

ARIZONA WILDLIFE

WINTER 2018/2019



NEWS

VOLUME 60 - ISSUE 4

OFFICIAL PUBLICATION OF THE ARIZONA WILDLIFE FEDERATION - CONSERVING ARIZONA'S WILDLIFE AND HABITAT



**History and Conservation
of the Sonoran Pronghorn in El Pinacate Biosphere Reserve**
See Page 12 for our feature article by Miguel A. Grageda

ARIZONA WILDLIFE NEWS

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AWF MISSION STATEMENT

AWF is a non-profit organization dedicated to educating, inspiring and assisting individuals to value, conserve, enhance, manage and protect wildlife and wildlife habitat.

FRONT COVER: Cover photo is courtesy of Miguel A. Grageda. Read Miguel's story about the Sonoran Pronghorns on page 12.

BACK COVER: A collection of pictures by Ryan Kreuzer at the September 2018 Arizona Wildlife Federations's Becoming an Outdoor Woman event. Come join us at an upcoming event. See page 18

Special thanks to Ryan Kreuzer for the cover design & layout.

If you have a photo you would like to submit for our cover, please contact Trica at trica@azwildlife.org

ARIZONA WILDLIFE NEWS * VOLUME 60* FALL 2018

published by the ARIZONA WILDLIFE FEDERATION

An Affiliate of the National Wildlife Federation

PO Box 51510, Mesa, AZ 85208 * 480-644-0077

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Message from the President

By Brad Powell

Another year has begun. By any measure last year was remarkable in terms of the number of issues and controversies that dominated our headlines and discussions with friends and neighbors. We lost a National hero and Arizona icon with the passing of Senator John McCain. Issues related to immigration, international trade, Supreme Court Justices, Russia, European allies, tax cuts, elections and investigations consumed much of the hot air and ink. Mixed in and behind those issues were decisions that had strong negative impacts on outdoor recreation, wildlife and wildlife habitats.

The Arizona Wildlife Federation had another busy year giving wildlife a voice in our State's and Nation's Capitols and working with our land management agencies to ensure that wildlife and their habitats will be there for future generations. Conservation of Arizona's wildlife is non-partisan. Last year, with your help, the AWF led the charge to protect wildlife habitats on Arizona's public lands. We brought voice to the concerns about the State's efforts to take these lands out of public ownership. We led the way to prevent uranium mines near the Colorado River and the Grand Canyon. We fought to protect the Land and Water Conservation Fund, one of America's greatest conservation laws. We continued to lead efforts to ensure that new Land Management Plans for Arizona's public lands protect and increase our state's wildlife populations. We worked on issues involving the Mexican gray wolf, desert bighorn sheep, pronghorn antelope, mule deer, and wild horses and burros.

There continues to be divisive issues in our state, but helping make Arizona a better place for future generations through smart conservation is a unifying action. Sportsmen/women and wildlife enthusiasts will need to play a critical role in finding balanced solutions in 2019. In the 95 plus years of AWF's existence we have seen our state change in many ways. The hallmark of our success is the ability to adapt to change.

In 2019 we will focus on these key priorities:

- Reauthorizing the Land and Water Conservation Fund
- Passing a Public Lands day at the Arizona State legislature

- Protecting the mineral withdrawal around the Grand Canyon
- Keeping Federal Public Lands public
- Keeping a strong Wildlife Commission system
- Working with Federal Land Management agencies to prioritize wildlife in their planning efforts
- Educating Arizona's citizens about wildlife and the outdoors
- Working with our Federal and State legislators to support wildlife conservation

There is no doubt that challenges lie ahead, but the Arizona Wildlife Federation and others in the outdoor community will need to play an even more prominent role to ensure that Arizona's wildlife and habitats are protected and enhanced for future generations of Arizona citizens.

Letters to the Editor

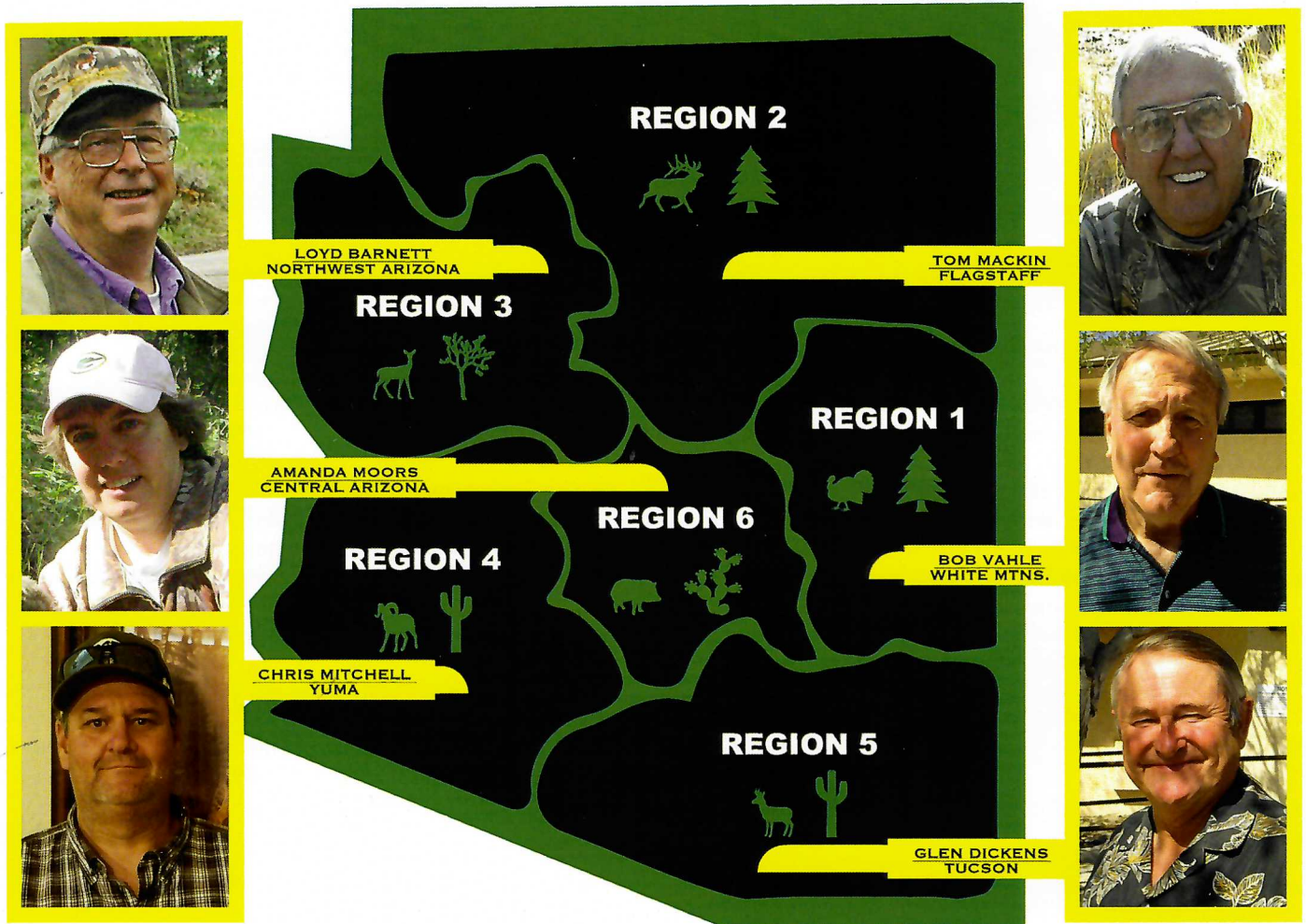
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Regional Roundup

Highlights from AWF's Regional Directors



Arizona Wildlife Federation divides the state into regions in the same manner as the Arizona Game and Fish Department. This map depicts each of those regions and the members of our Board of Directors who serve as directors for each area. Our Regional Directors are busy! In this column, we present a few of last season's activity highlights from selected regions. For their full and complete reports, visit our website at www.azwildlife.org

REGION 1

Bob Vahle, Regional Director

As a member of the Heber Wild Horse Territory (HWHT) Working Group, Region 1 Director, Bob Vahle, attended several meetings this past fall to finalize management recommendations for consideration by the USFS, Apache-Sitgreaves National Forest staff in developing a management plan for the HWHT. The final meeting of the HWHT Working Group was held in October in Payson to fully review and discuss the management

recommendations developed by the Working Group and to evaluate the effectiveness and value of the collaborative process by all of the participants in this effort. The Working Group members were selected to represent all potential interests related to this management – wild horse advocates, ranchers, wildlife managers, members of the public, equine recreation and rescue, range science, and veterinary medicine. Based on the final

meeting, a draft press release was developed that overviews the accomplishments of the Working Group and highlights the successes of the collaborative process. The final Working Group

Recommendation Report can be found on the ASU-sponsored Heber Horse Collaborative website at www.Heberhorsecollaborative.asu.edu



REGION 2

Tom Mackin, Regional Director

During these past three months, northern Arizonans have been able to breathe a sigh of relief as our dangerous drought conditions have somewhat abated thanks to continued precipitation through October. These rains returned the Region to our average year to date precipitation levels.

Working with a variety of partners, including the Friends of Northern Arizona Forests (FoNAF), Grand Canyon Trust and other volunteers, Region 2 Director, Tom Mackin removed over a ton of old downed barb wire from around three water lots on the Flagstaff Ranger District, completed a rebuild of a Forest Service trick tank on the Tusayan District, and constructed a small enclosure fence on the Williams Ranger District to protect a riparian wetland at Rosilda Spring from livestock grazing and compaction (as part of the 4 Forest Restoration Initiative [4FRI]

effort).

Tom also continues to participate in the 4FRI stakeholders group, attending monthly meetings and various sub-committee activities. While numerous prescribed and managed fires assist in treating acreage, actual timber thinning has been very low, especially in the initial treatment area with only 1562 acres thinned in 2018. Extensive planning is underway for the second treatment area, commonly known as the Rim Country EIS.

Efforts for continued protection of the Grand Canyon area from potentially harmful uranium mining included three Pint Nights in the area at local craft breweries. At these events, participants were treated to informational multi-media presentations. Thanks to our interns Meagan Fitzgerald and Espen Yates for organizing these and other important events.



REGION 3

Loyd Barnett, Regional Director

As reported in September, the Region 3 Director, Loyd Barnett, attended the Verde Watershed Restoration Coalition's steering committee meeting last September. Loyd reports that the Coalition (an organization with whom he partners) has broadening their focus on restoration beyond the removal of invasive species in the major riparian areas. Several Task Forces are also developing plans and coordinating restoration requirements. In addition to attending steering committee meetings, Loyd is now participating on the soil conservation working group.

Loyd also continues to monitor the proposed Big Chino pump-back hydroelectric generation project as it continues through the stages of public involvement and environmental reviews. The project approval process through FERC (Federal Energy Regulatory Commission) is lengthy and complex. The company's timeline projects full generation beginning around 2028. The primary public issue has been the withdrawal of 27 thousand acre-feet of groundwater from the upper Big Chino aquifer (which feeds the headwaters of the Verde River) to initially fill the two reservoirs. The company promises to produce a mitigation plan for this withdrawal. Another stated concern of the project is that most of the generated energy may be exported to California and Nevada, using water from Arizona's limited sup-



REGION 5

Glen Dickens, Regional Director

In addition to participating in Arizona Antelope Foundation (AAF) fence modifications projects (one near Williams and another in Bonita northwest of Wilcox), Glen Dickens, Region 5 Director, represented the AAF at the Bi-annual Pronghorn Symposium in Reno Nevada. Glen also, along with AWF President Brad Powell, attended a workshop hosted by the National Wildlife Federation in Denver. The topic was "Wildlife Habitat Connectivity" throughout the west. The workshop was professionally facilitated and Glen and Brad shared all the work that the Arizona Game and Fish Department and other state wildlife organizations such as the AAF have been doing to reconnect for various species previously fragmented habitats.

Glen, along with AWF Board Members, Chris Mitchell of the Yuma Rod and Gun Club and Jim Lawrence of the Arizona Mule Deer Foundation, also attended the AGFD Commission meeting in Eagar and gave testimony to the Commission on their Sub-Committee's suggestions for raising the necessary funds absent the use of additional Big Game tags.

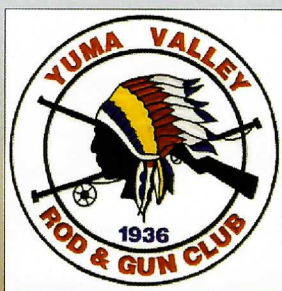
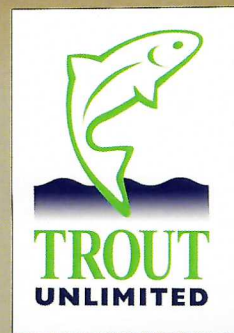
Glen also attended the AGFD public meeting in Prescott Valley to discuss the capture and transplant of pronghorn on Glassford Hill currently trapped due to subdivisions. Over 65 people attended the meeting and all learned about the fragmentation of key habitats in the grasslands surrounding Prescott due to ongoing and future housing developments.



Photo Courtesy of George Andrejko, AGFD

AWF Affiliates

Working together, the AWF and affiliated organizations are better able to address the various conservation concerns that we have in common. This close association allows our voices to be combined on issues and amplifies our messages, which reach local, national, and state levels.



Social Media

Want to stay in touch with AWF between newsletters? Like us on Facebook! Follow us on Twitter and Instagram!

Following us on these Social Media sites will keep you up to date on AWF activities and events. We also post Affiliate happenings, BOW workshop information, important dates, and other regular postings about AWF and Arizona wildlife.

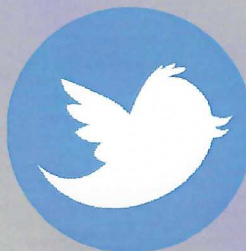
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Conservation Corner:

Notes from the National Wildlife Federation

Montezuma Quail Hunt and Wildlife Implications of a Border Wall

By Lew Carpenter

Lew Carpenter is National Wildlife Federation's Director of Conservation Partnerships in the Rocky Mountain region. Lew works directly with NWF affiliates in Colorado, New Mexico, Arizona and Nebraska.

A person wearing a hat and a backpack is walking through a field of tall, dry grass. They are holding a rifle. In the background, there are some trees and mountains under a clear blue sky.

"One of the great things about this country is that when people come together they are very strong, and we need to come together to understand our natural resources, and how important natural resources are to future generations."
Fernando Clemente, New Mexico Wildlife Federation Board Member and Wildlife Biologist

I stepped in close to the desert scrub where I thought the fleeing Montezuma Quail had landed. These quail hold tight and I was right on top of one when it exploded up in front of me blasting out to my left. I pulled in line and my view suddenly clouded with a dense tree foiling my shot. I looked further left and saw Clemente smoothly and effortlessly raise his shotgun and drop the dynamic bird.

We were a mere 20 minutes into our Montezuma Quail (also known as Mearn's Quail) hunt when the first covey had been busted. Field & Stream reporter Hal Herring had dropped a bird from that first flush and, apparently, I had become the bird dog for Clemente's kill—both flushing and retrieving for him.

Our group had joined together just a few miles from the

US-Mexico border in the Coronado National Forest of New Mexico's bootheel, just south of Animas. We were six—plus three dogs—out to hunt Montezuma Quail and talk wildlife impacts of a proposed border wall. Sixty percent of the Chihuahua desert grasslands are gone and further fragmentation of this essential habitat and its wildlife corridors would be devastating if a border wall is built.

"Some animals, because of their size, avoid predators, humans, autos and structures," Clemente said. "So when they see a structure in the distance like the proposed wall, they will not even go near. So when you talk about home range and habitat for a species, it will be totally disrupted—from California to Texas."

New Mexico Wildlife Federation (NMWF) staff member Gabe Vasquez, board member Fernando Clemente and past NMWF board chair Ray Trejo—plus Field & Stream’s Hal Herring and Tom Fowlks (photographer)—were all on site to camp, hunt and expose a magnificent ecosystem filled with tall grasslands, wood-ed hills, Coues deer, bear, desert bighorn sheep and...oh yes, quail.

Vasquez organized the trip. He also authored the National Wildlife Federation’s (NWF) Border Wall policy resolution, which was ratified by 51 NWF state affiliates during the 2017 NWF annual meeting in Stevenson, Washington. He is also a Las Cruces City Councilman and heads the Nuestra Tierra conservation program for NMWF.

“Under recent Congressional bills there have been environmental waivers granted for construction of any type of structure for border security,” Vasquez said. “New Mexico Legislators this year pushed back strongly with legislation that would trigger a state-version of NEPA or EIS anytime the federal government wants to come in and do a land swap with the state of New Mexico to facilitate the construction of any property, where there are no environmental laws required (like Clean Water Act, Clean Air Act, Endangered Species Act). It received strong support and passed out of a House committee.” “So clearly here in New Mexico, we place a high value on our land—and when people talk about state’s rights—well here’s a federal decision that comes with the power to decimate our state’s recreation economy, our wildlife and our culture, and we don’t want it,” Vasquez continued. “People

talk all the time about state’s rights and some of these folks are the same ones who want the wall, but you can’t have it both ways. This is terrible for sportsmen and women in New Mexico and terrible for anyone else who uses these public lands.”

NMWF’s Nuestra Tierra Conservation Project, a program that helps underserved and Hispanic communities connect with the outdoors, has been advocating against the border wall since its inception, and the following is from its factsheet:

The proposal to “*build a massive border wall across the U.S.-Mexico border is misguided, xenophobic, technically infeasible, and will deteriorate the country’s relationship with Mexico.*”

A massive border wall, on the scale ... proposed, will also have tremendously negative impact on wildlife and the natural environment.”

Disrupting the flow of water

In many places across the border, existing fences already act as dams during periods of heavy rainfall, which cause severe soil erosion, degraded habitat for wildlife, and flooding in rural and urban population centers. A concrete wall would likely amplify these existing problems.

According to the National Park Service, the pooling of water against existing border fences in Arizona has already caused severe soil erosion and damage to riparian vegetation.

When it rains in Palomas, Mexico, which neighbors Columbus, N.M., the town’s streets, many of them dirt roads, flood badly. Engineers have concluded that the existing border fencing and



From top left: Fernando Clemente, Lew Carpenter, Gabe Vasquez. Bottom from left: Ray Trejo, Hal Herring. Photo by Tom Fowlks



Fernando Clemente, New Mexico Wildlife Services and NMWF board member with a Montezuma Quail. Photo by Lew Carpenter

infrastructure is largely to blame. Additional and larger border infrastructure could severely flood our southern neighbors by altering the course of naturally flowing arroyos, impacting their health, infrastructure, and economy.

Severe disruption to wildlife habitat

Reinforced fencing—in particular solid walls—along the Southwest border will continue to disrupt the migratory ranges of wildlife in the Chihuahuan and Sonoran deserts and their endangered species.

Current border fences have already hindered efforts to save the native jaguar, which was listed as an endangered species since 1977 and is slowly recovering from near extinction. Restricting the movement of these creatures will almost certainly eliminate their ability to reach their traditional breeding areas.

The current wall has seriously hampered the distribution of the ferruginous pygmy-owl and bighorn sheep and could isolate other endangered populations of large mammals, including black bears, particularly in Arizona's Sky Island region.

Building a massive border wall to divide these two great nations will destroy the cultural heritage that the land represents to its modern day inhabitants and will severely impact wildlife habitat and endanger binational communities. Nuestra Tierra strongly believes that to preserve our frontera culture, and to move forward as a nation, the border wall must not be built.

"We need to act, Clemente said. "We need to come together. One of the great things about this country is when people come together they are very strong. And we need to come together to understand our natural resources, and how important natural resources are to future generations. The United States has always

been the leader in wildlife management and the conservation of natural resources, and I don't understand why we would head down this route (of a border wall)."

Trejo fortified that notion, *"We work very hard to articulate just that, on the landscape and on the border. It is our responsibility to bring people who are making decisions down (to the border), and to look at the landscape—otherwise they don't understand. We are connected with Mexico and we have always been connected with Mexico. And that wall is going to create a barrier that impacts the ecosystem that spans the border, and what happens to the people, the wildlife, the habitat and the work between the countries?"*

As we drove into the boot heel of New Mexico—the northern part of the Chihuahua Desert—the exotic landscape opened up with magnificent grasslands, mountain ranges and rich colors of gold, brown and green. Our campsite was at 5500 feet altitude and the temps ranged from 14 to 75 degrees.

Trejo, a high school administrator in these parts, brought his two German short haired pointers and Clemente, who owns NM Specialized Wildlife Services, brought his pointer as well. Both men are experts in wildlife conservation and Clemente manages wildlife populations on both sides of the U.S.-Mexico border.

"We are supposed to be a country that creates relations, and I hope that nothing will happen, but if the wall gets created, what will happen to those relations?" Clemente rhetorically asked. "And what do I mean by that? Talking about waterfowl and migratory birds, many people say that 'They can fly over the wall,' but that's not the point. The point is there are tri-lateral meetings every year between the US, Canada and Mexico." "They meet to create a management plan for the migratory birds, and I've been fortunate to be a part of that within the Central Flyway. And they get to get together and talk about everything from habitat restoration and resting places (wildlife refuges) all the way to bag limits and how many each country harvests," Clemente continued. "Why is that? Because they fly from Canada to Mexico and then back each year. It's not a species that somebody owns—everybody owns them, and their habitat, and home range is from Canada to Mexico, so that's the way it needs to be managed. So let's say there is a break in our relationships, and now they don't care because we don't care about them—so we will change things to keep more birds for us. The problem is that if we start changing how we manage those migratory birds in order to keep numbers for each country, what will happen in 20 years?" The same could be said about relations on Sonoran pronghorn, Coues deer, and desert bighorn sheep—just a few in the game species category. "We have a great population of Gould's turkeys because of releases from Mexico, and Mexico is doing great with Gould's turkeys—almost half the country has Gould's turkeys," Clemente said. "So all those relationships have been created to build population sustainability with wildlife populations. If we damage that then it will be 10 times harder to be able to sustain a wildlife population. Now, with that being said, what kind of message are we sending to the wildlife biologists and ecologists about all that work from the past? When we build that wall we are saying we don't care about the work."

Heading out into the National Forest I was struck by the glowing, golden high grasses—excellent quail habitat. The quality of the landscape was like nothing I had seen further north. Un-grazed public land as far as the eye could see—challenging us as we searched for quail.

Tracking along a small wash, which was wooded along the southern face, we came upon that first covey and flush. Holding a Montezuma in my hand for the first time, I could easily see what the fuss was about with these birds. To detail all its beauty in

words would be nearly impossible considering the diversity of colors and patterns throughout its plumage.

Exploring a small slice of this incredible grassland ecosystem was a gift. Thick golden fields of grass; rocky, woodland washes and hills; and open space without structure extending well beyond sight (with occasional groups of Coues deer busting forth).

“Culturally we refer to this little piece on the landscape as the border, but it’s a landscape just like any other,” Vasquez said. “It is diverse, it is beautiful and to us it is our home. It is becoming more dangerous to us as we see what is happening in Congress.”

I admit, it’s hard to weave a hunting story with an issue as significant, deep and connected to so many people, cultures and conservation values. The hunt left a mark on me. The conversation about the wildlife impacts of a border wall left an impact on me. My life is forever changed by this type of experience, when being present in a special place merges with responsible, pragmatic

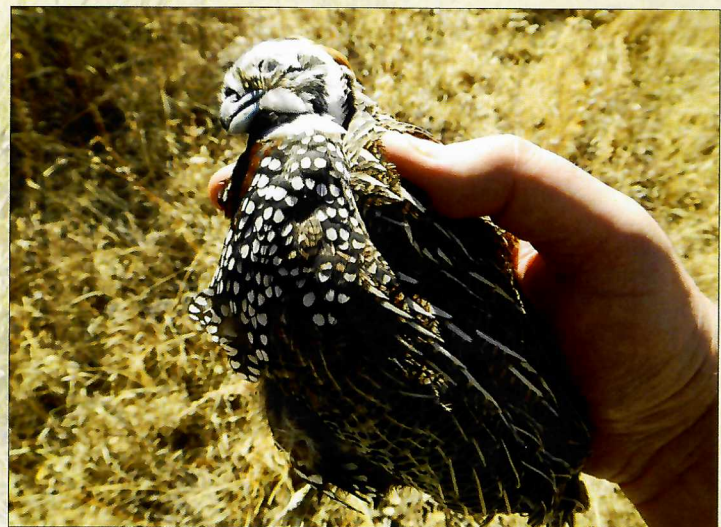
dialogue about common values. And when we connect with each other physically in a place that is meaningful, one can’t help but be transformed forever.

And, while we sought both Montezuma and Blue (Scaled) quail, we encountered Gambel’s quail, too—all remarkable game birds. Afternoons in this area beg a hat trick. Though I didn’t shoot as well as I would like, the hunt will be one of my greatest sporting memories. The combination of epic habitat, spectacular wildlife and the best of companions (dogs included) made the trip truly special.

I am invested in my role with conservation, and even more invested in my relationships, but to be in a place that not only connects people and culture from two nations, and touches upon the values of wild places and wildlife, I can’t help but be transformed even further in my resolve to protect the things I love—people, wildlife, heritage and the vast beauty of the public estate.

Background photo: Dog on point with Vasquez and Clemente. Photo by Lew Carpenter

Montezuma Quail (right) Photo by Lew Carpenter



History and Conservation of the Sonoran Pronghorn in El Pinacate Biosphere Reserve

By Miguel A. Grageda

*School of Natural Resources and the Environment
The University of Arizona*



When we think of the Sonoran desert, isolated landscapes of dry extensions of sand and rock come to our minds, covered with elegant saguaros and an overwhelming heat that suggest that no living creature would survive under such conditions. But if we look closer, we may be able to find a great variety of species living in this inhospitable place. It may be a chuckwalla lizard basking on a rock, a red tailed hawk flying in the distance or a rattlesnake hiding under a creosote bush. But what a surprise would it be to discover a big “antelope-like” mammal suddenly appearing from the nowhere, running fast and then disappearing just a few seconds later as an illusion of the desert.

This amazing mammal is known as pronghorn (*Antilocapra americana*), or “ku:vid” as local Tohono O’odham name it. Although it is commonly found in the great plains of North America, there is a population that has been adapted to the warm, dry environment of the Sonoran Desert for at least 1.8 million years. This population has been considered in the past as a different subspecies, the Sonoran pronghorn (*A.a.sonoriensis*), although new studies are still trying to confirm this difference. Furthermore, this subspecies is in the category of “Danger of Extinction” by the Mexican law (NOM-059-SEMARNAT-2010).

Instead of living in open grasslands, like in other parts of the continent, the Sonoran pronghorn has developed an amazing capability to survive among desert shrubs and cacti, where warm summer temperatures routinely exceed 104°F, and often reach 118°F. To counteract these high temperatures the pronghorn has hollow hairs that cover its body, helping to deflect the heat and providing insulation to maintain body temperature. Also, the pronghorn has low body fat, allowing it to disperse heat more quickly. Contrary to what we may think, the pronghorn has rarely been seen drinking water from natural sources in the Sonoran desert. Instead, it has developed an efficient system that helps it to conserve water and avoid losing moisture in periods of heat. In addition, it can obtain water from food with high moisture content

that is included on its diet like cholla, saguaro fruits, and sweet wildflowers from native trees like the ironwood and palo verde.

The pronghorn once freely roamed the valleys of southern Arizona and northern Sonora, Mexico, when human development was minimal and no boundaries delineated the landscape. Early explorers who traveled to the area known as El Pinacate, were amazed at the wildlife they encountered. They described how pronghorn and bighorn sheep inhabited the valleys and mountains of that region, just south and east of what is now Sonoyta, Sonora, Mexico. Different expedition reports document these encounters; like the one led by William T. Hornaday in the year 1908, where in his book *Campfires on Desert and Lava*, he tells of his experience finding at least 33 pronghorn around the volcanic craters of El Pinacate, and collecting a couple of them; or the expedition guided by Carl Lumholtz in 1910, when he described in his book *New Trails in Mexico* how he tried to approach a group of five individuals around the Sierra Blanca, just south of El Pinacate.

El Pinacate region, located in the Northwestern extreme of the state of Sonora, is a place that has attracted explorers, scientists, and tourists who want to enjoy and be delighted by the magnificence of the volcanic field and the sand dunes. These impressive features gained the recognition of the Federal Government in Mexico, who declared this area as a Biosphere Reserve in 1993, in order to protect the landscapes and all the biodiversity inhabiting here. The Sonoran pronghorn is one of the main species of concern there and one of the reasons for keeping this extension of land excluded from human development. Years later, UNESCO declared El Pinacate as a World Heritage Site in 2013, recognizing its importance and noting its unique values worthy of conservation. The total size of the area designated as protected area is 7,146 km² (1,765,815 acres), although only 2,000 km² of those are suitable habitat for the pronghorn.

One of the main reasons this Reserve is important for the Sonoran pronghorn is its location. It is situated in the middle of the

natural corridor between Arizona and the rest of the current range of the pronghorn in Sonora. In this place, this species has been historically roaming free, with no disturbances by human impact. But in the recent age of development and technology, urban centers have grown along with their demands for food, space and recreation. As well, cities increasingly have the tendency of being connected to other cities through a network of transportation corridors in order to keep the economy flowing among these sites. As a result, new highways have been built in the last 50 years, such as Highway No. 2 that was constructed on the southern side of the U.S. - Mexico border to become the first terrestrial connection between Baja California and the rest of the country. This highway greatly improved commerce and the communication system, but on the other hand, created a problem by dissecting the original corridor of the pronghorn into two parts. Every year the use of vehicles increases; it is common to see small sized cars or double semi-trucks passing almost every minute. Years later, a second artery was developed in the region: Highway No. 8 was constructed from the U.S - Mexico border south to the Sea of Cortez, in order to facilitate the connection between the border city of Sonoyta and the touristy city of Puerto Peñasco (Rocky Point) located right next to the ocean.

Large mammals, like bighorn sheep and mule deer, have been documented crossing these highways or using the underpasses for wildlife that connect the northern and southern parts of their mountainous home range. This mountain range functions as a natural corridor, having its north side in Cabeza Prieta National Wildlife Refuge in Arizona and its south end in El Pinacate Biosphere Reserve. But a different story is told for the pronghorn that have been unable to continue their natural movements from

one side to the other of the highways, thus isolating this population within its limits. There are just a few individual pronghorn that have been documented crossing these highways, and unfortunately the underpasses for wildlife are not being effective for them. This difference occurs because bighorn sheep and mule deer are naturally adapted to use steep and rough places where visibility may be sometimes limited. Contrarily, the pronghorn need open spaces to give them confidence and a higher probability of detecting nearby predators. They also need flat areas with soft ground to be able to run and escape in case of threat. Equally, the shy pronghorn will try to avoid noisy places like these busy roads with vehicles passing continually.

The pronghorn population inhabiting the Pinacate Reserve was estimated to be around 33 individuals in the year 2000. In 2015, a new estimation calculated a population size of at least 100 individuals, according to data published by the Arizona Game and Fish Department. This information suggests that during this time there was a positive growth trend that has a possibility of continuing in the future.

The pronghorn population in El Pinacate has not been directly manipulated. The only management actions implemented by the Reserve have been keeping the area free of fences, to have large extensions of continuous, open habitat for the pronghorn, and to maintain a constant vigilance effort by Park Rangers to avoid poaching activities inside of the Reserve. Even with this optimistic panorama, it is necessary to maintain special attention on the pronghorn's population dynamics over time. It is also important to continue to minimize human activities in the current pronghorn range to ensure the permanence of this magnificent species in the Sonoran desert.



Miguel A. Grageda

History and Conservation of the Sonoran Pronghorn in El Pinacate Biosphere Reserve

By Miguel A. Grageda

*School of Natural Resources and the Environment
The University of Arizona*

When we think of the Sonoran desert, isolated landscapes of dry extensions of sand and rock come to our minds, covered with elegant saguaros and an overwhelming heat that suggest that no living creature would survive under such conditions. But if we look closer, we may be able to find a great variety of species living in this inhospitable place. It may be a chùckwalla lizard basking on a rock, a red tailed hawk flying in the distance or a rattlesnake hiding under a creosote bush. But what a surprise would it be to discover a big “antelope-like” mammal suddenly appearing from the nowhere, running fast and then disappearing just a few seconds later as an illusion of the desert.

This amazing mammal is known as pronghorn (*Antilocapra americana*), or “ku:vid” as local Tohono O’odham name it. Although it is commonly found in the great plains of North America, there is a population that has been adapted to the warm, dry environment of the Sonoran Desert for at least 1.8 million years. This population has been considered in the past as a different subspecies, the Sonoran pronghorn (*A.a.sonoriensis*), although new studies are still trying to confirm this difference. Furthermore, this subspecies is in the category of “Danger of Extinction” by the Mexican law (NOM-059-SEMARNAT-2010).

Instead of living in open grasslands, like in other parts of the continent, the Sonoran pronghorn has developed an amazing capability to survive among desert shrubs and cacti, where warm summer temperatures routinely exceed 104°F, and often reach 118°F. To counteract these high temperatures the pronghorn has hollow hairs that cover its body, helping to deflect the heat and providing insulation to maintain body temperature. Also, the pronghorn has low body fat, allowing it to disperse heat more quickly. Contrary to what we may think, the pronghorn has rarely been seen drinking water from natural sources in the Sonoran desert. Instead, it has developed an efficient system that helps it to conserve water and avoid losing moisture in periods of heat. In addition, it can obtain water from food with high moisture content



that is included on its diet like cholla, saguaro fruits, and sweet wildflowers from native trees like the ironwood and palo verde.

The pronghorn once freely roamed the valleys of southern Arizona and northern Sonora, Mexico, when human development was minimal and no boundaries delineated the landscape. Early explorers who traveled to the area known as El Pinacate, were amazed at the wildlife they encountered. They described how pronghorn and bighorn sheep inhabited the valleys and mountains of that region, just south and east of what is now Sonoyta, Sonora, Mexico. Different expedition reports document these encounters; like the one led by William T. Hornaday in the year 1908, where in his book *Campfires on Desert and Lava*, he tells of his experience finding at least 33 pronghorn around the volcanic craters of El Pinacate, and collecting a couple of them; or the expedition guided by Carl Lumholtz in 1910, when he described in his book *New Trails in Mexico* how he tried to approach a group of five individuals around the Sierra Blanca, just south of El Pinacate.

El Pinacate region, located in the Northwestern extreme of the state of Sonora, is a place that has attracted explorers, scientists, and tourists who want to enjoy and be delighted by the magnificence of the volcanic field and the sand dunes. These impressive features gained the recognition of the Federal Government in Mexico, who declared this area as a Biosphere Reserve in 1993, in order to protect the landscapes and all the biodiversity inhabiting here. The Sonoran pronghorn is one of the main species of concern there and one of the reasons for keeping this extension of land excluded from human development. Years later, UNESCO declared El Pinacate as a World Heritage Site in 2013, recognizing its importance and noting its unique values worthy of conservation. The total size of the area designated as protected area is 7,146 km² (1,765,815 acres), although only 2,000 km² of those are suitable habitat for the pronghorn.

One of the main reasons this Reserve is important for the Sonoran pronghorn is its location. It is situated in the middle of the

natural corridor between Arizona and the rest of the current range of the pronghorn in Sonora. In this place, this species has been historically roaming free, with no disturbances by human impact. But in the recent age of development and technology, urban centers have grown along with their demands for food, space and recreation. As well, cities increasingly have the tendency of being connected to other cities through a network of transportation corridors in order to keep the economy flowing among these sites. As a result, new highways have been built in the last 50 years, such as Highway No. 2 that was constructed on the southern side of the U.S. - Mexico border to become the first terrestrial connection between Baja California and the rest of the country. This highway greatly improved commerce and the communication system, but on the other hand, created a problem by dissecting the original corridor of the pronghorn into two parts. Every year the use of vehicles increases; it is common to see small sized cars or double semi-trucks passing almost every minute. Years later, a second artery was developed in the region: Highway No. 8 was constructed from the U.S. - Mexico border south to the Sea of Cortez, in order to facilitate the connection between the border city of Sonoyta and the touristy city of Puerto Peñasco (Rocky Point) located right next to the ocean.

Large mammals, like bighorn sheep and mule deer, have been documented crossing these highways or using the underpasses for wildlife that connect the northern and southern parts of their mountainous home range. This mountain range functions as a natural corridor, having its north side in Cabeza Prieta National Wildlife Refuge in Arizona and its south end in El Pinacate Biosphere Reserve. But a different story is told for the pronghorn that have been unable to continue their natural movements from

one side to the other of the highways, thus isolating this population within its limits. There are just a few individual pronghorn that have been documented crossing these highways, and unfortunately the underpasses for wildlife are not being effective for them. This difference occurs because bighorn sheep and mule deer are naturally adapted to use steep and rough places where visibility may be sometimes limited. Contrarily, the pronghorn need open spaces to give them confidence and a higher probability of detecting nearby predators. They also need flat areas with soft ground to be able to run and escape in case of threat. Equally, the shy pronghorn will try to avoid noisy places like these busy roads with vehicles passing continually.

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Miguel A. Grageda

AWF's Landscape and Wildlife Photo Contest

By Meagan Fitzgerald

Arizona Wildlife Federation's first landscape and wildlife photo contest was a great success. Over 300 photos were submitted, and we were thrilled to see the variety of Arizona's wildlife and wild places depicted. We received submissions from all across the state including Payson, Peoria, and Nogales and a large variety of wildlife such as bobcats, bighorn sheep, mule deer, and hummingbirds.

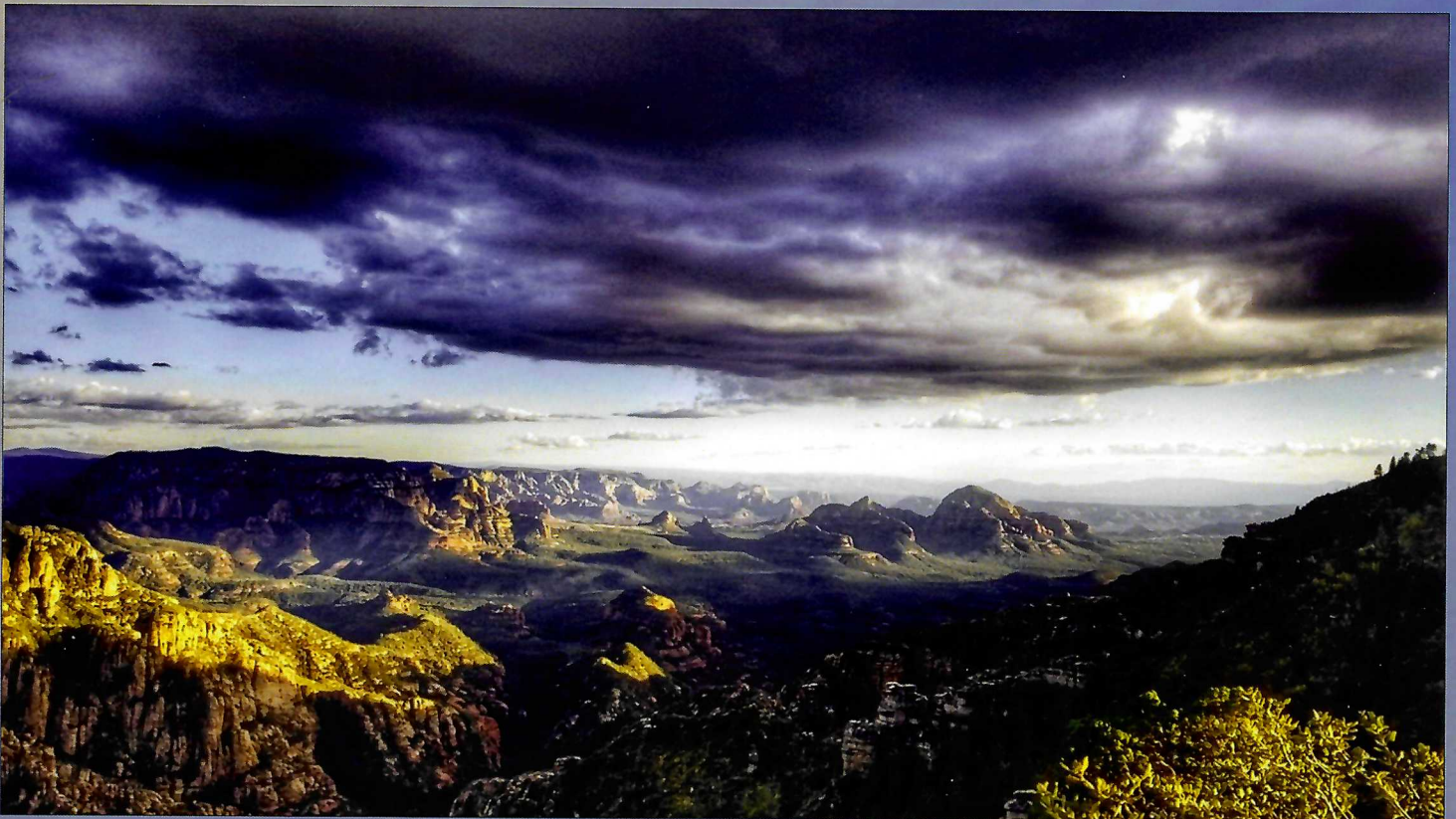
Our top three winners were selected by popular vote. Anyone interested could vote once per day (whether or not they submitted a photo) for their favorite #WildShot. Our 1st place winner took the gold with support from his entire community receiving over 2,900 votes! Keep an eye out for his winning photo on the cover of AWF's spring edition of Arizona

Wildlife News. Our 2nd place winning photo also received 1000s of votes and her photo will grace the cover of the summer edition of Arizona Wildlife News!

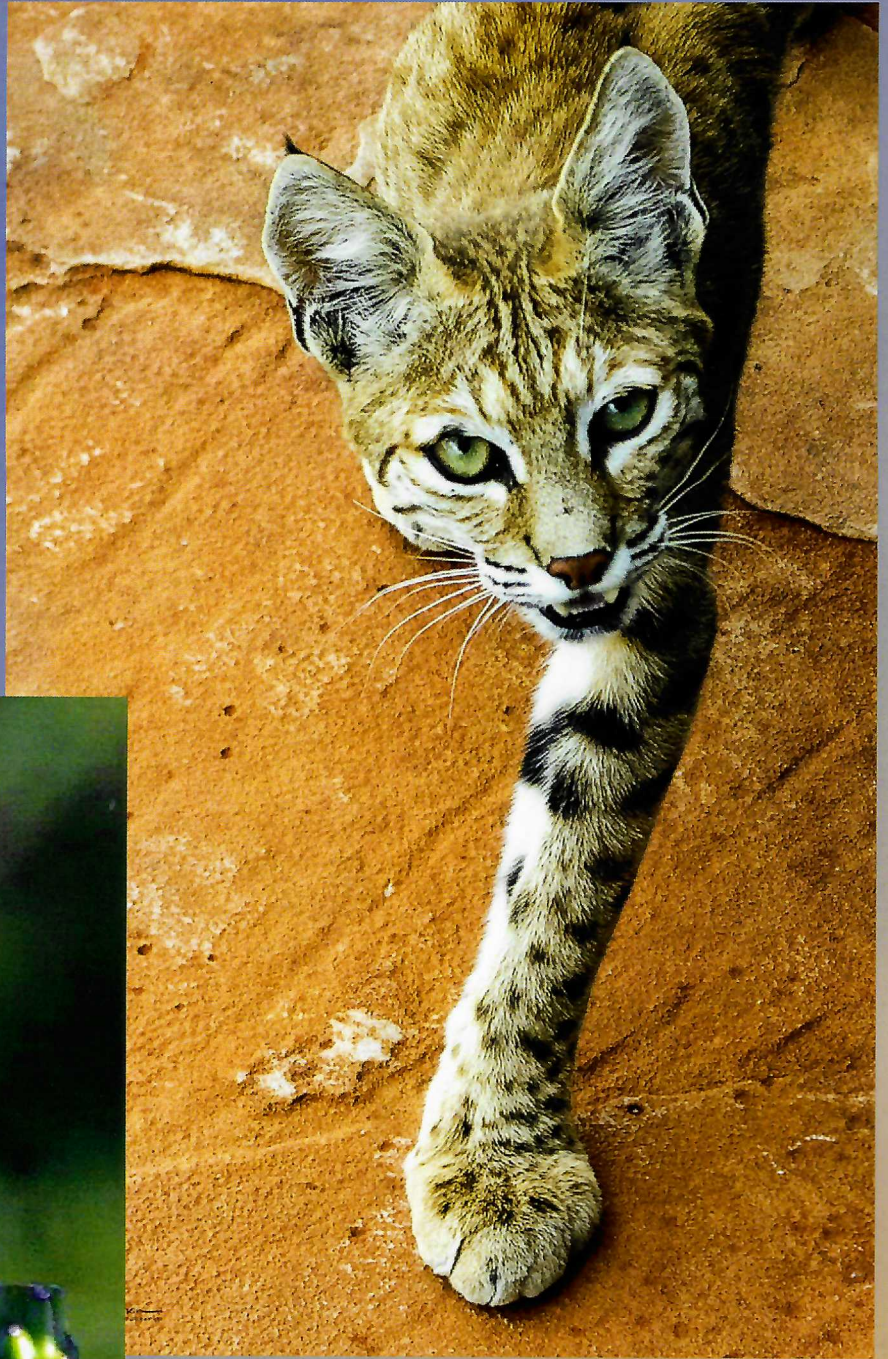
Shown below are the 3rd place winning photo and several honorable mentions, which were hand-picked by our board of directors and staff of AWF – with so much excitement we couldn't wait to get involved! The top 12 honorable mentions were used in the creation of an Arizona-inspired 2019 calendar!

Thank you to all who participated in this fun contest. Wildlife and landscape photography is a wonderful way to get out and enjoy the great outdoors of Arizona. Given the popularity of the photo contest we will hold another in the future.

Honorable Mention Landscape - by Chris K.



Edge of the World



Bobcat Encounter

Honorable Mention Wildlife - by Parks S.



by Parks Squyres

Desert Cardinal (Pyrrhuloxia)

Third Place Winner by Mark K.



Scottsdale local eagle leaving his perch on a full moon morning

Trophy Book Corner

By Mike Golightly

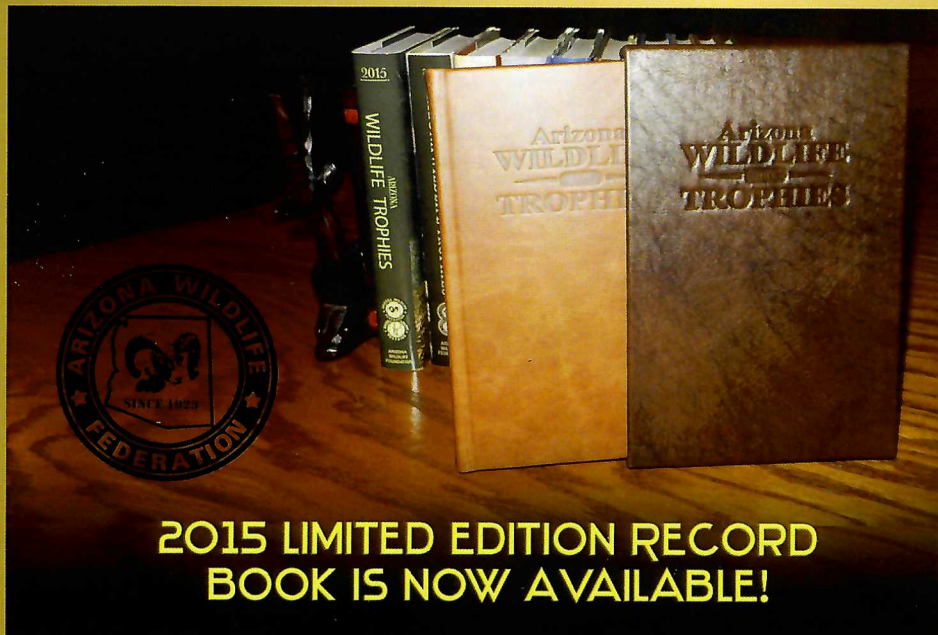
The measuring of trophy big game animals throughout the state has not really kicked in as of this writing. All Fair Chase trophies require a 60 day drying period prior to being officially measured and eligible for entry into the Arizona Wildlife Federation's Trophy Book. For example, a bear harvested on December 15, 2018 would be eligible for measurement February 13, 2019. The first day after harvest is day 1.

Just a reminder, the new minimum score for Coues Typical and Non-Typical is 100 and 105 B&C points respectively. Velvet antlered trophies are now eligible in a brand new category with the minimum entry score the same as hard antlered animals. The Trophy Book entry fee is \$30 each entry. And finally, turkey will now be included in the Trophy Hunter's Special Award and the Arizona Big Game Award categories.

For your trophy to appear in the millennium (2020) Trophy Book publication it must have been accepted by the Trophy Book Committee no later than May 1, 2019. Trophies submitted for entry after May 1, 2019 will appear in the 2025 Trophy Book publication. So, DON'T linger!

So far this year, there have been a couple of really good trophies harvested. A Rocky Mountain bighorn sheep was

harvested by retired Flagstaff school teacher, Bill Acheson, from unit 1-27 (Black River near Alpine Green) scoring 183+. Also, a cougar taken by Game and Fish Commission Chairman, Jim Zieler, scored 14 14/16. Remember, a great way to honor these amazing animals, and all our trophy harvests, is by entering them in AWF's Trophy Book!



Arizona Wildlife Trophies is the official record book of Arizona Big Game trophies. Every five years a new edition is published as a uniquely numbered hard cover book. The 2015 book has a limited edition leather bound book. Visit the Trophy Book page on our website for more information or to order copies.

We are clearing out our inventory of Arizona Wildlife Trophies past editions. You can currently purchase Hard Copy and Field Copies of the Trophy Book from the years 1995, 2000, and 2005 for a reduced rate. Order now as quantities are limited.

Go to <https://shop.azwildlife.org> to order yours now or call Kim @ 480-644-0077.

Becoming an Outdoors-Woman (BOW) Happenings

BOW Report 2018



by Linda Dightmon

Although both the winter and spring 2018 BOW workshops were fun and full of adventures, the numbers of participants were lower than usual. There was space for another 10 ladies at BOW Deluxe in January, and the spring event was even more anemic with at least 30 vacancies. Thus, when it was mid-August and the September registration was stalled at 63 ladies, it was panic time. It made me wonder if we are still relevant? Maybe shopping malls and dinners out were winning over paddling a canoe or Dutch oven cooking.

I put an SOS out on social media and my post was shared extensively. I noticed businesses, cities, and even Gila County shared that post. The Facebook data informed me that 9,500 people saw that message. I followed up with more posts on instructor bios and class descriptions. However, when we queried the camp as to what inspired ladies to sign up, only six said that it was social media.

I also sent out a second press release to some small town newspapers. The *Payson Roundup* printed a wonderful article in their print and online editions. Twelve small town papers gave us some kind of press, and about 10 participants said that was what brought them in. About a third of the group had seen at least one of these articles but had already registered.

We ended up with 102 participants at the September BOW, with more on the wait list. I am still not sure what happened between August 16th and September 5th to cause 39 ladies to sign up. Of the 102, sixty-five were first time participants. This 1/3 repeat participants to 2/3 first timers ratio is typical. (However, 77% of the April ladies were first time participants.)

The game taste, in which women get to try game meat prepared in different ways, had a good variety of Arizona animals (see sidebar). It is fun to watch these women as they

try new things. Almost everyone tried our offerings although there were a couple of vegetarians. We sent them directly to the crawfish (that didn't always work). At least there were plenty of vegetarian options in the dining hall meals.

On Friday night, we had a Native American presentation. Roman Orona, with his son and mother. They performed native dances and showed scenic videos of various native prophecies and stories. Roman did a stunning presentation and at the end, we all did a little dancing.

The Saturday night fund raiser was quite successful. The highlight being a live auction for a 4 day trip for two people to Gunsite Academy in Nevada. It went for over a thousand dollars! The lady that bought it is going to take her sister. Many thanks to rappelling instructor, Joe Bitterolf, for the donation. We raised almost \$4,000 total in the auction. Once again, the "BOW Follies" were entertaining and hysterical. There is something magical that happens in that room on Saturday night. It is inspiring to witness 100+ women throw away their inhibitions and just have fun.

We introduced two new classes at this workshop, *Primitive Skills* and *Landscape Painting*. Now there is some diversity for you! Both classes filled up quickly, demonstrating once again how we aim to please.

During the primitive skills class, one lady was unsuccessful making fire. That evening she tried again with help from Trica, the instructor. She used car cloth and a flint and steel to get an ember glowing in the cloth. When she got that accomplished, she transferred it to center of a tinder bundle and blew on it until the flames started. Everyone around her cheered. Cool stuff happens at BOW!

Sunday lunch, our final shared meal of the weekend, is when we usually receive the fun feedback. It is a time when ladies are getting ready to pack up and go home. They are all

happy-tired and still giggling over the Saturday night festivities. First time accomplishments are still fresh in their minds and they can't wait to get home and tell their families. This scenario has not changed in the 23 year history of this workshop.

One lady came up to us and proudly stated that she had such a good time and was so busy learning new things and enjoying the weekend that she forgot to share any pictures of her grandchildren with her new friends! After such a successful weekend, full of happy, newly-minted outdoors women, it's easy to say:

Yep, BOW is still relevant.



Karla makes fire!

2019 BOW Dates

January 25-27

April 12-14

September 6-8

Be sure to join us for the fun!!

Looking ahead..

As of this writing, BOW 2019 is well underway. The January 25-27 Deluxe workshop filled in 2 1/2 weeks with a wait list. Chamber of Commerce weather makes it perfect.

The registration for the April workshop has been posted and ladies are registering. Kathy has added two new classes as we try to keep it fresh.

Check it out at: <https://azwildlife.org/BOW>



Game Taste September 2018

This Friday icebreaker has become a tradition for the Arizona BOW program. It is a favorite with the ladies. And why not? Check out the menu!

Assorted sausage samples:

(Courtesy of the Sausage Making class!)

ELK: Sweet and tangy meatballs

(Thanks to Crystal Moore)

Chukar Partridge: Marsala

(Thanks to Tony Marquez)

Crayfish: Boiled, dipped in butter

(Courtesy of the Crawfish Trapping class!)

Coues Deer: Mexican lasagna with nopolitos

(Thanks to Kathy Greene)

Dove: Bacon wrapped Rumaki

(Thanks to Debbie Wesch)

Black Bear: Braised with mushroom sauce

(Thanks to Linda Dightmon)

Javelina: Chorizo sausage nachos

(Thanks to Debbie Wesch)

Camp Cook



by Ryna Rock

Polish Sausage Bake

- 1 Tbsp oil
- 6 boiling onions, peeled and cut in half
- 2 lbs Polish sausage, cut into 2-inch chunks
- 2 stalks celery, cut into 2-inch pieces
- 4 potatoes, peeled and quartered
- 4 carrots, peeled and cut into chunks
- 1/2 head of cabbage, cut into 2-3 wedges
- 1 c chicken broth
- 1/2 tsp salt
- 1/4 tsp pepper

Heat a 12-inch Dutch oven over 12-15 hot coals and heat oil. Add onions and sausage and cook for 10 minutes, stirring until sausage has browned. Add celery, potatoes, carrots, and cabbage, stirring well. Cook, covered, for 30-40 minutes, until vegetable are tender, adding a little broth as needed to keep food moist. Salt and pepper to taste.

Dilly Casserole Bread

- 1 pkg yeast
- 1 c creamed cottage cheese
- 2 Tbsp sugar
- 1 Tbsp instant minced onion
- 1 Tbsp butter
- 2 tsp dill seed
- 1 tsp salt
- 1/4 tsp baking soda
- 1 egg
- 2-1/4 to 2-1/2 c flour

Dissolve yeast in water. Heat cottage cheese to lukewarm. Combine sugar, onion, butter, dill seed, salt, baking soda and

egg in a bowl with cheese and yeast mixture. Add flour to form a stiff dough. Cover and let rise until doubled in bulk. Stir down dough. Turn into a well-greased 8-inch Dutch oven. Let rise 30-40 minutes, or until light. Bake over coals and with coals on lid, 40-50 minutes. Brush with butter and sprinkle with salt.



Pineapple Upside Down Cake

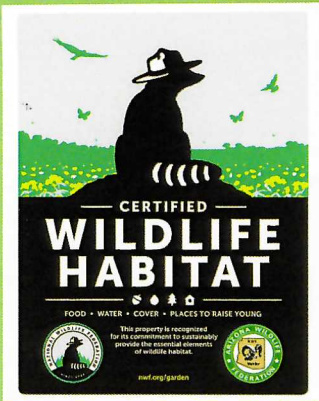
- 2 Tbsp butter, melted
- 1 (16-oz) can pineapple slices, drained
- 1 (8-oz) jar maraschino cherries
- 1/2 c brown sugar
- 1 (18.25-oz) box yellow cake mix, prepared to package directions

Line the bottom of a 12-inch Dutch oven with heavy-duty aluminum foil. Add butter and arrange pineapple slices on top. Set a maraschino cherry in the center of each pineapple slice, and sprinkle brown sugar evenly over the fruit. Pour prepared batter on top of the fruit. Place the Dutch oven over 9 hot coals. Cover with lid and place 15 hot coals on top. Bake, covered, for 30 minutes, or until golden brown. Lift cake out of the Dutch oven using the foil lining and set on table. Cover top with foil, and tuck the edges underneath the cake. Cool for 10 minutes; turn upside down and peel away the foil.

Oven size	Number of briquettes	
	Top	Bottom
10-inch	10 to 12	8 to 10
12-inch	12 to 14	10 to 12
14-inch	14 to 16	12 to 14
16-inch	16 to 18	14 to 16

Gardening for Wildlife

The Arizona Wildlife Federation is teaming with National Wildlife Federation (NWF) to certify your garden as “Wildlife Habitat.” With a small amount of planning and effort, you can create a wildlife habitat in your yard, on your balcony, at your school, or along roadsides! With NWF's Certified Wildlife Habitat program, folks are encouraged to plant native shrubs, flowers, and trees that produce berries, seeds, and sap, to create an eco-friendly environment for birds and wildlife.



For more information, visit us online at <http://azwildlife.org/habitat>

Wildlife need our help. Human activity has changed and eliminated habitat both locally and on the global scale. You can make a difference. You can invite wildlife into your own yard and neighborhood by planting a simple garden that provides habitat. Imagine your garden teeming with songbirds, colorful butterflies, hummingbirds, and other small wildlife.

Providing a sustainable habitat for wildlife begins with your plants. That's why it's called “Gardening for Wildlife.”

When you plant the native plant species that wildlife depend on, you create habitat and begin to restore your local environment. Adding water sources, nesting boxes, and other habitat features enhances the habitat value of your garden to wildlife. By choosing natural gardening practices, you make your yard a safe place for wildlife and reverse some of the human-caused habitat destruction that harms wildlife.

Here is what your wildlife garden should include:

Food: Native plants provide nectar, seeds, nuts, fruits, berries, foliage, pollen, and insects eaten by an exciting variety of wildlife. Feeders can supplement natural food sources.

Water: All animals need water to

survive and some need it for bathing or breeding as well.

Cover: Wildlife need places to find shelter from bad weather and places to hide from predators or stalk prey. They also need safe and appropriate places to raise their young.

Already have all these elements in your wildlife garden? Certify today! Find out more including how to certify your garden at <https://azwildlife.org/habitat>.



Dryas Julia, image courtesy of Desert Botanical Garden

Welcome New Members

Rene	Borromeo	Phoenix	AZ
Jayne	Carr	Prescott Valley	AZ
Missy	Debnar	San Tan Valley	AZ
John	Doss	Phoenix	AZ
Emily	Feldman	Phoenix	AZ
Michelle	Fuller	Phoenix	AZ
Sharon	Gilloon	Mesa	AZ
Matt	Gold	Peoria	AZ
Scott	Henslee	Mesa	AZ
Sydney	Hiar	Gilbert	AZ
Aileen	Judson	Flagstaff	AZ
Joni	Kiser	Prescott Valley	AZ
Susan	Knight	Tucson	AZ
Karen	Lesperance	Mesa	AZ
Ron	Mathis	Phoenix	AZ
Stacey	Palmer	Phoenix	AZ
Tim	Price	Glendale	AZ
Diana	Prochaska		
Kathleen	Ritz	Phoenix	AZ
Michael	Schoose	Mesa	AZ
Nathan	Smith	Mesa	AZ
Kay	Volkema	Payson	AZ
Audrey	Wilson	Star Valley	AZ
OUT OF STATE			
Shannon	Merewether	Albuquerque	NM

Welcome New Life Members

Robert	Rausch	Gold Canyon	AZ
Michael	Anderson	Flagstaff	AZ

Keep track of upcoming activities and events of both AWF and our Affiliates!

Visit our on-line calendar at:

<https://azwildlife.org/calendar-affiliates/>



BOW INSTRUCTOR YEARS OF SERVICE

20 years

Don Farmer (Founder)
Mark Hullinger (Founder)
Don Greene
Kathy Greene
Tice Supplee

Sarah Yeager
Donna Walkuski

5 years

Susan Baldwin
Stacy Boone
Clay Crowder
Kelly Dwyer
Jean Groen
Amy Horns
Triska Hoover
Coleen Lancaster
Bill Larson
Brian Marshal
Mike Matthews
Cliff Saylor
Danette Schepers
Stan Schepers
Connie Sullivan
Susan Zinn

15 years

Linda Dightmon
Russ Gunderson
Brian Mazoyer
Amanda Moors
Jeff Sorenson

10 years

Nicole Ansley
Steve Bilovesky
Roger Clark
Bill Deshaw
Holly Dickinson
Jan Dunkelberg
Elsie Ferguson
Wendell Gist
Joy Hernbrode
Jarred Kaczmarek
Barbara Kennedy
Collen Miniuk-Sperry
Leroy Smith
Marian Taln
Andree Tarby



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Along with other opportunities for 2019, please consider taking advantage of the new dental (with optional vision) plans, Guaranteed Senior Whole Life, Guaranteed Children's Whole Life policies and other products offered to us by our Association Group partner at Mutual of Omaha, Art Mier.

Your membership with the Arizona Wildlife Federation entitles you to discounted premiums and/or enhanced benefits on a variety of our insurance products and financial services. No health questions asked/no rate increase guaranteed on whole life insurance for seniors and children.



Arizona Wildlife Federation
PO Box 51510
Mesa, AZ 85208
(480) 644-0077 Fax: (480) 644-0078 awf@azwildlife.org



2019 WORKSHOP DATES:
APRIL 12 – 14
SEPTEMBER 6 – 8



FOR MORE INFORMATION VISIT:
WWW.AZWILDLIFE.ORG/BOW

