

Southwest Section Newsletter

Spring 2018 - Vol. 8 Issue #1



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President's Message

Ginny Seamster - 2018 President SW Section of The Wildlife Society

Happy Spring!

I am happy to write this first message to you as the new president of the Southwest Section of The Wildlife Society and welcome the members of our 2018 board. Dr. Tad Theimer, a professor in the Department of Biological Sciences at Northern Arizona University, where he



has taught for over 20 years, is our new President-Elect. Dr. Ryan O'Shaughnessy, an Assistant Professor and Research Scientist with the Borderlands Research Institute in the Department of Natural Resource Management at Sul Ross State University, is continuing as our Treasurer. Dr. Melanie Culver, Assistant Professor and Assistant Leader of the Arizona Cooperative Fisheries and Wildlife Unit at the University of Arizona, is continuing as our Secretary. Dr. Warren Conway, a professor in the Department of Natural Resources Management at Texas Tech University, is our Past President. I am very happy to have such a great team to work with and am looking forward to a good year in 2018! The Southwest Section board has migrated our website to pages on the Parent Society's URL (<http://wildlife.org/sw-section/>).

All hats are off to the Arizona (AZ) Chapter of The Wildlife Society for an excellent Joint Annual Meeting in Flagstaff, AZ back in February. They had great attendance, an excellent slate of presentations, and ran a smooth and enjoyable event. There were many informative workshops dealing with topics ranging from the use of camera traps and mobile apps for data collection in the field to Dr. Erika Nowak's ever-popular venomous reptile handling training. The student-mentor lunch gave many students opportunities to mingle and ask questions of professionals, and there was a well-rounded set of speakers for the plenary session on Friday morning. The AZ and New Mexico (NM) Chapters were proud to give



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President's Message (cont.)

Ginny Seamster - 2018 President SW Section of The Wildlife Society

out many awards at the Friday night banquet, including AZ's David E. Brown Lifetime Achievement Award, which went to Dr. David Patton, a former USFS employee and professor at Northern Arizona University, and NM's Wildlife Professional Award, which went to Dr. Chuck Hayes, the Assistant Chief for the Ecological and Environmental Planning Division at New Mexico Department of Game and Fish. I wasn't fortunate enough to attend the Texas (TX) Chapter meeting this year, but one of the members of the Southwest Section Geospatial Advisory Committee, Jason Estrella, organized a special session on mobile applications (similar to the session he organized and the Committee and Section supported at the parent society's Annual Meeting in Albuquerque, NM in September, 2017). I am certain that the TX meeting was as well-attended and successful as ever!

The primary task for the Southwest Section board this year will be supporting the AZ, NM, and TX Chapters in their preparations for their local meetings in February, 2019. The board is considering starting a student award or scholarship for which wildlife students in any of the section's member states and nations could apply. The board will be refining the requirements and guidelines for applying this summer and plans to release a call for applicants in the fall/early winter. The inaugural award recipient will be announced at both chapter meetings (AZ/NM and TX). The board also hopes to work with the three state chapters to determine whether the section can facilitate information exchange between the AZ/ NM and TX meetings.

The Southwest has all kinds of interesting wildlife issues that it is facing, with concerns surrounding the proposed construction of a border wall and heightened border security measures near the forefront. The Conservation Affairs Committees for the Southwest Section and Western Section have been collaborating on a letter regarding the ecological impacts of the proposed Border Wall and the Texas Chapter has written a resolution. We



Part of the border fence / wall along the US / Mexico boundary.

Photo courtesy CNN.



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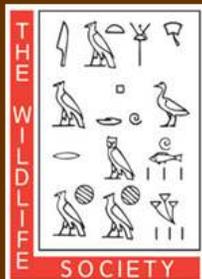
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President's Message (cont.)

Ginny Seamster - 2018 President SW Section of The Wildlife Society

will post the resolution on the new Southwest Section website when it is finalized.

If there is anything related to the conservation and management of the wildlife in our section of the world that you would like to share with the membership in one of our Southwest Section newsletters, please email our newsletter editor Carol Chambers (carol.chambers@nau.edu), we want to hear from you! And if you have any interest in taking over the job of newsletter editor in 2019, please let me know!

Here's to a great spring and summer – talk to you again in the autumn

—Ginny Seamster
Southwest Section President
Virginia.Seamster@state.nm.us

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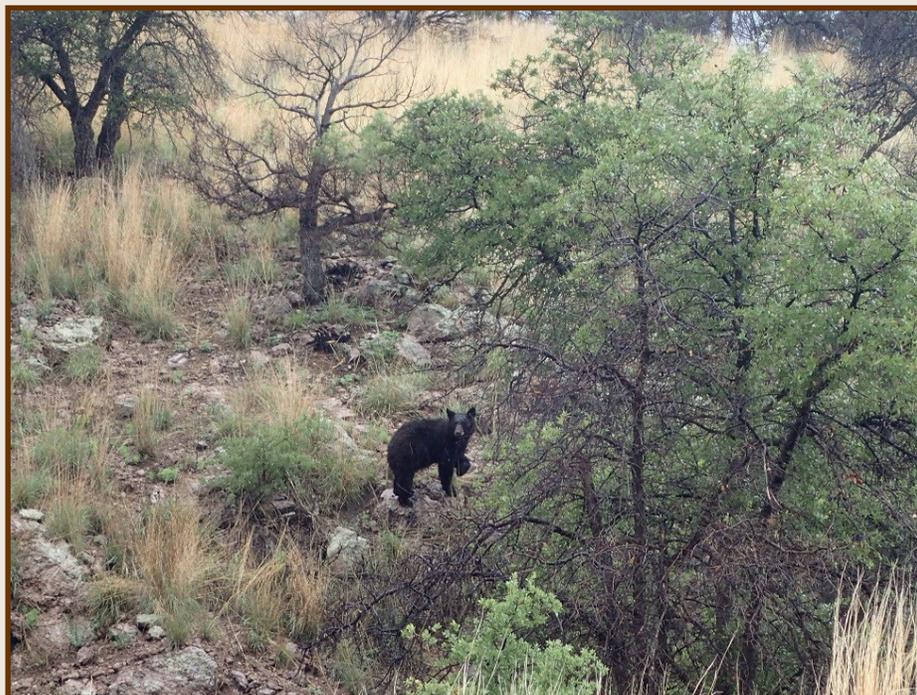
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Black bear in the Coronado National Forest, Peloncillo Mountains, New Mexico
Photo credit: Scott P. Lerich



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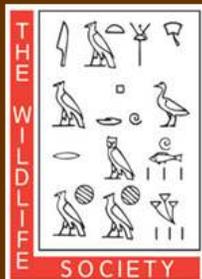
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Thanks to contributors to this newsletter: **Melanie Culver, Fidel Hernández, Scott P. Lerich, Alexandra Sandoval, Ginny Seamster, Misty Sumner, Tad Theimer, and Cindy Zisner.**

Please contribute to our next newsletter with information on your work related to topics of interest to SW Section members. We would love more articles from student chapters! Deadline for articles is **September 1.**

Southwest Section News



Southwest Section Tracks

Fidel Hernández, Southwest Section Rep to Council

One of my fondest memories growing up on a ranch in the western part of the Edwards Plateau of Texas is the blooming of Texas mountain laurels (*Sophora secundiflora*). Each spring, around mid-February, thousands of acres of piñon-juniper rangeland would become filled with the distinctive fragrance of Texas mountain laurels. Some field guides describe the fragrance as reminiscent of an old fashion grape soda. To me, the smell is more like a mixture of lavender with maybe some hints of jasmine. Whatever the fragrance molecules, I carry a fond childhood memory of riding horseback along a high-elevation ridge and catching a never-ending breeze of Texas mountain-laurel blooms from the canyons below. I can smell them to this day.



Figure 1. A Texas mountain laurel (*Sophora secundiflora*) in full bloom.

Well, as luck would have it, there happens to be a native-plant garden between the ag buildings here on campus and, as I was walking to my office last week, I caught a faint whiff of that unique fragrance. My immediate thought was one of excitement, "The mountain laurels are blooming!!!". Spring definitely has arrived in Texas.

I'll be headed to Norfolk, Virginia later this month to attend the TWS Council meetings that occur each year just prior to the start of the North American Wildlife Conference. I'll include those updates in my next update (summer issue) so you'll have to stay tuned. But for now, here is a brief update on the latest TWS happenings since we last chatted.

TWS Annual Conference: Cleveland



Mark your calendars for the 25th Annual Conference of The Wildlife Society to be held **7-11 October 2018** in Cleveland, Ohio. The Conference will include workshops, symposia, panel discussions, oral presentations, posters, student research in progress posters, and so much more. The theme for the Conference is **Recognizing and Sustaining Conservation Success**. For more information, please visit the conference website at <http://wildlife.org/2018-conference/>.



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Fidel Hernández, Southwest Section Rep to Council

TWS ADMINISTRATION, FINANCE, AND GENERAL OPERATIONS

Business Relations. Part of TWS’s strategic plan for long-term financial stability is business relations (development). These business relations and partner support are essential to the advancement of TWS and its missions and program initiatives. The financial contribution of these partners allow TWS to provide better services and member benefits ranging from contributed website and magazine content to discounted products and services. They also help TWS to progress issues that are vital to the growth of the Society. The Wildlife Society has made excellent strides toward this end in the past few years, adding critical support from several important businesses and organizations. Below is a brief summary of some of the major activities happening in this arena for the month of January 2018.

Net income from organizations and businesses was \$377,000 from the beginning of the fiscal year through January.

TWS was successful in booking 2 advertisers, 17 exhibitors, and 6 Sponsors for the 2018 Annual Conference.

TWS received 1 contribution and 3 verbal commitments for a total of \$12,750 for the conference.

Duke Energy agreed to provide financial support of the conference as a Leading Sponsor and discussions continue with other organizations.

With the addition of a \$6,000 contribution and a \$5,000 verbal commitment in January, TWS has exceeded the budget goal for Native American Student Travel Grants!

Membership. TWS continues to slowly grow its membership toward the society’s goal of 10,000 members. The year-to-date paid member count is 9,791 members, which represents a 4.3% increase compared to last year (February 2017). If members enrolled in the Give Back Program are included (612 members), then the total member count increases to 10,403 members. TWS is continually trying to improve



The 1,000 Program. TWS Council Representative Bob Lanka (right) and Wini Kessler (left), the 2018 Aldo Leopold Memorial Award recipient, at The 1,000 reception. The reception was a chance to recognize this group of TWS members, who pledge to commit at least \$100 annually to the Society (Photo courtesy of The Wildlife Society).



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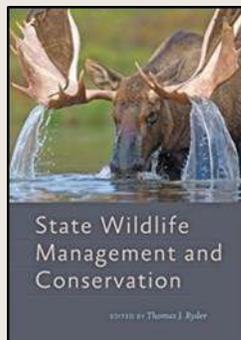
Fidel Hernández, Southwest Section Rep to Council

member experience, and automatic renewal is one such improvement in services that is provided to members. TWS is excited to learn that many members—4,347 members to be exact or 44% of total membership—are currently enrolled in Automatic Renewal. Please make use of this handy option when renewing your membership to avoid membership lapses!

Government Affairs. The Program of Government Affairs and Partnerships is lead by Director Keith Norris. Director Norris and his team are responsible for overseeing TWS’ policy activities, providing support to TWS Chapters and Sections on conservation policy issues, strategically expanding TWS’ engagement with other organizations, and providing direction to the Society professional development and certification programs. Below is a brief summary of key TWS policy priorities advanced during the beginning months of 2018.

- Met and conferred with several House member offices on co-sponsorship of the Recovering America’s Wildlife Act (RAWA)(H.R. 4647).
- Engaged the Conservation Affairs Network in support of RAWA and launched TWS webpage on member engagement with RAWA.
- Helped lead a webinar with American Fisheries Society (AFS) staff titled, “Support of the Recovering America’s Wildlife Act - A Guide to Grassroots Advocacy”, to educate TWS and AFS members on the campaign and encourage their own advocacy efforts.
- Submitted testimony to the House Federal Lands Subcommittee legislative hearing in support of RAWA and raised concerns about a portion of the Modernizing the Pittman-Robertson Fund for Tomorrow’s Needs Act.
- Met with Department of the Interior officials to discuss TWS, the Department’s reorganization efforts, the importance of federal employee engagement in professional societies, and concern over funding for key conservation programs.

TWS BOOK RELEASE



In closing, I take the opportunity to highlight the recent release of a new book, *State of Wildlife Management and Conservation*, that is part of TWS’s book-series agreement with the John Hopkins University Press. This book is an edited volume by Thomas J. Ryder. In this edited volume, the long-time member and former Assistant Wildlife Division Chief for the Wyoming Game and Fish Department, Tom Ryder, brings together wildlife leaders from practical, policy, and academic backgrounds to tell the story of state wildlife agencies and chronicles their efforts to restore and protect our



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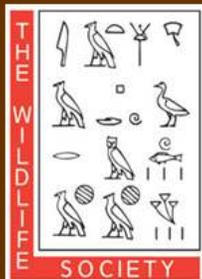
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Fidel Hernández, Southwest Section Rep to Council

nation's natural resources. The book is a comprehensive, nationwide account of state management efforts that will aid people in developing a better understanding of what it means to be a state wildlife biologist. For more information on this book, please visit the following website: <https://jhupbooks.press.jhu.edu/content/state-wildlife-management-and-conservation>

Well, that is all for now.

Until next time,

Fidel Hernández



—Fidel Hernández
Southwest Section Representative of TWS
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Mexican free-tailed bats exit Bracken Cave in southern Texas. ©Ann Froshauer



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Director's Corner

Alexandra Sandoval, Director, New Mexico Dept of Game and Fish

The Face of Conservation Is Changing



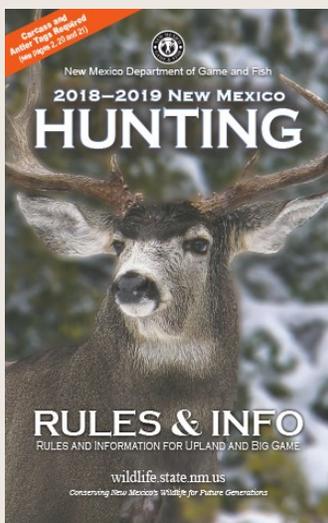
We've all heard the news about the decline in hunting, fishing and outdoor recreation participation. For the past decade no wildlife agency has been immune from the downward trend, causing for concern for everyone passionate about wildlife.

The Baby Boomer generation has made up the nation's largest cohort of hunters and anglers and over the next 15 years, most will stop buying licenses entirely. When they do, our ranks could plunge by 30 percent – along with critical funding for wildlife management, advocacy for hunting and continuation of the hunting and angling tradition.

Threats to wildlife, habitat and the increasing demand for state agencies to manage non-game species continue to stretch financial resources to the breaking point. Wildlife diseases, invasive species, overseeing controversial reintroductions and inspiring the next generation to participate in the outdoors and wildlife conservation compound the problems.

Faced with these challenges and a looming customer crisis we must ask ourselves, who will fight to protect the wildlife we so dearly value and who will pay to manage them?

The inevitable answer is the millennial generation, but to engage them we must be willing to change. Our valuable wildlife resources depend on it.



Unlike cohorts from the past, this generation is focused on diversity, unafraid of tossing out the system and starting over. They are the most educated and greatest spending generation we've encountered. They prioritize happiness, celebrate community and don't want to feel as though they are missing out. They are far more optimistic about their future than previous generations and are driven by experiences over finances and security.

For an industry that has struggled the past decade with declining participation numbers, these traits offer tremendous opportunity for growth. But in order to reap benefits from their potential we will have to open up to change. The key to success will hinge on our ability to accept the fact that for far too long we have lacked diversity.



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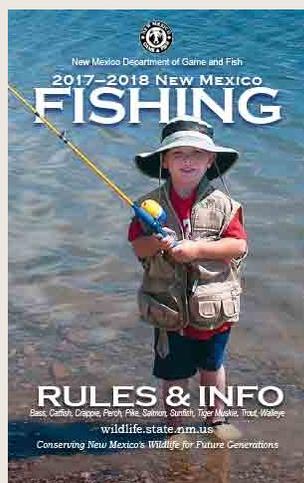
Director's Corner

Alexandra Sandoval, Director, New Mexico Dept of Game and Fish



Each day I see agencies across the country taking new steps to change and connect with this new audience through programs that address recruitment, retention and reactivation (R3). At the core of this movement is diversity through the recognition of the need to stop past failed efforts to make more hunters and anglers that look and sound like us.

In New Mexico we have worked hard to embrace change and have found relevancy in our ability to embrace inclusion, opening the doors for all to take their seat at the table and contribute to wildlife conservation. We welcome new participants into our programs every day and our approach to education and outreach verbally and visually communicates acceptance of everyone – regardless of race, gender or age.



Because of our willingness to open up to new people, we have experienced growth in hunting, fishing and outdoor recreation participation. Last year we watched fishing license numbers increase by 18 percent and this year we set a new record for applicants in our big game draw.

Our education programs have spawned much of that growth, refocusing on families and young adults with increased opportunities for skills-based training and mentorship. Still we recognize this is an evolution for agencies like ours and we acknowledge we have a heavy lift ahead of us before we reach the true potential of this emerging market.

The face of wildlife conservation is changing and I believe it's good news for the future of our industry. I encourage everyone to embrace the change. Together we can take the steps necessary to ensure our valuable wildlife resources are conserved for future generations.



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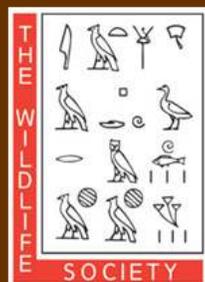
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March for Science

Tad Theimer - 2018 President Elect SW Section of TWS

Advocacy and Impartiality in the Time of Alternative Facts

I attended the March for Science in my town last weekend. When I told a colleague at another university about the march, and the fact that I had given a short speech as part of it, she responded, that at a recent meeting at her university a state official had warned researchers against advocacy because it undermined their credibility as scientists. This is an age old conundrum. Where is the line between presenting scientific findings and



advocating a political viewpoint? This question has become much more difficult today because of the rise of "alternative facts", the idea that any fact a scientist might present is simply one of a suite of alternative options. It is a time when views can be presented as 'science' when they lack any connection to the scientific process. This question has become not only more difficult but also more dangerous. Thanks to social media, students can post an accusation of political bias by a faculty member and immediately release an electronic landslide of abuse and threats that can intimidate all but the most courageous.

One of the most meaningful comments I ever received on my student course evaluations read, "On controversial topics, I could never figure out where Dr. Theimer stood. He just gave us the facts and let us decide for ourselves". I have always striven to appear impartial to my students. This is largely due to a talk I heard at a TWS meeting many years ago by a sociologist who studied the factors that determined whether people's views on issues could really be changed. His major finding was that one factor more than any other determined the ability to alter another person's view: trust. If you were trusted, you were more likely to persuade another person to re-examine their viewpoint. I think this is the idea behind that politician's argument that scientists must seem impartial to be credible. But how does one gain trust? I have learned that it comes from endeavoring to share facts that are as free from any personal interpretation as possible. I must be willing to acknowledge other viewpoints and treat them with respect, just as I ask my students to do.



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March for Science

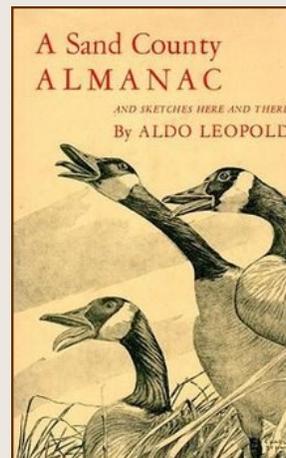
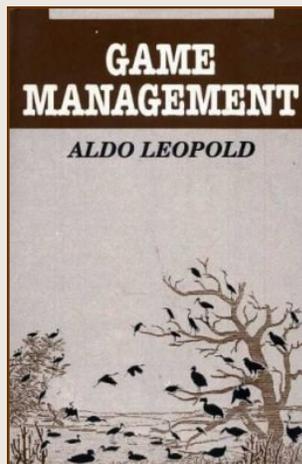
Tad Theimer - 2018 President Elect SW Section of TWS

All of this does not mean that one leaves the students with the idea that all viewpoints should carry equal weight. I think we worry too much about telling students what the truth is while underestimating their ability to find it on their own. I often tell my students that as incipient scientists they should always demand, "show me the data", so they can make their own conclusions on the strength of data rather than based on someone else's interpretation of the data. And that brings me to the conundrum I faced today. I presented my lecture on evidence for human-caused climate change. As always, I presented the facts, the best available science I could find. But somehow this year felt different. I was doing the same thing I had always done, but somehow just presenting the facts seemed as if I was endorsing a political viewpoint. Ninety-seven percent of all climate scientists, 18 scientific organizations, including the National Academy of Sciences and the American Association for the Advancement of Science, have stated that human caused climate change is real and should be addressed. The TWS position statement on this issue is unequivocal. But for a split second the question flashed into my mind: "Was I being an advocate?"

Then I remembered that the father of modern wildlife management didn't just write the first text on game management, he also wrote Sand County Almanac. I thought back to the national TWS meeting a few years ago when a bumper sticker was included in the registration packet that read, "What would Aldo do?" And then I remembered how Harry Truman once responded during a speech when a listener yelled, "Give 'em hell, Harry!". Truman just smiled and said, "I don't give him hell. I just tell the truth on them and they feel like they're in hell". Fear of being viewed as an advocate, or of losing our impartiality as scientists, should never keep us from telling the truth.

—Tad Theimer
Northern Arizona University
President Elect SW Section
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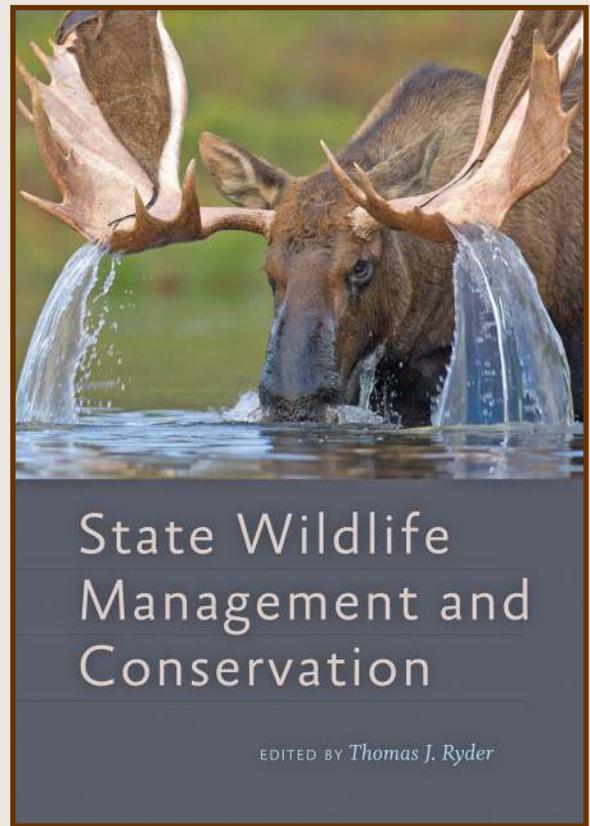
Student News

Want to Land a Job with a State Wildlife Agency?

Get ahead of the competition with the newest book in The Wildlife Society's Wildlife Conservation and Management series, ***State Wildlife Management and Conservation***. It's the first-ever book devoted to the workings of state fish and wildlife agencies.

Edited by TWS Past President Thomas J. Ryder, now retired after a long career with the Wyoming Game and Fish Department, the book's theme closely reflects the core principle of the profession — that the public, not any individual, owns wildlife, and it explains how this tenet became law, laying the groundwork for the history of state-level wildlife management that follows.

Its 15 chapters cover key issues faced by state agencies, including the limits of private land ownership, the funding of wildlife regulation, the nuances of human-wildlife conflict, the role of law enforcement, disease control efforts, and the challenges involved in balancing the perspectives of hunters, nonhunters and animal rights advocates. Five of the chapters go into details of state management techniques for a wide range of wildlife from big game to migratory birds, providing a comprehensive nationwide account of state management efforts.



State Wildlife Management and Conservation is an important resource for developing a more sophisticated understanding of what it means to be a state wildlife biologist.

TWS is offering a 30% discount off the cover price of \$75 for all students.

Use the code "HTWS" at checkout.

[Order your copy now.](#)



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Share with Wildlife Program

Ginny Seamster - 2018 President SW Section of The Wildlife Society

2018 Projects Underway and Call for New Projects to be Released April 2nd

The Share with Wildlife Program at New Mexico Department of Game and Fish funded 10 projects for 2018. These projects included six research projects, one education project, and funding for three wildlife rehabilitation centers. The research project focused on the North American river otter is underway. This project is using non-invasive genetic techniques to assess the success of the river otter reintroduction that was undertaken 2008-2010 in northern New Mexico. This project will produce estimates of otter abundance, density, and genetic diversity in New Mexico and inform future management efforts regarding the river otter.



The five other research projects are also getting underway. The focal species for these projects include: Bendire's thrasher (which has been in sharp decline), Peñasco least chipmunk (a species endemic to New Mexico), and western river cooter (which is currently under review for listing by USFWS). Two of the projects deal with fungal pathogens (chytrid and Pd) that are potentially deadly for a multitude of amphibians and bats, respectively.

Final reports for the projects funded for 2017 have been rolling in. These include the culmination of a three year project focused on developing statewide abundance estimates for Grace's and red-faced warblers, two songbirds that elude observers and robust population estimates in the USGS Breeding Bird Survey. They also include a second year of surveys for the western river cooter. These surveys are showing that cooters in southeastern New Mexico are consistently reproducing and some juveniles are even surviving to be recaptured a second year. However, the jury is still out on what long-term survival and population trends will look like for this population, especially as pressures on the cooter's habitat abundance and quality mount.



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Share with Wildlife Program

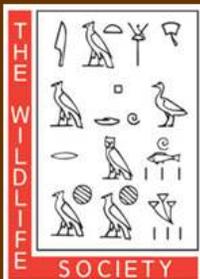
Ginny Seamster - 2018 President SW Section of The Wildlife Society

The Share with Wildlife program funds new projects pertaining to wildlife research, education, rehabilitation, and habitat enhancement each year. The call for proposals for new projects, which outlines the Department's top priority topics for projects to be funded in 2019, was released April 2nd, 2018 and was posted on the Share with Wildlife website on the Applications-Reports tab: <http://www.wildlife.state.nm.us/conservation/share-with-wildlife/>. Proposals are due by 5PM MDT on Friday, June 1st. Any questions about the call for new projects, recently funded projects, or the program should be directed to the Share with Wildlife program coordinator, Ginny Seamster (virginia.seamster@state.nm.us).

—Ginny Seamster
New Mexico Department of Game & Fish
President SW Section
virginia.seamster@state.nm.us



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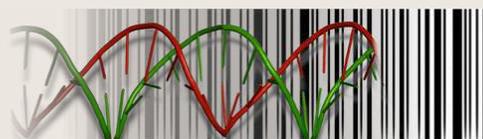
Tools for Wildlife Management

Melanie Culver - 2018 Secretary SW Section of The Wildlife Society

The Culver Wildlife Conservation Genetics Laboratory uses many genetic, genomic and trail camera technologies to answer questions of importance to managers in Arizona and beyond.



My laboratory encompasses a conservation genetics program, with several very different focus areas for wildlife species at population and landscape scales. The common thread among all projects is the goal to provide information to managers to assist them in science-based management of wildlife resources. Research focal areas for my lab are: i) to identify the natural state for gene flow among populations and compare the changes in gene flow that might occur as a result of human based activities; ii) to examine taxonomic designations, or partitions, for wildlife at a species-wide or landscape/population scale. These designations are important for conservation as they are the units used for defining conservation under laws such as the endangered species act; iii) to obtain genetic data allowing us to resolve details about behaviors of animals, and adding to our knowledge of prey selection, migration, dispersal, and reproduction in wild populations; iv) to monitor presence and abundance of species (biodiversity) across the landscape (even across water bodies) including assessment of habitats and other landscape variables associated with species being monitored. In addition to these focal areas, my laboratory utilizes cutting-edge methodologies in the newly developing field of genomic technologies and their applications to conservation. New technologies and bioinformatic platforms are accelerating the number of taxa with available genome sequences. In endangered species, genomic resources will aid in examining the amount of detrimental and adaptive variation in declining populations. My laboratory is utilizing next-generation sequencing technologies (metabarcoding, RAD-seq and genome-wide sequencing, to name a few) to examine questions of selection, adaptation, or population genetics. Below, current, or recently completed (but not yet published), projects in my laboratory are described with results (if available) and conservation implications.



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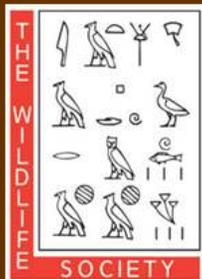
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Tools for Wildlife Management

Melanie Culver - 2018 Secretary SW Section of The Wildlife Society

Jaguar and ocelot monitoring using citizen science (Susan Malusa, citizen science project coordinator)

Trail camera and scat genetic monitoring efforts started in 2011 and we plan to continue for the long-term. In addition to monitoring of vertebrate wildlife (including jaguar and ocelot) in 16 southern Arizona and New Mexico mountain ranges using trail cameras, a secondary goal was to develop and implement a citizen science program to survey and monitor these areas. In addition to the obvious benefits of obtaining information on the locations and habitat use of endangered species, long-term monitoring is valuable for detecting trends in wildlife species abundance and/or evaluating ecosystem change over time. Trends we observed include 3 different male jaguars (~150 photos) and 3 different male ocelots (~50 photos) during 2012 – 2016, a higher number of individuals and rate of detection than expected, and a wide diversity of mammals in almost all the 16 mountain ranges. Citizen Scientists remain an untapped valuable resource for helping scientists collect data in these days of reduced



Jaguars
USFWS Photo

funding and help address the need to do long-term monitoring. To date, 25 highly trained citizen scientists are continuing to monitor the trail cameras set in place by the monitoring project and jaguars, ocelots and other wildlife on the landscape. In addition to the long-term trend data for many wildlife species, the data on where elusive endangered species occur on the landscape has been valuable for wildlife and land managers.

Urban bobcats - Tucson area connectivity (Steven Mackie, intern)

We are examining the genetic relationship between bobcats living in Tucson Mountain District of Saguaro National Park and those living in the surrounding urban interface and to gather basic ecological information on both. Our results to date show that there is fairly strong connectivity for bobcats across portions of Tucson, in particular on the west side of Tucson across Interstate-10. Like other mid-sized carnivores, bobcats play an integral role in the biologically rich Sonoran Desert ecosystem, and bobcats may be a good model for studying urban impacts because bobcats appear to both benefit and be harmed by human encroachment. This a long-term study and includes yearly collection and processing of bobcat scat samples from in and around Tucson to add to our baseline dataset.



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Tools for Wildlife Management

Melanie Culver - 2018 Secretary SW Section of The Wildlife Society

Genomics of the Florida panther (Alex Ochoa, graduate student)

This study sequenced the first full puma genome, which included ten genomes: several pure Florida panther individuals, the Texas puma individuals release into Florida for genetic rescue, and several trios (Florida mother, Texas father, and offspring). Genome-wide association studies have been used to uncover the genetic basis of many adaptive and detrimental traits in human populations and represent a powerful tool for the proper conservation and management of endangered wildlife. Compared to other felid and carnivore genomes available, we found 540 gene family expansions and 2613 gene family contractions in the puma genome. These results are similar to those reported for the cheetah. Information derived from this study will be essential to optimize efforts for the captive breeding, management, and conservation of the endangered Florida panther. In the future, we intend to use this SNP array to genotype the Texas puma population, the bottlenecked Florida panther population, and the current Florida panther population. We will then assess the relationship between genetic diversity in the genome with fitness traits in the Florida panther, and evaluate the success of the Texas introduction as a function of purged detrimental variation vs. genetic swamping of Florida panther ancestry.



Florida panther

Photo Credit: Tim Donovan, FWC

Flat-tailed horned lizard connectivity (Tony Dee, graduate student)

We are assessing connectivity, subdivision, and genetic diversity of flat tailed horned lizards, *Phrynosoma mcallii*, throughout their range in Arizona, California, and Mexico. Of importance is to find if any portion of the range represents a unique, genetically isolated population. Original collections were performed 10 years ago and we are obtaining additional current samples to have a spatial and temporal view of these lizards across the landscape. Flat-tailed horned lizards have been a species of concern in Arizona and are threatened in Mexico, so results from this study will be used in future wildlife management decisions. The US-Mexico border and Barry M Goldwater Army Range bisect the range of this species. If current sampling permits, we will examine connectivity with respect to the international border. Final analyses will elucidate the population boundaries and other populations barriers to gene flow.



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Melanie Culver - 2018 Secretary SW Section of The Wildlife Society

Great horned owl and Harris hawk population structure in Baja California Sur (Gregorio Herrera, graduate student)

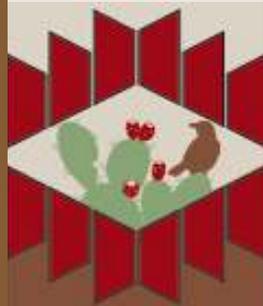
In collaboration with Ricardo Estrella, we studying two raptor species (great horned owl and Harris hawk) to gain scientific information on raptor populations in an area of high habitat fragmentation in Baja California Sur, Mexico. Nest sites have been sampled in agricultural areas suffering fragmentation, and in areas that still have some habitat connectivity. Genetic analyses will estimate population-level genetic characteristics. From this information we will estimate inbreeding and potential isolation, and be able to inform managers of any lack of gene flow among populations.



Harris hawk
Photo credit: Bruce Taubert

Genomic signals for reproductive success and other behavioral traits in Colorado Pumas (Alex Erwin, graduate student)

In collaboration with Ken Logan, a study population of pumas on the Uncompahgre Plateau of Colorado has undergone 10 years of ecological data collection with 2 management strategies; 5 years not hunted followed by 5 years hunted. From genetic samples, we will use the RAD-seq method to describe genetic diversity with respect to relatedness, paternity, and reproductive success of adults in the population. We will use this genomic signal to reveal if hunting may change the relatedness, social structure, and reproductive success of individuals in the population in a manner that may signal potential changes in fitness in phenotypic traits. This could inform managers and stakeholders about potential outcomes of current management models, and, if necessary, provide alternate models to modify management for pumas to lessen the fitness impact from hunting.



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Tools for Wildlife Management

Melanie Culver - 2018 Secretary SW Section of The Wildlife Society

Trophic cascade resulting from Mexican wolf (Joshua Hoskinson, graduate student)



Mexican wolf (Photo credit FWS)

Predator removal efforts have highlighted the vital role apex predators play in biological communities through the maintenance of biodiversity and the regulation of essential ecosystem functions through

mechanisms pertaining to the food web. Are Mexican wolves influencing trophic cascades in the Blue Range Wolf Recovery Area in AZ and NM? We used trail camera study within and outside of wolf occupied areas to examine this. We identified relative abundance of coyote, fox, deer, and elk where they occurred in the absence of wolves and where wolves had been re-introduced. The results of detection probability calculations for all 4 species was the same, regardless of wolf presence, indicating the Mexican wolf has not set up a trophic cascade in this ecosystem. The trophic cascade was tested within the carnivore guild by assessing competition (coyote/fox) and by assessing predation (deer/elk). Managers can use this information in management of the wolf, elk, and deer populations.

Biodiversity of the Gulf of California using eDNA (Eldridge Wisely, graduate student)

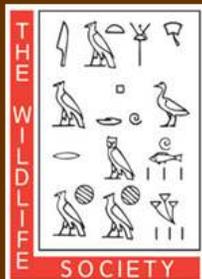
Tools for assessing biodiversity have undergone rapid development the previous 2 decades, including both a greater commitment to low technology methods, such as long-term population and community monitoring, and use of advanced methods in genomics, landscape genetics, modeling, biometrics, DNA barcoding, and environmental DNA (eDNA). We will perform a high-resolution assessment of phylogenetic diversity of all vertebrate species sampled, enhanced by new high throughput eDNA meta-amplicon sequencing biodiversity surveys, at sites throughout the Gulf of California.

Phylogenomics of Mexican races of Bobwhite (Karla Vargas, graduate student)

The masked bobwhite is endangered and may be extirpated from the wild. There are several captive populations of the subspecies, and this study used museum samples and whole genome approach (capture hybrid) to examine taxonomic differences among all relevant subspecies of Mexican bobwhite. We included 60 individuals from nine subspecies (including from *Colinus virginianus ridgwayi*). Our final analyses will also look at selection for captivity in the captive breeding population, traits that can be used for marker assisted breeding, and overall relatedness among taxa. These results will be used to aid the recovery efforts for the masked bobwhite, particularly with respect to potential translocations into masked bobwhite areas from Mexico.



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Tools for Wildlife Management

Melanie Culver - 2018 Secretary SW Section of The Wildlife Society

Taxonomy of the black-tailed prairie dog (Alex Erwin, graduate student)

The black-tailed prairie dog (*Cynomys ludovicianus*) experienced declines throughout its range over the past century and was extirpated from Arizona in the 1960s. In 2008, individuals from New Mexico were reintroduced in southern Arizona. However, little is known regarding the historical level of



Black-tailed prairie dog

connectivity and taxonomic relatedness between populations native to Arizona, the southwestern US, and Mexico. In this study, we are using fresh and museum samples and a whole genome approach to examine taxonomic relatedness and the level of connectivity among

populations of prairie dogs in Arizona, New Mexico, Texas, and northern Mexico. We are using a combination of genomic sequencing methods to accommodate both the fresh and museum samples. Results to date indicated that the great plains individuals were differentiated from the Arizona, U.S., Sonora, Mexico and southern New Mexico samples. An additional divergence was found between Sonora, Mexico and Chihuahua, Mexico. These results have an impact on the recovery efforts in Arizona by re-directing where prairie dogs are drawn from for re-introduction efforts. Future work is focused on completing analyses of museum samples.

Biodiversity of the Gulf of California using eDNA (Eldridge Wisely, graduate student)

Tools for assessing biodiversity have undergone a rapid development across the previous two decades. This development includes both a greater commitment to low technology methods, such as long-term population and community monitoring, as well as utilization of increasingly advanced methods in genomics, landscape genetics, modeling, biometrics, DNA barcoding, and environmental DNA (eDNA). We will perform a high-resolution assessment of phylogenetic diversity of all vertebrate species sampled, enhanced by new high throughput eDNA meta-amplicon sequencing biodiversity surveys, at sites throughout the Gulf of California. eDNA samples have been collected from the water column and from the sediment in several locations throughout the Gulf of California.

—Melanie Culver
University of Arizona
Secretary SW Section
melanieculver59@gmail.com



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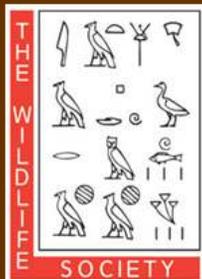
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In Memoriam

Brian K. Lang · January 29, 1958 — March 1, 2017



Many of you, especially in New Mexico, knew Brian K. Lang, former aquatic invertebrate biologist with New Mexico Department of Game and Fish. This tribute to Brian's memory, and encouragement to support the scholarship and aquatic habitat protection fund started by some of the many people who knew and respected Brian, is based on information provided at the Brian K. Lang Aquatic Memorial Fund's "gofundme" site: <https://www.gofundme.com/briankeithlang>. Please consider giving a donation in honor of Brian's memory and to support the studies of future biologists and protect and conserve the parts of New

Mexico that Brian held dear. I personally will always remember Brian for his humor, his willingness to help others, and his exceedingly caring heart.

Brian K. Lang was an American Biologist, born January 29, 1958 in Indiana, USA. Brian died tragically, along with his neighbor, Christopher Holland, on March 1, 2017. He died while trying to rescue his dog from an irrigation ditch at high water near his home along the Old Route 66, just north of Bernalillo, New Mexico.

Brian had a distinguished career in mammology and invertebrate biology. He was notable among his peers for his scientific ethic, field data collection, and writing skills. Brian began his interest in science at New Albany High School, New Albany, Indiana from 1972 – 1976. Brian then entered Ball State University in 1976 and earned his Bachelor of Science Degree in Biology, with Minors in Natural Resources and Chemistry. From 1980 – 1983, Brian worked on his Masters of Science Degree in Wildlife Management at Frostburg State University in Maryland.

Brian spent much of the next 30 years working to conserve snails and other invertebrates in North America's arid mountain west. For his love of nature, especially unique and undiscovered small creatures, his colleagues, family, and friends want to continue to support his unfinished and very important work. We hope to use any funds raised to provide scholarships for future researchers and protect and conserve some of the waters dear to Brian's heart, soul, and works.

—Ginny Seamster
New Mexico Department of Game & Fish
President SW Section
virginia.seamster@state.nm.us

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In Memoriam

Robert Dale Ohmart · January 2, 1938 — January 14, 2018

One of the titans of southwestern ecology has left us. Robert D. Ohmart passed away peacefully at his home in Chandler, Arizona on 14 January 2018 surrounded by his loving family. Dr. Ohmart's team of field researchers conducted the seminal work that established the blueprint for habitat and wildlife needs in the Southwest.



Dr. Ohmart was born in McDonald, Texas, and chose to pursue his career in the West. Having received his Bachelor's (1961) and Master's (1963) degrees in wildlife management and biology from the University of New Mexico, Bob went on to complete his Ph.D. in vertebrate zoology at the University of Arizona in 1968. After two years of a Post-Doctoral Fellowship at the University of California at Davis he was hired as Assistant Professor in the Zoology Department at Arizona State University in 1970 and achieved full Professor in 1981.

Dr. Ohmart was a major force in the creation of ASU's wildlife biology program, which was incorporated into the Applied Biological Sciences Program with a wildlife concentration located at the Polytechnic campus. He was also very much involved in the development of the Center for Environmental Studies, which became the current Julie Ann Wrigley Global Institute of Sustainability. Much of Dr. Ohmart's research at that time helped build the early ecological research reputation of the Center.

His long-term research in collaboration with Dr. Bertin Anderson, along the lower Colorado River from Davis Dam to the Mexican border, laid the foundation for understanding habitat requirements of the resident wildlife and restoring that habitat to historical conditions. He initiated similar studies along other southwestern rivers like the Rio Grande and Pecos, documenting habitat relationships of birds and other wildlife and pioneering habitat restitution. Much of what his efforts discovered led to restoration projects throughout the Southwest. From the U.S. Bureau of Reclamation, Dr. Ohmart received over \$2 million in grants, which supported many students conducting field studies in Arizona during the 1970s and '80s.

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Robert Dale Ohmart · January 2, 1938 — January 14, 2018

Over the years he also received funding from U.S. Bureau of Land Management, U.S. Forest Service, U.S. Fish and Wildlife Service, U.S. Army Corps of Engineers, U.S. International Boundary and Water Commission, Arizona Game and Fish Department, Lawrence Livermore Laboratory, among others. These studies produced over 100 publications and over 50 reports.

Bob loved teaching. His wildlife students, both undergraduate and graduate, learned hands-on and many have gone on to careers at federal and state agencies. Topics his graduate students studied included black rails, raptors, effects of timber harvesting on birds, Abert's squirrels, Yuma clapper rail, breeding birds in riparian habitats, cicadas, coyotes, kit foxes, cactus mice, white-winged doves, Kaibab deer and dendrochronology, burros and bighorn sheep, red squirrels, habitat use by birds in desert riparian systems, breeding bird community structure in riparian habitats, yellow-rumped warbler migration, bird communities in salt cedar and mesquite along three major river systems, secondary cavity-nesting birds, Abert's towhees, Gila monsters, bird use of mesquite and agricultural fields along lower Colorado River, spatial composition of trees in riparian forests, riparian habitat changes, ring-tailed cats, body lipid changes of four migrant birds, bird species assemblages along a climatic gradient, desert tortoises, and reptiles in Phoenix and the sky islands. Nearly all of these students are employed in the wildlife biology field and work for the U.S. Fish and Wildlife Service, U.S. Forest Service, U.S. Bureau of Land Management, Arizona Game and Fish Department, Arizona State Parks, Cornell Laboratory of Ornithology, U.S. Army Corps of Engineers, and academic institutions. Dr. Ohmart was also very involved in the community and gave presentations to organizations, local schools, and senior citizen groups.

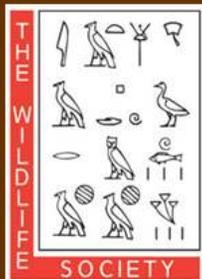


Southwestern willow flycatcher (*Empidonax trailii extimus*)

USFWS Photo

His work in the conservation arena was tireless. When you see a desert nesting bald eagle or hear the "fitz-bew" call of a southwestern willow flycatcher, think "Bob Ohmart"! His role in influencing conservation for both species has been enormous. His 1980 report, "The Bald Eagle of the Southwest with Special Emphasis on the Breeding Population of Arizona," was the first to recognize the need to consider the unique local habitat characteristics to effectively conserve the southwestern bald eagle.

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In Memoriam

Robert Dale Ohmart · January 2, 1938 — January 14, 2018

His many riparian publications and expert witness testimony have been the basis for several successful legal petitionings of federal agencies to protect numerous declining riparian species. Dr. Ohmart was always open to educate everyone from undergraduate students to leaders of major conservation organizations, participating in many field trips to important southwestern riparian habitats. He was critically influential in the early phases of the long-running efforts to save the San Pedro and Verde rivers, Fossil Creek, and other rare surviving desert streams. He was particularly devoted to stopping proposed reservoirs related to the Central Arizona Project, and to implementation of responsible livestock grazing in riparian habitats.

In 1985 Dr. Ohmart was awarded the Thomas E. McCullough Memorial Award by the Arizona Wildlife Federation, and 2009 he was inducted into Arizona Game and Fish Department's Outdoor Hall of Fame. He also served on the Board of Directors for the Center for Holistic Resources Management, Liberty Wildlife Rehabilitation Center, and Cooper Ornithological Society where he served as vice president. He was also president of the New Mexico-Arizona Section of the Wildlife Society. Ohmart served on advisory committees for bald eagle and southwestern willow flycatcher recovery, and was the chair of the host committee for the 103rd Meeting of the American Ornithologists' Union held at ASU.

After retiring in 2006 he focused on his love of farming. With guidance from Dan James, one of his graduate students, he shifted all energy to creating a new company called Double "O" Enterprises. The mission was to provide a diverse blend of native Sonoran plant seed to revegetate disturbed landscapes. He was a pioneer in this field, and his success is evident as you drive along any Arizona highway.

Whether at his home or his office, Bob Ohmart was always available to talk about anything under the sun. His sense of humor was sharp if not sarcastic, and always followed by his wildly expressive grin! His family roots in the oilfields of eastern New Mexico served him well, sharpening his physical and mental resolve and enabling him to talk with just about anyone. All this character development was critical for Dr. Ohmart to engage the plethora of individuals he needed to actualize his vision for restoration of native habitats in the Southwest. In-lieu of flowers, donations in his memory may be made to the Liberty Wildlife Rehabilitation Foundation (2600 E Elwood St, Phoenix, AZ 85040) or Hospice of the Valley (1510 E Flower Street Phoenix, AZ 85014).

—Cindy D. Zisner and Richard L. Glinski



Bald eagle
USFWS
Photo

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Wild turkey management

Scenes from the field



Gould's turkeys foraging in the Pinaleno Mountains of Arizona. The blue paint denotes which trees will be cut in the Pinaleno Ecosystem Restoration Project. This is just one example of the National Wild Turkey Federation working with the U.S. Forest Service.

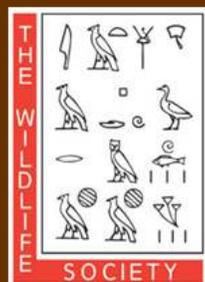


Restoration work in the Pinaleno Mountains of AZ, a partner project of the National Wild Turkey Federation working and the U.S. Forest Service.

Photo credits: Scott P. Lerich



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Wild turkey management

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Chihuahua Pine (*Pinus leiophylla*)

Photo credit: Scott P. Lerich



Emory Oak (*Quercus emoryi*)

Photo credit: Scott P. Lerich

Turkey roost sites in the Peloncillo Mountains of New Mexico



Gould's wild turkey

Photo credit: Ted Jaycox



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Scenes from Texas

Students from many schools, such as these elementary students from El Paso, Texas, are able to get outdoors and explore, learning about native flora and fauna thanks to programs on the Prude Ranch, one of several private ranches across Texas that are doing their part in helping solve nature deficiency.



Non-indigenous species, such as these aoudad in the Davis Mountains, were introduced to west Texas in the 1950s and thrived. They continue to be problematic with free-ranging herds containing more than 40 animals not uncommon. Although considered a game species in New Mexico, they are classified as an exotic in Texas.



Photo credits: Misty L. Sumner



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The Wildlife Society Southwest Section Chapters Hub Facebook page has 779 followers. Check us out at <https://www.facebook.com/pages/The-Wildlife-Society-Southwest-Section-Chapters-Hub/205755042835210>. A recent article on birdwatching captured >1100 readers' attention. **Bird watching is good for your brain—it can lower stress and boost mental health!** Check it out on FB or at <https://www.rodalorganiclife.com/wellbeing/health-benefits-of-bird-watching>



California condor

Find the latest news from the TWS office at the **TWS** Facebook page with almost 60,000 likes (<https://www.facebook.com/thewildlifesociety/?fref=ts>).

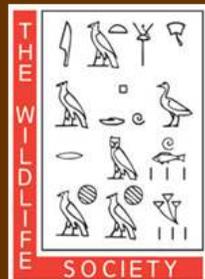
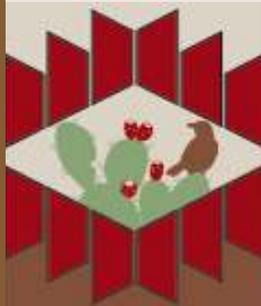
Most of the content being added to **TWS Women of Wildlife (WOW)** Facebook page (<https://www.facebook.com/pages/TWS-Women-of-Wildlife/234411723382592>) is provided by volunteer Deniz Martinez. The page now has 1966 followers.

The WOW steering committee (many of whom are based in the Southwest Section) supported Minnesota TWS Chapter by providing ideas for adding a **WOW factor at their annual meeting**. The event was popular and inspired by the annual TWS meeting last fall. See their story at our FB site or <http://wildlife.org/minnesota-celebrates-wow-factor-at-annual-meeting/>



Minnesota Chapter members network during their first Women of Wildlife event at their annual meeting in St. Cloud. ©Kelsey Jennings

Here's another article that caught >1000 readers' eyes. **Why are women extremely underrepresented in scientific journals?** Just 15% of senior authors in some major journals are women. Find it out on FB or at <http://www.newsweek.com/women-science-journals-talent-836796>.



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Past President: **Warren Conway** warren.conway@ttu.edu 806-834-6579

Secretary: **Melanie Culver** melanieculver59@gmail.com

Treasurer: **Ryan O'Shaughnessy** rosbaughnessy@sulross.edu 432-837-8904

Southwest Section Representative to TWS Council

Fidel Hernández fidel.hernandez@tamuk.edu 361-593-3926

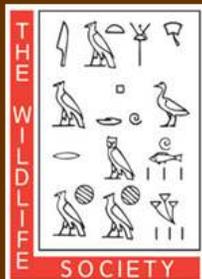
Active Committees

Conservation Affairs: **James Ramakka** jramakka@aol.com 505-334-6140

Geospatial Advisory Committee: **Leland Pierce** leland.pierce@state.nm.us 505-476-8094 & **Ginny Seamster** virginia.seamster@state.nm.us 505-476-8111

Newsletter: **Misty Sumner** miiisstty@aol.com 254-702-1869 & **Carol Chambers** carol.chambers@nau.edu 928-523-0014

Women of Wildlife Committee: **Carol Chambers** carol.chambers@nau.edu 928-523-0014



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Desert big-horned sheep (Photo credit Texas Parks and Wildlife)

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Membership Application

Membership Fee \$5.00

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City	State	Zip Code	Country
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E-mail address	Phone
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Member Type (Please circle one): Student Regular Retired

Please include this form with your payment and mail to: Ryan O'Shaughnessy, Treasurer, Southwest Section of TWS, Assistant Professor, PO Box C-16, Alpine TX 78932.

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- Section-level meetings and conferences
- Strengthen your connections to national TWS
- Peer connections through Listserv and [Facebook](#)
- Website information at <http://wildlife.org/sw-section/about/>



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