

THE ARIZONA WILDLIFER

2020 Issue 2

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Spring Edition

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The President's Message



2020 AZTWS President Andrew Jones with his daughter Emma and son Eli.

The world looks a bit different than it did the last time we wrote to you. The COVID-19 pandemic has certainly changed the course of business and home life, and I hope that you and your loved ones are staying safe and healthy during these unprecedented times.

That said, for my first letter as President of the Arizona Chapter of The Wildlife Society (AZTWS), I wanted to share some thoughts with you on how you can contribute and be involved in our organization. Even in these trying times, we will remain strong and agile, but it will take work and investment from us all.

I have worked for the Arizona Game and Fish Department (AGFD) as a research biologist for a little over ten years. Although I am certainly not the most tenured employee of the Department, I have been around long enough to have known and worked with many great people who, over the years, have moved in, around, and out of the Department. Occasionally, I'll get into a conversation with another Department employee and we'll start discussing some particular person we both know. We share field work stories, where that person is now, what they do, and who moved into their position after they left. After each one of these conversations, I tend to reflect on the idea that even as people move in and out of positions, the Department continues to run. At first, that continuity seems obvious. After all, the position of State Game Warden was created in 1912 and the Arizona Game and Fish Commission was established in 1929. However, I find it remarkable that the Department continues to function while the building blocks of the organization—the people—are constantly moving. I've come to realize that an organization does not exist in and of itself but rather because of good people committing their time, efforts, and talents to the organization's mission.

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Presidents Message cont...

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Similar to the AGFD, AZTWS is an organization with a long history. AZTWS was founded in 1968, 31 years after The Wildlife Society itself was founded by Aldo Leopold. We also have a strong mission: to be the preeminent resource for Arizona's community of scientists, managers, educators, students, technicians, planners, and others working to manage and conserve wildlife and habitat in the state. Just as I have worked alongside many dedicated people in AGFD, I have served with many passionate and hard-working people contributing their time, effort, and talents to AZTWS. To maintain the strength of AZTWS and fulfill our mission, we need *people* to make our organization work. We need people to step up and answer the call for help when asked. We are all busy professionals leading crowded lives. It is my sincere hope, however, that you find a way to contribute your time and talents to our organization. We need you. There are so many different ways to contribute to AZTWS that not only support and maintain our Chapter but help to grow and strengthen AZTWS.

So how can you get involved?

- **Open emails from AZTWS.** I know. I'm inundated with emails and you're inundated with emails. But this is the easiest way to maintain a connection with our Chapter, and it's a quick, easy way to stay current on Chapter business.
- **Read our quarterly newsletter, *The Arizona Wildlifer*.** We produce a great newsletter and I am continually impressed by the submissions we receive. *The Arizona Wildlifer* is a fantastic way to become familiar with projects, people, news, and events of which you might not otherwise be aware.
- **Submit an article to *The Arizona Wildlifer*.** No matter if you're an undergraduate student, graduate student, or

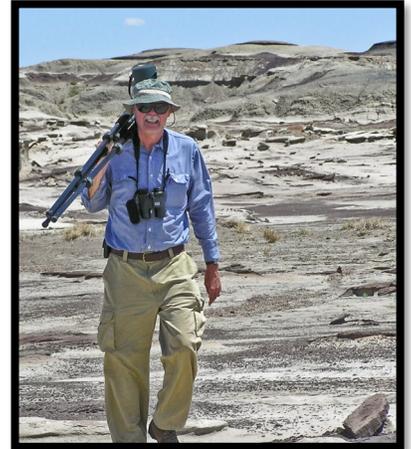
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Regional News:

Southwest Section Tracks

By Jim Ramakka
Southwest Section Representative

The Wildlife Society Council held its Spring meeting in Omaha, NE, on March 8–9, 2020, just before the start of the 85th North American Wildlife and Natural Resources Conference. The day after the Council meeting ended, I had the opportunity to sit in on an excellent workshop titled “Wildlife Conservation on Private Lands: A National Discussion.” Carter Smith, Executive Director of the Texas Parks and Wildlife Department, gave a great lead in to the title theme while introducing the other speakers. Those speakers discussed key issues including the following:



- The importance of private lands in supporting 75% of the wetlands and endangered species habitats.
- The need for building relationships and trust between private habitat owners and agency biologists, including assisting landowners with financial incentives that could be incorporated into their existing business plans.
- The importance of engaging with large, often absentee, landowners.
- The key role private lands play in ecoregional planning for bird conservation.
- The need for universities and agencies to provide students and early career professionals with the cultural and interpersonal communication skills needed to be effective when interacting with private landowners, including farmers, ranchers, and foresters.

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Presidents Message cont...

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professional, if you don't publicize and advocate for the work you're doing, no one else will! So use *The Arizona Wildlifer* as a means to promote yourself and your work!

- **Encourage someone else to submit a newsletter article to *The Arizona Wildlifer*.** If you are an advisor or supervisor, encourage your students or staff members to submit an article. It is great writing practice, good professional development, and a way to mentor and bring early career professionals into the fold.
- **Vote in the Board Elections.** Personally, I believe that you should vote any time there is an election for anything. It does not matter if it is an election for President, state senate or house, county sheriff, school board, or the Salt River Water User's Association. If you have the opportunity to vote, you should! The AZTWS board positions are no different—please vote!
- **Draft a public comment letter or editorial letter on a wildlife management, natural resources management, or wildlife profession issue that you care about, and submit it to the Executive Board for us to consider signing on.** We can submit public comments, write editorials, or provide information on how a particular issue may affect natural resources management or the profession of wildlife management. In the past, the board has submitted public comments on issues such as National Monument designations and signed on to a comment letter related to the Interstate 11 Tier 1 Draft Environmental Impact Statement. However, there are many more conservation and natural resource management issues than the Executive Board could possibly address, submit public comments on, or

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Regional News:

I could personally relate to many of the points raised, especially the last issue. When I was an undergraduate wildlife major, many of my classmates and I discussed being raised on farms and helping our parents try to make a living on the land. A large segment of today's students do not fit that profile. Over the years, I found that my early experiences made it easier for me to understand and relate to the farmers and ranchers who held lands and vital riparian areas adjacent to managed public lands. Effective, integrated land management across ownership boundaries entails building trust and cooperation requiring interpersonal communication skills that may not come easily to some people in our traditionally introverted profession. Understanding the economic drivers of land management, strategies to assist members of the public, and being aware of the frustration and distrust of government programs in some local cultures may seem peripheral to members of the Southwest Section who work on public lands. However, if efforts to conserve and manage our wildlife resources for the long term are to succeed, we need to find ways to partner with all of the players on the landscape.

Presentations from the workshop will be published and made available sometime later in the year. In the interim, I encourage folks to check out a recent copy of *The Wildlife Society Bulletin* (Vol. 43, Issue 3, September 2019) for several papers covering these topics. Likewise, a new book has just been published that should be of interest to those who work directly with private landowners: [Saving Species on Private Lands – Unlocking Incentives to Conserve Wildlife and Their Habitats](#) by L.E. Baier (published by Rowman & Littlefield).

Council Update

Detailed minutes, including Council deliberations, of the Spring 2020 Wildlife Society Council meeting will be available on the [TWS website](#). In the interim here a few highlights of the meeting:

- Minutes of the Special Meeting of the Council, December 9, 2019, were reviewed and approved.
- CEO Ed Thompson presented an update of FY20 budget and investment fund balances through De-

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Presidents Message cont...

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write op-eds and letters to the editors about. So if there is a particular issue in which you are interested and invested, contact us! In particular, you can contact [Samantha Novotny](#), our Conservation Affairs Chair.

- **Serve on the JAM planning committee or volunteer at the JAM.** The Joint Annual Meeting (JAM) is one of the things that AZTWS, NMTWS, and the AZ/NM Chapter of the American Fisheries Society does best. But it requires a lot of work and a lot of people. There is always a need for presentation moderators, poster judges, student presentation judges, abstract reviewers, someone to work the swag table, someone to help load presentations, and on and on. You are already planning on attending the JAM, so volunteer to help with a task. The help is invaluable, and I guarantee that you will have a more rewarding JAM experience by getting involved. Planning usually begins in October, so mark your calendar and contact us to see how you can help.
- **Buy some AZTWS swag.** We have great swag and the proceeds go to supporting [travel grants and continuing education grants](#). We are working on making swag purchases available online through our website, so you don't have to wait around for the annual JAM meetings to make purchases.
- **Wear your AZTWS swag.** You are a member of AZTWS, and you should show it with pride!
- **Encourage someone to become a member.** It's only \$6.00 and you do not have to be a member of the parent society to be an AZTWS member. Encouraging someone to join the Chapter is a great way to recruit new members.

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Regional News:

ember 31, 2019. TWS ended the year in a strong financial position. There is a budget surplus as a result of higher than expected attendance at the Reno meeting, actual expenses being lower than expected, several large donations and bequests from members, and good investment performance.

- Volatility in the financial markets in the last month and the potential impact to TWS investments were a topic of considerable discussion. At this time, no change to current investment strategy was decided upon. The Permanent Reserve Fund contains enough funding to provide a safety net for six months of operations if a worst-case scenario occurs. The potential loss of deposits caused by cancellation of a future meeting due to unusual circumstances, such as the current COVID-19 coronavirus situation, is a point of concern being monitored by the finance committee.
- The Western Section contacted Council regarding an issue related to the Annual Meeting scheduled for Louisville, KY, as well as potential future locations in states that appear to have discriminatory laws or regulations. California and five other states ban the use of state funding for employees, including university employees, to travel to such states. TWS President White is working with other members of Council to further clarify TWS Anti-discrimination and "All are Welcome" policies in the venue selection process.
- Conference planning is a 3-year long process requiring negotiations with hotels and vendors to ensure best available rates to keep registration costs as low as possible. As much as possible, the planning process attempts to consider members' concerns. The 2021 TWS Annual Meeting will be held in Baltimore, MD, and the 2022 meeting will be in Spokane, WA.
- Developing a structure to apply for Council Action Fund funding was discussed and will undergo further committee review.
- Council members agreed there is a need for increased coordination with the Native American

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Presidents Message cont...

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- **Leverage AZTWS as an organization to help you accomplish a goal.** Perhaps you need to get the word out about a Bio-Blitz or are looking to raise awareness about a local conference. Let us help you through our network! Leveraging AZTWS to help you accomplish a goal also includes applying for a continuing education grant or travel grant.
- **Let us know how the Chapter can serve you, especially students.** We annually host a Techniques Workshop that provides invaluable hands-on experience with field techniques. Let us know your idea for new workshops, membership meet-ups, guest lectures, or other ways that the Chapter can assist students and early career professionals. Also, regularly check the opportunities report on our website—we routinely post volunteer opportunities and job postings.

Overall, your willingness to engage in ways both large and small makes our Chapter a stronger organization, which in turn bolsters the wildlife management community and the natural resources we care about. I am excited to serve as your President for the coming year, and my aim is to engage our membership in order to strengthen our organization. I hope that our membership is also excited to engage with AZTWS and answer the call when asked! I also hope that during this pandemic you and your loved ones are staying safe and healthy. One of the duties of our Chapter is to help others when the need arises, so please feel free to reach out to myself or the [Board](#) if you need any help during these trying times. Thank you for your membership and involvement in the Arizona Chapter of The Wildlife Society and I look forward to working with everyone over the coming year!

Sincerely,

Andrew Jones
AZTWS Chapter President

Regional News:

Fish and Wildlife Society. Unless cancelled, Vice President Gordon Batcheller is planning to attend the NAFWS meeting in Miami in May and will explore interest in NAFWS becoming a TWS Conservation Partner.

- A list of outstanding nominations for the TWS Fellows Award and Group Achievement Award was reviewed and voted upon. Results will not be announced to the full membership until the recipients have been contacted.
- CEO Thompson reported on alternatives regarding the present TWS Headquarters building in Bethesda, MD. Leasing alternative office space closer to Capitol Hill is prohibitively expensive. Retaining the existing office space will be a continuing expense of approximately \$50,000 per year. Sale of the larger portion of the existing office space while retaining a smaller workspace in the building would reduce owners' association fees considerably and net TWS a profit on the sale. Those funds could then be added to existing accounts or investments. Council authorized TWS staff to continue pursuing formal appraisal and assessment of potential buyer interest.
- After two days of discussion and adjustments, the FY21 Operations Plans and Budgets were approved.

As a last note, I serve as the Chair of the Jay N. "Ding" Darling Memorial Award for Wildlife Stewardship Through Art. I want to remind everyone that nominations for the award will close on May 1. Please consider nominating worthy artists or organizations or programs that use art to further wildlife stewardship or education. Full details of the nomination process can be viewed on the TWS website [<https://wildlife.org/jay-n-ding-darling-award/>].

As always, please feel free to contact me with any questions or comments.

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Our Neck of The Woods...

Shedding Light on Snake Stress: Helping to Conserve Narrow-headed Gartersnakes

By K. K. Lauger

The Southwest is not well known for its waterways; riparian areas can be few and far between but are all the more special because of their irregularity. Finding clear, cold water at the base of sunbaked cliffs or in the midst of dry rolling hills feels like being transported to an entirely different and unique place. The wildlife in these habitats are equally as unique and iconic, such as the narrow-headed gartersnake—a charismatic species that is very different from the gartersnakes people are used to seeing in their gardens. These snakes have elongated snouts, round eyes oriented near the tops of their heads, and spots running down their bodies that ripple like sunlight when they're underwater. They are piscivores (fish-eating specialists) strictly tied to the cold-water stream areas along the Mogollon Rim of Arizona and New Mexico that they call home. Many people who frequented these waterways have stories of lounging by the creek and watching narrow-headed gartersnakes hunt in riffles or snatch fish from the base of waterfalls. The people with these stories also say they miss seeing narrow-headed gartersnakes—their numbers have been declining across their range since the 1980s.



Oak Creek in north-central Arizona. Credit K. Lauger.

The rapid decline in narrow-headed gartersnakes is likely the combined result of multiple issues. These include introduction and prevalence of non-native species, such as crayfish, sport fish, and bullfrogs—which may reduce success of baby (i.e., “neonate”) snakes; unregulated recreation in the streams they occupy—which can negatively impact habitat and water quality; and increased frequency of intense, large-scale wildfires that can destroy habitat and populations. The 2014 Slide Fire had the potential to extirpate an important population of narrow-headed gartersnakes in Oak Creek, Arizona,

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so scientists and volunteers banded together to collect 11 snakes from the creek as a precaution should the worst occur. Those 11 snakes went to an *ex situ* (i.e., away from the wild) [recovery program](#) established at Northern Arizona University (NAU). Despite some initial husbandry successes at NAU with a cohort of narrow-headed gartersnakes born in captivity and provided in 2010 by the Phoenix Zoo—a conservation breeding program partner—there was a learning curve in managing the wild-caught individuals, which turned out to be especially sensitive in captivity. These new gartersnakes frequently got sick, despite NAU staff taking biosecurity precautions, and not all individuals readily reproduced. While we did our best to care for the gartersnakes, we also wondered why the snakes were displaying these symptoms and began to consider chronic stress as a potential culprit.

The term “chronic stress” likely brings to mind very different concepts depending on who you are, but hearing the word “stress” in reference to snakes is probably bizarre for most. I’m not referring to a snake being worried about paying the bills or dealing with traffic at rush hour. Rather, the physiological response that makes us feel “stressed” in certain circumstances is shared across species, from fish to birds! So the “chronic stress” I am referring to is when the physiological stress response happens too often or for too long. Chronic stress has previously been connected to problems with immune function and reproduction, making it an important avenue to investigate in species that show susceptibility to illness and low reproductive success. Previous research suggests that some aspects of captivity like enclosure type, temperatures, and human presence could be stressful to snakes. On the other hand, plenty of snakes live in captivity and are perfectly healthy and stress-free. So the question becomes: How can you tell if a snake is stressed out?



Assessing a wild narrow-headed gartersnake from Oak Creek. Credit K. Lauger.

The most common indicator of physiological stress in reptiles is the hormone corticosterone, which is typically elevated during stressful situations but also normally fluctuates across age, sex, and seasons, as it plays a large role in energy mobilization. Although most studies have measured corticosterone from plasma, I took an alternative route during my Master of Science program at NAU and measured the hormone in shed skins to avoid handling the snakes for blood samples. I looked at corticosterone levels across seasons, between sexes, among ages, and in response to potentially stressful situations in captivity such as handling during body measurements and

health assessments. I found corticosterone does vary with age and season in narrow-headed garter-snakes; neonates had higher levels than adult and yearling snakes, and levels were highest in the fall for adults and juveniles. These findings likely reflect normal fluctuations in corticosterone that allow for effective energy mobilization depending on demands related to growth and season. I also found that corticosterone is significantly higher when snakes were handled for care procedures (outside the scope

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of regular feeding) than when they weren't—meaning that they do have a stress response when disturbed, even if it is necessary to keep them healthy.

This can be helpful information for narrow-headed gartersnake recovery programs, which are striving to aid in conservation of the species. We can't leave the snakes completely alone while they're in our care. Taking measurements, weights, ultrasounds, and moving snakes to clean enclosures are absolutely necessary while animals are in captivity—not only to keep the animals healthy but to collect important data about the species to further inform conservation action. My results suggest that we



should be mindful about how frequently we perform care that requires disturbing them—minimizing unnecessary handling while maximizing opportunity for learning. Understanding the influences of chronic stress can help make more informed decisions for timing necessary health procedures and collecting data to achieve recovery program goals.

I'm happy to report that the narrow-headed gartersnakes at NAU have been doing much better since the first wild gartersnakes arrived from Oak Creek! These individuals have produced more than 30 neonates since their first successful litter in 2017 and are currently healthy and well cared for. As these recovery programs continue to learn and grow, I have hope that the narrow-headed gartersnakes can be preserved for future generations to appreciate and could once again be a common sight in the beautiful places they inhabit.

Mature and neonate narrow-headed gartersnakes. Credit K. Lauger.

Meet the 2020 AZTWS Executive Board!



Andrew Jones, President

Andrew Jones was born and raised in Wyoming, attended undergraduate school at Washington State University, and earned a Master's degree from Northern Arizona University. Andrew worked as a lead biologist for the Research Branch of Arizona Game and Fish Department (AGFD) from 2009–2018 where he studied the impacts of off-highway vehicle use on kit fox habitat selection, mountain lion foraging behavior, and predator-prey dynamics of desert bighorn sheep and mountain lions. Andrew then moved into the Game Program Data Manager position for the AGFD from 2018–2019. Currently, Andrew is the Terrestrial Research Branch Program Manager for AGFD. In this capacity, Andrew

oversees research projects that aim to provide information and guidance to Department managers. For AZTWS, Andrew served as Treasurer from 2016–2018 and President-elect in 2019. In this capacity, he assisted with budget and spending requests, JAM planning, and serving on the Continuing Education Award committee. Andrew's motivation for the President position reflects his belief that the Chapter can continue building on the work of past-presidents and current board members that includes hosting informative field techniques workshops, organizing the JAM, participating in bio-blitz efforts, and serving as a resource to current and future members of the wildlife management community. He likes to spend his free time with his wife Haley, daughter Emma, and son Eli.

Ho Yi Wan, President-Elect

Ho Yi Wan was immediately drawn to the impressive beauty of Arizonan landscapes when he moved to Flagstaff to pursue his Ph.D. at Northern Arizona University in 2014. The many epic days and nights traversing and camping in the majestic Grand Canyon and the endless ponderosa pine stands gave him boundless joy and an ever-increasing appreciation for wildlife and nature. Ho Yi will always cherish the exhilarating memory of his brief encounter with a curious mountain lion while conducting Mexican spotted owl surveys near Phantom Ranch on a cold dark night. Thrilling experiences like this strengthen his determination to actively engage in wildlife conservation and management. Since graduating with a Ph.D. in 2018, Ho Yi continues to reside in Arizona—serving as a research affiliate at the U.S. Forest Service's Rocky Mountain Research Station and an adjunct faculty at Northern Arizona University. Ho Yi produced many publications pertaining to wildlife management in this region, including numerous refereed articles on the habitat of the Mexican spotted owl, which have management impli-



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cations on more than 8.5 million acres of U.S. Forest Service land in the Southwest. Ho Yi joined AZTWS in 2016 to meet others who share his excitement for wildlife. Through AZTWS, he had the opportunity to engage with many students, researchers, landowners, and managers who care about wildlife, and many of them have become his good friends. AZTWS is a professional organization to which Ho Yi feels he truly belongs, and he hopes to share his talents with the society by increasing his involvement in Chapter business. As the President-elect of the Chapter, Ho Yi's priorities are to (1) promote AZTWS's diversity by supporting underrepresented groups, (2) promote the use of science in wildlife management and conservation, and (3) empower the next generation of scientists and students who are interested in pursuing a career in wildlife management. Ho Yi is thankful for your support and looks forward to serving you!



Haley Nelson, Treasurer

Haley Nelson is the Image Analysis Specialist for the Arizona Game and Fish Department's Wildlife Contracts Branch. She received a B.S. in Applied Biological Sciences with a focus in Wildlife & Restoration Ecology from Arizona State University and an M.S. in Geographic Information Systems Technology from University of Arizona. Haley has been with AGFD since 2014, where she has gained experience in both wildlife biology and information technology. As part of the Department's Highways and Wildlife Connectivity group, she assists with trail-camera image processing and review, aerial wildlife welfare checks and telemetry surveys, and developing process improvement mobile and desktop applications. Haley is excited for another awesome year with the Arizona Chapter of The Wildlife Society!

Emily Scobie, Corresponding Secretary

Emily Scobie is a wildlife biologist with the Arizona Game and Fish Department where she studies and monitors a wide range of taxa, from bats and birds to endangered and invasive flora. She has degrees in Ecology and Geographic Information Systems Technology (GIST) and enjoys getting nerdy with spatial analysis. In her free time, she looks forward to international travel and exploring her hometown of Tucson. She will reprise her role as Corresponding Secretary this year and continue working to streamline the Chapter's processes for membership communication and engagement.



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Kinley Ragan, Recording Secretary



Kinley Ragan is currently completing her Advanced M.S. Biology degree at Arizona State University and will graduate in summer 2020. She currently studies mammal community composition and habitat use through using camera traps in the borderlands. Kinley has been involved with AZTWS for several years, beginning as President of the sister student organization—the Central Arizona Chapter of the Society for Conservation Biology. In this role, she helped revive the student SCB chapter and brought several students to the Wildlife Techniques Workshop in Spring 2017, which is where she first interacted with AZTWS. Since then, Kinley has attended the past three JAMs, including presenting her first poster last winter, and she has volunteered with several AZTWS members in the field. In Spring 2019, she was asked to replace her advisor as Historian for AZTWS

and eagerly filled the position. Over the past nine months, she stepped in as the substitute Recording Secretary and involved herself in various projects to support the Board. Kinley looks forward to continuing her service to AZTWS in 2020 as the Recording Secretary and growing with the mentorship of the Board. Additionally, she is excited to help facilitate communication about all the great things AZTWS will accomplish over this next year.

Holly Hicks, Board Member

Holly Hicks is the Small Nongame Mammals Coordinator for the Arizona Game and Fish Department. Holly's work entails management of Gunnison's prairie dogs, black-footed ferrets, and New Mexico meadow jumping mice and re-establishment of black-tailed prairie dogs. She dedicates her free time to volunteering at Liberty Wildlife helping rehabilitate injured wildlife. In addition, she enjoys the outdoors, running, and traveling. Holly has served on the board of AZTWS in various roles since 2010. She is supportive to students and provides them with opportunities to become successful biologists, which is why she is the Chapter's Student Liaison and Chair for the annual Wildlife Techniques Workshop offered to students and young professionals.



Sid Riddle, Board Member

Sid received an undergraduate degree in Organismal Biology from Auburn University and Master's degree in Applied Biology from Arizona State University. After finishing his thesis work, he worked as a research specialist for Arizona State University examining the linkage between hydrology, riparian vegetation, and wildlife on the Wild and Scenic portions of the Verde River. More recently, Sid joined Arizona Game and Fish Department as an aquatic wildlife biologist where he monitors and studies imperiled fishes, reptiles, and amphibians.

Recap of 53rd Joint Annual Meeting (JAM) of the Arizona and New Mexico Chapters of the Wildlife and Fisheries Societies

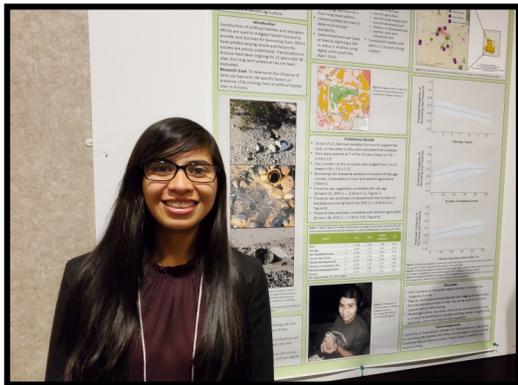
By Andrew Jones,
President, AZTWS

February marked the 53rd Joint Annual Meeting (JAM) of the Arizona and New Mexico Chapters of the Wildlife and Fisheries Societies, held in Prescott, AZ. The Arizona and New Mexico Chapter of the American Fisheries Society did a fantastic job of planning and organizing the JAM. As usual, the event was a great success and well attended by students and professionals alike.

The presentation and poster sessions were fantastic, with a total of 54 presentation and 31 poster abstracts accepted this year. I think the breadth of topics was the best I have ever seen, and I enjoyed sessions that focused on predator/prey ecology, wildlife survey methods, conservation planning, and bats, butterflies, and springsnails. It was also great to see Student Chapters well represented at the quiz



Quiz Bowl always brings a crowd. Credit Jessica Moreno.



Jadzia Rodriguez presents her burrowing owl research. Credit Jessica Moreno.

received this award for her dedication to researching jackrabbit ecology, as well as organizing jackrabbit field surveys, and her dedication to organizing junior jackrabbit hunting camps. Next was the Professional Service Award, which is given to a biologist or a group for outstanding contributions to management and conservation of wildlife, as well as to recognize their professional work standards and conduct. This award was presented to the **Arizona Game and Fish Department Ranid Frogs Program (Tom Jones, Audrey Owens, Christina Akins, Cody Mosely, and Maddie Marsh)** and accepted by Audrey Owens and Christina Akins. The Ranid Frogs Program was given this award for providing out-

management of species. **Maria Altemus** bowl, and I especially appreciated the continued turn-out by the Bosque School from Albuquerque, New Mexico. The Bosque High School students did a fantastic job presenting their research in the poster session and several Bosque students gave presentations as well.

This year, AZTWS presented four Chapter awards as part of the JAM banquet, including the WILDHARE Award, the Professional Service Award, the Doug Morrison Award, and the David E. Brown Lifetime Achievement Award. Our WILDHARE Award is given to a professional wildlife biologist for their contribution to the applying habitat principles to the



Ranid Frogs Program leaps to Professional Service Award. Credit Jessica Moreno.

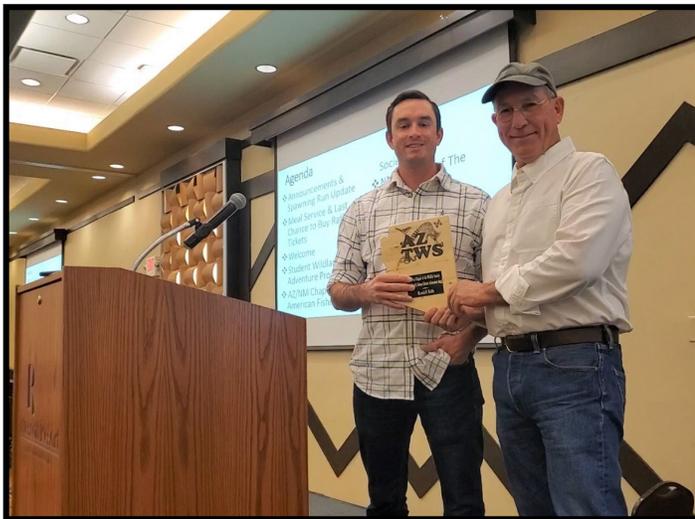
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standing education and practical field experiences to the Applied Herpetology course from ASU Polytechnic. The third award of the night was the Doug Morrison Award, which is given to an Arizona biologist who has made significant contributions to the management and conservation of wildlife in Arizona. **Sue Boe** received this award for her application of GIS analytical skills to research conducted on a wide variety of Arizona fauna. She also plays an integral role in the Arizona Game and Fish Department wildlife connectivity group, where she helps to find solutions to mitigate the impacts of highway barriers to wildlife. The final AZTWS award was the David E. Brown Lifetime Achievement Award, which recognizes an individual for his or her accomplishments in wildlife biology and management over their lifetime. The Lifetime Achievement Award was presented to **Randy Babb**. Randy is a dedicated and accomplished biologist, naturalist, educator, mentor, advocate, author, and artist. His knowledge, devotion, and impeccable communication skills have not only greatly increased our understanding of wildlife and habitats, but have also inspired and empowered numerous people to seek to protect natural resources. We were very happy to have Randy join us in-person to accept this award, and it was a great honor for the Chapter to have the opportunity to recognize a giant of the Arizona wildlifer community!



Sue Boe receives Doug Morrison Award. Credit Jessica Moreno.



Recognizing a lifetime of achievements for Randy Babb. Credit Jessica Moreno.

The Joint Annual Meeting is my favorite conference and this year was no different. The JAM provides us with a chance to gather and network, promote and celebrate each other's work, and learn and grow in our profession. We look forward to seeing you all for JAM in 2021!



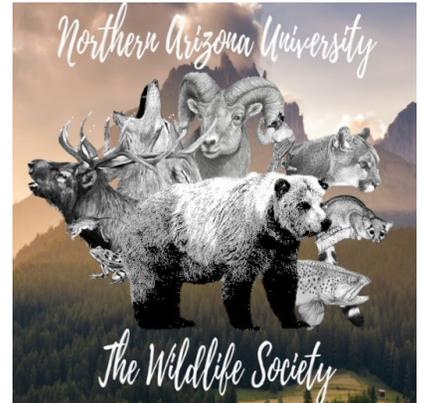
AZTWS President Andrew Jones addresses the crowd during the JAM 2020 reception. Credit Jessica Moreno.

2020 JAM Review

Student Voice

Yazhmin Dozal,
President, Northern Arizona University Student Chapter of The Wildlife Society

Northern Arizona University's (NAU) Student Chapter of The Wildlife Society attended the 2020 Joint Annual Meeting (JAM) along with other student chapters from Arizona and New Mexico. Each chapter gave a summary of what they've accomplished in the last year, including financial and educational achievements. Each Student Chapter President provided updates to AZTWS Business Meeting attendees on current and past events they've been holding at each of their universities. The Joint Annual Meeting is critical in forming professional relationships and building credibility with professionals in the wildlife profession. For example, one of our members, Mariah Letowt, presented her undergraduate research on inter- and intra-vocalizations in Northern flickers. This opportunity to network with professionals within her desired career field would not have been possible if the NAU Student Chapter of The Wildlife Society was not informed of this opportunity and supported financially by AZTWS. Many of the students attending JAM through the NAU Chapter attended multiple talks on mammals, birds, entomology, and ecology. Specifically, there was a presentation on springsnails that expressed the amount of collaboration needed to conduct the research, and I think that is exactly what JAM is about. Without the possibility of meeting with different professionals from other places, it would make research much more difficult than it is because there would be no personal connection between the people needed to collaborate on said research. JAM is also an opportunity for young individuals who are uncertain whether to pursue management, research, or education professions in the wildlife or fisheries career.



The Wildlife Society Annual Conference Louisville, Kentucky September 27–October 1, 2020

The Wildlife Society will be traveling to Louisville, Kentucky, in the fall of 2020 for its 27th Annual Conference. The Wildlife Society (TWS) conference is where wildlife students and professionals meet with their colleagues, present groundbreaking science, and enhance their interdisciplinary skills. This conference is your opportunity to LEARN, NETWORK, and ENGAGE live with other members from across North America and beyond.

Details are available on the [conference website](#).



Scales, whale tales, and Arizona opportunity details

By Brian Blais,

Graduate student, School of Natural Resources and the Environment, University of Arizona

In late September 2018, I traveled to Seattle, WA, to present part of my University of Arizona dissertation research at the annual Association of Zoos and Aquariums conference. Briefly, my research bridges zoo-conservation with field ecology. Specifically, I work closely with the Arizona Center for Nature Conservation/Phoenix Zoo on efforts to better understand and propagate rare Arizona-native gartersnakes to ultimately replenish wild populations. I was able to disseminate parts of my collaborative zoo research and get supportive feedback from fellow peers and zoo professionals at AZA 2018. It was also my first time in the Seattle area—and the Pacific Northwest for that matter. (I loved it there!) I absolutely knew there was one activity I had to budget time for—a marine wildlife ecotour of the Puget Sound. Planning ahead, I made arrangements and selected the Puget Sound Express out of Edmonds, WA, whose experienced crew provided educational materials and an onboard naturalist/wildlife photographer who delivered a wildlife conservation narrative about the importance of marine ecosystems and its species. This was a pleasant treat as we were entertained by marine wildlife facts, diagrams, and stories as we made our way into the Sound. There was also ample opportunity for Q&A between the guests and crew as well as blueberry crumb cake and bottomless coffee—a complete win.



Spouting orca in the Puget Sound with the Seattle skyline in the backdrop. Credit Brian Blais.

We soon came upon a family pod of transient killer whales (*Orcinus orca*). Our timing was perfect and our boat was well positioned to capture the pod's successful hunt sequence of one of the Puget Sound's pinniped species (i.e., seals and sea lions). All passengers were very engaged in watching the spectacle. Little did we know that an even more exciting encounter was soon to come.

After reports of humpback whale (*Megaptera novaeangliae*) activity nearby, we set out towards the southern coast of Whidbey Island. Soon after, we spotted a solitary humpback. Our naturalist got a good glimpse of the tail fluke and matched the pattern to a photograph database (i.e., sight-resight methodology) to identify the individual as “Two Spot,” a male commonly encountered in the area. After a short series of 2–3 surface whale breath exhalations (WBEs: a mixture of vapor, mucus, and other volatile organic compounds), Two Spot gently arched into a fluke dive and remained submerged for approximately seven minutes. Then, after a few sequences of this pattern, something remarkable happened....

While at the surface, Two Spot turned 90° and made a b-line toward us and spent approximately 40 minutes “mugging” around our boat. This term is used when whales approach and interact with a boat. Albeit uncommon, Two Spot has been known to conduct this behavior with boats in the area (see similar stories [here](#)). During his mugging, Two Spot circled our boat so closely that I could smell the salty, methaneous compounds from his WBEs as he spouted. (Fun science side-story—researchers are

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Humpback “Two Spot” creates a rainbow spout. Credit Brian Blais.

and behaviors of this whale also allowed me to notice attached epizoonts and ectoparasites. I was able to photograph at least two genera of barnacles on Two Spot. I observed *Conchoderma* (stalked) and *Coronula* (acorn) barnacles on the lower jaw and middle ventral grooves and more *Coronula* barnacles near the tip of the fluke and the anterior terminal portion of at least one pectoral fin. I also noticed some cyamid whale louse—commensal crustaceans—near anterior follicles on the lower jaw. There was evidence of ring scars on Two Spot’s lower jaw and fins, where *Coronula* barnacles had detached. It is suggested that during mugging events, whales might use boats to help dislodge barnacles.

This uncommon yet close encounter during the ecotour presented an important opportunity: the vivid engagement and interests of the public (i.e., passengers). During the whole engagement, I paused for a few moments to recognize the fascination of everyone on board—passengers and crew alike—as they migrated their awe towards Two Spot. I mean *migrated* literally because each

attempting to use drones to safely and noninvasively capture whale WBEs to learn about individual health and genetics!) As an added bonus, Two Spot spouted at the right time, angle, and conditions to create rainbow effects with his WBEs!

In addition to spouting events, I observed other surface-active cetacean behaviors including “spy-hopping,” “pectoral fin slapping,” “fluke exposure,” and Two Spot even rolled over multiple times in a puppy-like manner to expose his ventral surface (termed “surface float back”). The proximity



Two Spot’s lower jaw had several attached acorn and stalked barnacles between the ventral grooves. Credit Brian Blais.

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time Two Spot circled the boat, passengers would move back and forth—err *port* and *starboard*—to keep their enamored gaze locked on the whale. I deftly picked the lower level, rear corner and stayed put to catch closeups each time Two Spot circled. Even the crew admitted to never experiencing a mugging and soon turned into spectators themselves by grabbing cameras and sharing in the excitement. For that brief moment in all of our lives, it was quite the experience! To this point, studies have shown that whale watchers are more satisfied when sightings are paired with educational communication (e.g., onboard naturalists). Thus, if following sustainable guidelines, conservation-based messages linked to real experiences have the potential to reach broader audiences and deliver greater impacts.



Enamored passengers follow Two Spot as he circles the boat. Credit Brian Blais.



(top) Wildlife professionals—and familiar faces—assess the identification of a netted pallid bat before (bottom) delicately removing it for data analysis and demonstration by the Watchable Wildlife leaders. Credit Scott Sprague.

So how does a marine ecotour in Washington relate to the wild places and animals in Arizona? Easy: the interaction and engagement of people with their landscapes and natural resources. Seeing the passion expressed by the boat crew during lectures, and the enamored reception of the passengers, reminded me of a similar series of events in Arizona. Arizona Game and Fish Department (AGFD) sponsors a [Watchable Wildlife Program](#), in which anyone, of all age groups, can participate in numerous events aimed to educate citizens and foster appreciation towards Arizona wildlife. There are year-round opportunities that encompass everything from bats to bighorn to bison! Some events are very public and aimed at engaging attendees with up-close glimpses, whereas others are more relaxed and can be done on a self-paced schedule, such as bird counting or watching live footage from wildlife viewing cameras.

One particular Watchable Wildlife series—that I've been fortunate enough to volunteer for—are summertime bat-netting workshops throughout central and southern Arizona which are led by Randy Babb, Cheyenne Dubiach, Jeff Meyers, Joe Yarchin, and other wildlife biologists. Essentially, a team of experienced professionals set up mist nets to safely and temporarily capture bats as they emerge for their nocturnal activities. Captured bats are

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brought to the crew leaders, who take important data measurements while telling the gathered participants what they're doing and the values of collecting such information. Participants get close views of the charismatic chiropterans and can ask questions before volunteers release each bat back into the starry night sky. I'm confident in saying that the professionals are just as enamored and excited about the bats as the public participants. Some folks might go their whole lives without seeing a bat and those that do may only see them as blurry, speedy glimmers in a dim night sky—seeing one up close, however, often quells the many myths and misconceptions about these vital creatures. Some insectivorous bats consume over 1,000 insects an hour whereas frugivorous (fruit and nectar eaters) species help pollinate ecologically and economically important plant species. Needless to say, bats are some of the most important and fascinating animals in the world; Arizona is home to nearly 30 species! The folks who help operate these wildlife programs are often jack-of-many-trades biologists and can sprout a story at any moment. For example, during down times between bat captures, Randy has led participants around sampling grounds to see other nocturnal species, such as skunks, snakes, owls, and even some super cool invertebrates like scorpions that glow under UV light. On several occasions, I found myself captivatedly distracted by some of the campfire-esque animal facts and stories that Randy was sharing with the crowd.



A group of pallid bats were found roosting nearby in an old wooden structure...and one that got itself a good [dusting of pollen!](#)
Credit Scott Sprague.

Each time I've volunteered for the bat events, it seems coordinators are consistently being asked bat or animal-related questions from the audience—from both kids and adults. This is evident of how engaged and fascinated attendees are. Personally, I strongly value that there are opportunities and events for wildlife and natural resources communication and education where the public can observe wildlife up close and personal, especially when their interests are so apparently piqued.

To conclude, there are numerous opportunities statewide for everyone from the naturalist newcomer to the experienced professional and all their family and friends. So make sure to check with AGFD and other natural resource organizations, including AZTWS's list of [events and opportunities](#) for you! For the passengers and I aboard that marine ecotour, our up-close encounter with Two Spot imprinted memories and conservation values that will surely last a lifetime. I'm hopeful and excited for others to share in similar experiences so that we can all move forward as grateful stewards for the incredible wildlife biodiversity in Arizona and beyond.

[Editor's note: given current events, we are reminded about associations with bats and diseases—often biased and without empirical evidence. Unjust and opinionated blame undermines important conservation efforts for the global ecosystem importance of bats. Although the COVID-19 situation is ongoing, I recommend Dr. Merlin Tuttle's recent bat-disease publication in [Issues in Science and Technology](#).]

Continuing Education Grants



AZTWS offers \$2,500 annually in [Continuing Education Grants](#) to its members to support education and career goals. Grant requests should not exceed \$500 per application and are limited to current Chapter members only. Membership dues are \$6/year ([Join or renew here](#)). Only one grant is awarded per person, per year.

Applications can be submitted at any time and will be reviewed quarterly. Applicants will be notified within 30 days of the Committee’s review. The Continuing Education Committee evaluates applications based on your explanation of how the activity will enhance your career development, your financial need, your efforts to obtain supplemental funding, and your involvement in Chapter activities.

**Submit Your
Application [Online](#)**



We need articles, stories, updates, and pictures for upcoming newsletters!

The Arizona Wildlifer Deadlines

<u>Issue</u>	<u>Deadline</u>
Summer 2020	Jun 12, 2020
Fall 2020	Sep 18, 2020

Email submissions at any time to aztwseditor@gmail.com.