robert Hobbins is a PhD student in Sustainability at Arizona State University where he studies urban resilience to extreme weather events. He recently completed his Master of Science in Sustainable Community Development at ASU. This article is a result of his master thesis research. Robert also is the

director of the Phoenix Chapter of the International Dark Sky Association.

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Figure 4. Master model of dark skies. Included are the four top-mentioned concepts for each factor. Source: Hobbins (2016)



# Nature through the Artist's Eye: Neil Rizos



Neil Rizos in the Alps with the Northern Bald Ibis.

A professional artist for more than 25 years, Neil Rizos has lived and worked throughout the Americas and Europe, from the tundra to the tropics. Currently, he calls the Phoenix area home. He has studied raptors in Montana with the US Bureau of Land Management; Harris's Hawks in the southwest with the University of Arizona; migratory birds in Alaska with the US Fish and Wildlife Service; and has participated in other bird studies with public and private organizations in North America and Europe.

Rizos works in a wide variety of media - painting, printmaking, drawing and sculpting. He explains: "I look at the media I use as a visual artist as being equivalent to spoken languages; each has unique strengths and expressive qualities that serve my specific artistic intention."

Rizos is a member of The National Arts Club, The Salmagundi Club, and Allied Artists of America. Notable professional recognition includes the Allied Artists of America Gold Medal of Honor, for his etching, *DeWinton's Pool*, and the Marilyn Newmark award for his bronze sculpture, *Marbled Godwits*. He has been awarded numerous artist residencies, both in the US and abroad. Rizos' etchings are featured in the book, *The American Sporting Print: 20th Century Etchers & Drypointists*, which includes work by Frank W. Benson and Carl Rungius, among other prominent artists. His work is in The United States Library of Congress Permanent Collection, The Southern Alleghenies Museum of Art, The Acadian Museum, Quebec, Canada and other public, private and corporate collections internationally.

Rizos will have a solo exhibition of his

artwork at the Roger Tory Peterson Institute, in Jamestown, New York, September-December, 2017.

Neil says: "Artists' statements can shed light on technique and possibly a thought process, if present, but Art is neither an analysis of means nor a statement of ideas; it is an experience of union with the boundless, ineffable mystery that is life. I invoke the authority of Georges Braque who said: 'There is only one valuable thing in art: the thing you cannot explain.' Great art and its power to engage remain vital across time and space, while very little commentary persists beyond the mind of the author." 🐦

See more of Neil Rizos' work at [www.rizosart.com](http://www.rizosart.com) and [www.birdjournaling.com](http://www.birdjournaling.com)  
Email: [neil@rizosart.com](mailto:neil@rizosart.com)



**Shorebirds at Dusk**

Woodcut, 8" x 8"

I approach the medium of woodcut as the visual equivalent of haiku. A few carefully chosen words create the doorway to an experience in the wordless realm.



**Marbled Godwits**

Bronze on Walnut base (turntable). L18" x H13" x D13" (Life Size)

I spent two weeks in Southern California at the Los Angeles Museum of Natural History, the Western Foundation of Vertebrate Zoology, and of course, the beach, researching Marbled Godwits. The result is this bronze sculpture of a pair of Marbled Godwits.

Most of the time, Marbled Godwits move rapidly, searching for food. This constant movement and the beautiful, ever-changing shapes of their form are an exciting part of experiencing these birds in the wild. The movement of the sculpture is based on the circle and the contrasting lines of the legs and bill. So it may be enjoyed from all perspectives the sculpture is mounted on a walnut base turntable.

This big cinnamon-colored sandpiper breeds in the northern Great Plains in summer. When it leaves the prairies, the Marbled Godwit goes to coastal regions from California and New Jersey southward and along the Gulf coast.



**White-faced Ibis**

Charcoal 12"x16"

I do a great deal of drawing - mostly charcoal or ball point pen - because I believe drawing to be the necessary foundation of representational painting and sculpting. I frequently draw live birds, which is a good challenge and reveals opportunities for growth in both technique and observational skills. It is very effective training for seeing and accurately drawing the essential characteristics of the subject - something I emphasize in my bird journaling workshops.





### Cottontail Rabbit

Drypoint, 7" x 5"

I was struck by the natural dignity of this creature - how it fulfilled its role in the great order of things - without objections. I thought it was at least as worthy of a formal portrait as any Burgermeister or great leader.

What is a drypoint?

A drypoint is similar to an etching, but the lines are simply scratched into the copper plate manually, without the use of acid. The characteristic quality of a drypoint print is a soft line, somewhat similar to an ink pen on moist paper.



### Nashville Warbler

Oil on linen, 9"x12"

Warblers are challenging not only for bird watchers - they also present real challenges for artists. Warblers are elusive, well camouflaged, and almost never remain still, so having an encounter that leaves an emotional impression and affords the opportunity for meaningful drawings and photographs takes extra effort. In terms of art, rather than picture making or illustration, orchestrating the visible and invisible elements of my experience into a single, intentional "symphony," is particularly demanding given the many subtle harmonies and contrasts of a bird, its environment, and my encounter with them.



### Chickadee & Milkweed

Drypoint, 4" X 5"

I've avoided chickadees as a subject for my artwork because they are so cute that almost any image would be appealing no matter the quality, or lack of quality, of the design. But when I saw one on a dried milkweed, the similarity of shapes, sizes and values between the bird and the plant provided the design foundation I was looking for to make it more than a rendering of an admittedly cute little bird. All that aside, they are irresistibly charming creatures and that's a big part of what the print is about.



### Spring Morning - Gambel's Quail

Bronze on Walnut base (turntable). L10 x H11" x D8" (Life Size)

This life-size sculpture of a pair of Gambel's Quail was inspired by my frequent encounters with these beautiful birds in Arizona and California. They are abundant and it's always exciting to see them - especially in early spring during courtship and later in the season, caring for their young. Enchanting and amazing creatures!



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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](http://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.

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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](mailto:editor.wrendition@yahoo.com)

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