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NEWS



MANAGING ELUSIVE SPECIES – P. 8

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ARIZONA WILDLIFE NEWS

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

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The front cover photo is courtesy of George Andrejko, Arizona Game & Fish Department.

The back cover contains pictures of past Becoming an Outdoors Woman events. Please join us at our April or September BOW camps.

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 Kimberlee at awf@azwildlife.org

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President's Corner

By Brad Powell

They are at it again.

Every year I start with optimism and hope that our leaders will work together to ensure that our State continues to be a great place to live. One that balances the need to grow with the understanding that our natural lands are important habitats for fish and wildlife and provide clean water, places to hunt, fish, hike, camp and reflect for all of us.

I just returned from Washington DC where the Arizona Wildlife Federation, the Havasupai tribe and the Grand Canyon Trust met with key leaders of Federal Agencies and our elected Representatives to discuss the 20 year uranium withdrawal near the Grand Canyon. The Forest Service recently recommended to the President that the mineral withdrawal be reviewed for cancellation.

We discussed that the risks of uranium mining far outweigh the benefits. We have well over a \$3 Billion cleanup from the last round of uranium mining with over \$1 Billion of that currently coming from the federal treasury, over 90% of the mining claims within the withdrawal area are owned by subsidiaries of foreign companies, mining contributes only 195 jobs in Northern Arizona with well over 18,000 attributed to tourism and travel, The geomorphology of the area is unknown with mines such as the Canyon mine filling with water when they were expected to be dry. This lack of understanding threatens Havasupai and downstream communities water quality. We simply have too much at risk to remove the mineral withdrawal at this time.

Some of our elected leaders at the State level continue their ill conceived and vastly unpopular push for the State to seize the federal lands. The Arizona Wildlife Federation continues to lead the fight against these hare brained schemes. It matters not to them that every voting district in the State rejected this idea in a ballot referendum in 2012, that two Governors have vetoed their illegal schemes and that any realistic analysis of these plans shows that the State can't afford to take on this responsibility. When the State has budget troubles they are sure to

sell these lands, lease them to the highest bidder and ultimately to restrict our ability to hike, camp, fish and hunt on our public lands.

This year's bad bill is called HB 2210. It requires the State Attorney General to review four weak legal theories that were identified by a hand picked legal contractor for the State of Utah. After completion of the review the Attorney General is authorized to take legal action to take the federal lands. In Utah, their attorneys estimated that the case would cost at least \$14,000,000 to pursue. We have been meeting with legislators and are making progress in killing this bill this year.

Arizonans know how valuable public lands are for recreation, for healthy fish and wildlife populations, hunting and angling, clean watersheds and boosting local and state economies. Outdoor recreation in Arizona generates \$10.6 billion annually in consumer spending and supports 103,700 direct jobs, according to the [Outdoor Industry Association](#). Its time for our State legislators and elected leaders to quit wasting their time and our valuable tax dollars on the transfer of federal public lands.

Letters to the Editor

Keep your communications short and to the point. All must be signed. If you send us questions, we will seek answers and print them here. There may be times mail volume may prevent us from publishing every letter we receive, but we will do our best to print as many as possible.

Send your 'snail mail' to:

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REGIONAL ROUNDUP

Region I

Regional Director Bob Vahle



During the first quarter reporting period of 2018 (January – March) the Region I Director participated in several conservation activities that are important to the Arizona Wildlife Federation (AWF), its members, and its mission to conserve and protect wildlife and their habitats.

Heber Wild Horse Territory (HWHT)

As a member of the “HWHT Working Group” the Region I Director continues to participate in working group meetings and conference calls on behalf of the AWF to assist the working group in developing management recommendations which will be submitted to the Apache-Sitgreaves National Forest (ASNF) staff for the purpose of developing a HWHT Management Plan. To date, the working group has developed proposed management recommendations for the ASNF to evaluate regarding forage and habitat restoration management, forage and habitat monitoring, management of livestock grazing allotment fences and gates, horse handling protocols, and other management actions related to the management of the HWHT

Mexican Gray Wolf Recovery Program

The Mexican wolf Interagency Field Team (IFT) completed the annual year-end population survey, documenting a minimum of 114 Mexican wolves in the wild in Arizona and New Mexico at the end of 2017. This number includes 26 pups that survived to the end of 2017, accounting for a slight increase over the estimated 113 wild wolves in 2016.

Annual surveys are conducted in the winter as this is when the population experiences the least amount of natural fluctuation (i.e. in the spring the population increases dramatically with the birth of new pups and declines throughout the summer and fall as mortality is particularly high on young pups). Thus, the IFT summarizes the total number of wolves in the winter at a fairly static or consistent time of year. This allows for comparable year-to-year trends at a time of year that accounts for most mortality and survival of young pups.

The results from the aerial survey, coupled with the ground survey conducted by the IFT, confirmed that there are a total of 22 packs, with a minimum of 51 wolves in New Mexico and 63 wolves in Arizona. One of four wolf pups cross-fostered in 2017 is confirmed to be alive and is radio collared. Twenty-four wolves were captured and radio-collared, including ten wolves that had not been captured previously. In April and May of 2017, the IFT successfully cross-fostered four genetically diverse pups from the captive breeding program into similarly aged litters of established packs in the wild. Cross-fostering was first implemented in 2014, when a male pup and female pup were placed in the Dark Canyon

pack’s den in New Mexico. The female successfully bred in 2016, and through genetic analysis, we confirmed that the male produced at least one pup in 2017. In 2017, there were a total of 12 documented wolf mortalities and ten wolves that were removed from the wild population. This number includes two wolves that were translocated back into the wild population and four pups that were taken into captivity during cross-fostering.

For more information on the Mexican wolf recovery program visit the Arizona Game and Fish Department website at www.azgfd.gov/wolf or by visiting the U.S. Fish and Wildlife Service website at www.fws.gov/southwest/es/mexicanwolf.

NWF - National Conservation Issues

During this reporting period the Region I Director continued to participate in several of the National Wildlife Federation’s (NWF) various conservation issue caucus conference calls. The purpose of participating in these calls is to be updated by NWF staff and other NWF State Affiliates in state and national natural resource conservation issues affecting wildlife and their important habitats, proposed state and federal legislation that relates to these conservation issues, and provide AWF input regarding these issues.

Currently, the high priority focus of the NWF and its state affiliates including the AWF continues to be the protection of our precious federal public lands (e.g., National Forests, National Wildlife Refuges, BLM public lands, National Monuments) from the potential sale and transfer of these precious public lands to the States which do not have the funding or manpower to continue large landscape resource management programs (e.g., forest health restoration projects, suppression of large scale wildfires, protection and enhancement of critical wildlife habitats, etc.). If transferred to the states that do not have the resources to manage them, they would either be sold off to private interests for development or leased for accelerated resource extraction industries (e.g., timber harvest, mining, oil/gas development, livestock grazing) to fund state programs.

AWF is very concerned about and closely tracking proposed legislation in the Arizona legislature that seeks to gain control of Arizona’s federal public lands. This legislation is HB2210 (Public Lands; Ownership; Control; Litigation) that is currently being evaluated in the Arizona State Legislature. The legislation summary states that “By September 17, 2018, the Attorney General is required to analyze at least a specified list of legal theories that the state may pursue to attempt to gain ownership or

control of the public lands within Arizona. By October 1, 2018, the Attorney General is required to submit a report of the analysis to the Legislature. On or after November 1, 2018, and after consulting with the Legislature, the Attorney General is authorized to commence an action to attempt to gain ownership or control of the public lands within Arizona. Self-repeals October 1, 2026". Both AWF and NWF strongly oppose this type of legislation.

NWF and its state affiliates including AWF continue to strongly support the Federal Aid in Wildlife Restoration Act, better known as Pittman-Robertson (P-R), which since 1937 has funded professional wildlife management by state agencies through excise taxes on guns and ammunition purchased by the primary beneficiaries—hunters. The commitment of hunters and other purchasers of guns and ammunition to pay for the management of the wildlife have played an important role in supporting the North American Model of Wildlife Conservation for more than 80 years. The recovery of whitetail deer, elk, mule deer, pronghorn, bighorn sheep, wild turkey, and a range of waterfowl are all directly attributed in part to this funding source. Currently, the NWF and AWF are closely tracking varying versions of proposed federal legislation that has been recently introduced in the House and Senate with the intent of “modernizing” the P-R Act with concern that the key provisions of this monumental and historic legislation are not changed and diminished to reduce its wildlife conservation objectives.

Region II Regional Director Tom Mackin

Dec 6 – With another volunteer we delivered and installed a new 1100 gallon water storage tank to a drinker in the Pat Springs Pipeline in GMU7E

Dec 8 – Attended AWWE meeting, discussing plans for 2018 activities

Dec 29 – With another volunteer we hauled 2000 gallons of water to a wetland restoration project in GMU6A at T-Six Spring to keep recently replanted plugs from getting too dry with recent drought conditions

Jan 3 – With another volunteer we visited two AZGFD wildlife drinkers in GMU9 to make welding repairs to a water development enclosure pipe rail fence

Jan 3 – Attended the monthly meeting of the Grand Canyon Chapter of Trout Unlimited/Northern Arizona Flycasters

Jan 4 – Visited the Pat Springs Pipeline in GMU7E with the Range manager from the Coconino NF to evaluate the damage to this important pipeline caused by a managed fire to reduce forest fuel loads. Damage was anticipated and impacted almost 3,000 foot of pipeline that is planned to be repaired by the fire crews, paid for out of the range budget

Jan 9 – Attended a recognition event in Flagstaff recognizing the Friends of Northern Arizona Forests (FoNAF) for their outstanding contributions to forest health and functionality.

Jan 11 – Participated in the NWF Sportsman’s Caucus call

Jan 12 – With another volunteer we made repairs to several

Despite the many successes in the management of hunted wildlife species in the U.S. through the dedicated funding provided by the P-R Act, many non hunted wildlife populations which comprise the majority of wildlife species in the U.S. are struggling due to the lack of dedicated funding needed for the protection, enhancement, and conservation of their essential habitats. Over twelve thousand wildlife species have been identified in “State Wildlife Action Plans” needing management actions and funding for management programs such as restoring and enhancing habitats, reintroducing native species, and fighting invasive species. Currently, 80% of state wildlife conservation funding comes from sportsman’s fees such as hunting and fishing licenses. Wildlife not hunted or fished do not have a similar dedicated funding stream so current funding for these species is less than 5% of what is needed. Therefore, NWF its state affiliates including AWF are advocating for and strongly supporting current proposed federal legislation known as the “Recovering America’s Wildlife Act (H.R. 4647)”. This proposed legislation would redirect \$1.3 billion annually from existing revenues from energy and mineral fees on federal lands and waters, which is a small portion of revenue from these sources, to state led conservation management programs. If passed and implemented this would be the most significant investment in wildlife conservation in a generation which both the NWF and AWF encourage the public to strongly support.



damaged portions of the pipeline caused by freezing temperatures. In addition, with the prolonged drought conditions we added water to several drinkers from adjacent storage tanks to provide much needed water for wildlife in GMU7E

Jan 15 – Attended the Northern Arizona Shooting Foundation Board meeting and approved dates for several Hunter Education Field Days for the upcoming months

Jan 16 – With representatives from the Forest Service, Grand Canyon Trust and National Forest Foundation we visited Rosilda Spring in GMU8 to discuss planned restoration and protection measure for this important riparian area located in the 4FRI 1st EIS footprint

Jan 17 – Participated in the NWF Public Lands Caucus call

Jan 17 – Attended the FoNAF Board meeting where we heard presentations from various Forest Service folks requesting FoNAF assistance for the approaching work season. FoNAF Board will meet to review and approve these requests and work to schedule approved projects

Jan 18 – Participated in the NWF Conservation Funding caucus call

Jan 19 – Met with representatives of the Grand Canyon Trust, Trout Unlimited and AWF to discuss a joint campaign regarding

the removal of the 2012 20 year moratorium on new exploration or mines adjacent to the Grand Canyon

Jan 22 – Met with AZGFD Landowner Relations rep from Reg. 2 to discuss possible fencing projects on Diablo Trust lands SE of Flagstaff

Jan 23 – Attended the monthly AZSFWC meeting in Phoenix where we heard from AZGFD Staff about current issues and activities. Also heard from US Senate hopeful Krysten Sinema and her views on several sportsmen related issues

Jan 24 – Participated in the monthly 4FRI Stakeholder Group meeting in Pinetop via teleconference.

Jan 27 – Attended the AZGFD Winter State meeting in Phoenix and received an update on over \$2.5 million doled out for 80+ projects

Jan – 29 – Attended a meeting at the Grand Canyon Trust to discuss plans for a Washington DC trip regarding the potential reversal of the Grand Canyon area mining withdrawal

Jan 30- With the AZGFD Landowner Relations representative we visited several sites on Diablo Trust lands SE of Flagstaff

plumbed in a new storage tank on the Pat Springs Pipeline in Unit 7E

Feb 2 – Following up on the plumbing we started yesterday, we hauled 1,000 gallons of water to the new storage tank and checked all of the plumbing connections.

Feb 3 – Served as a Range Safety Officer at the AZGFD owned Northern Arizona Shooting Range SE of Flagstaff

Feb 6 – Met with other members of the 4FRI Comprehensive Implementation Work Group (CIWG) to discuss the plans for the improvements at Rosilda Spring south of I-40 in GMU8

Feb 7 – Met with members of the Friends of Northern Arizona Forests (FoNAF) to discuss approval of Forest Service projects requesting FoNAF assistance on the Coconino National Forest in 2018, approving all requests

Feb 7 – Attended the Grand Canyon Chapter Trout Unlimited monthly meeting and received a presentation on the numerous fishing opportunities in SW Colorado and the Four Corners area in general

Feb 8 – Attended the Arizona Watchable Wildlife Experience (AWWE) meeting to

Shooting Range SE of Flagstaff

Feb 12 – Attended the monthly Board meeting of the Northern Arizona Shooting Foundation, the operating organization for the N AZ Shooting Range, discussing the planned opening date for all venues, rifle/pistol, clay targets and archery as well as planned improvements and enhancements on the drawing board for 2018

Feb 15 – Attended the monthly meeting of the 4FRI CIWGG to prioritize projects for the next two years, discuss developing a marketing campaign for possible funding activities and discuss project opportunities in the next EIS area in eastern

Feb 15 – Attended a Open House to recognize and meet the new Executive Director of the Grand Canyon Trust, Ethan Aumack. We frequently work with the Trust on land and resource issues, including the current campaign to keep the uranium mining moratorium in place.

Feb 16 – Attended the 26th Annual Meeting of the Diablo Trust, a collaborative group that addresses issues, educational opportunities and awareness of the management involved on two historic ranches on 450,000 acres of deeded, Federal and State lands on Anderson Mesa south of I-40 between Flagstaff and Winslow

Feb 17 – With another volunteer we visited a trick tank in GMU5BN to make repairs to the plumbing, allowing water to flow from the large 10,000 gallon storage tank into the wildlife drinker

Feb 22 – With the new Region II AZGFD Wildlife Manager Supervisor we visited 5 wildlife trick tanks in GMU 5BN to discuss plans for possible remodels or rebuilds to increase collection efficiency and storage capability

Feb 23 – With other FoNAF volunteers we continued our barbed wire fence modifications in GNU7E to improve passages on an important pronghorn wildlife corridor

Feb 27 – Attended the monthly meeting of AZSFWC where we heard from several AZGFD senior level staff members about current proposed legislation, an update on the license simplification process and the Mexican Wolf reintroduction program

Feb 28 – Attended the monthly 4FRI Stakeholder group meeting, receiving updates on current harvesting and burning activities in the 4FRI footprint, geared towards improved fire protection, habitat restoration, improving opportunities for the wood products industry and other restoration goals



New Plumbing for a Storage tank on the Pat Springs Pipeline

to view fences that may be in need of modification to make them more wildlife friendly

Jan 31 – Met with Coconino County Supervisor Art Babbott and discussed 4FRI, uranium withdrawal, default by the contractor on one of the Flagstaff Watershed Protection Project thinning operations and other items of AWF interest

Feb 1 – With another volunteer we

discuss plans for the year and several web site updates

Feb 9 – With 10 other FoNAF volunteers we completed the construction of an aspen enclosure SE of Flagstaff at Sheep Springs to provide protection for young aspen and protect the wetlands below an existing spring in GMU6A

Feb 10 - Served as a Range Safety Officer at the AZGFD owned Northern Arizona

Beth Woodin:

Past President of the Arizona Heritage Alliance Conservation Activist 1971-2018



From the Arizona Heritage Alliance

It is with a very sad heart that we must inform all of our friends, partners and supporters that on January 10, 2018, our beloved Past President and Director, Ms. Elizabeth (Beth) Woodin passed away at home. She was surrounded by her family and those who loved her. We have lost a great friend of the environment, of conservation, of Arizona. Our hope is that her legacy will be well stewarded by all of us who are now empowered to carry on her important work.

Mr. Tony Davis, reporter for the Arizona Daily Star wrote the following article highlighting many of Beth's accomplishments.

When the state bought 1,400 acres near Patagonia 14 years ago, the wetland home of a major endangered fish population was saved from the bulldozer. Beth Woodin was a driving force in creating the Arizona Heritage Fund that supplies money for such purchases.

Woodin died last week at her Sabino Creek home at age 71. She spent at least 40 years fighting to save wildlands like that acreage around Coal Mine Spring, home to the endangered Gila topminnow but until then a likely subdivision site.

Woodin, a native New Yorker, lived along Sabino Creek since the 1970s with her husband, William Woodin, an early Arizona-Sonora Desert Museum director. Just before her Jan. 10 death from cancer, Woodin left her nine-year position as board president of the Arizona Heritage Alliance advocacy group. On Saturday, the Arizona Game and Fish Commission gave her an award of excellence, at a Phoenix-area ceremony she had hoped to attend.

"She was one of the most dedicated persons around to doing wonderful things for wildlife," said Jim DeVos, a state Game and Fish Department assistant director who knew Woodin for 35 years. "She was always looking for that compromise to move conservation forward. She had her fingers in more conservation projects than anyone I know."

Woodin was a state Game and Fish commissioner from 1990 to 1995, sat on the Arizona Nature Conservancy's board in the 1980s

and '90s, and was on the Desert Museum's board of trustees multiple times.

In the 1980s, she was instrumental in persuading the Legislature to create a checkoff program allowing residents to set aside some of their state income taxes for programs benefiting nongame wildlife. The checkoff raised nearly \$860,000 in the five fiscal years that ended June 30, 2017, state records show.

In 1990, she was a prime mover for a statewide voter initiative creating the Heritage Fund, which then took \$20 million annually from state lottery proceeds for parks and nongame wildlife. Game and Fish has used the fund to buy nearly 18,000 acres of habitat.

Woodin and other fund backers fought at least 30 legislative efforts to divert some of that money, succeeding until the 2007-'08 economist bust. After that, the Legislature swept \$10 million annually, which had gone for parks, into the general fund. She and her allies unsuccessfully tried to push through legislation to restore the parks fund

Last year, she led a successful legislative effort to save the state Parks Board when Gov. Doug Ducey proposed eliminating many boards and commissions.

At the end of her life, Woodin was plotting another run at restoring the Heritage Fund for parks, said Janice Miano, the heritage alliance's board president. "She never gave up. She always had a plan."

Woodin is survived by her husband; four stepsons; a sister, Jill Burkett, of Northern California; and eight grandchildren. Services will likely be held in the spring.

Managing for an Elusive Species

by April Howard

Republished with permission from AZGFD (from *The Arizona Wildlife Views* September-October 2017)

You can call mountain lions elusive, solitary and primarily nocturnal, but you can't call them rare in Arizona. Mountain lions are abundant in Arizona and are broadly distributed throughout a variety of habitats across the state. In fact, over the past 20 years, their distribution has expanded into the southwestern part of the state where mountain lion sightings used to be rare.

It is important to understand how the Arizona Game and Fish Department manages this captivating, yet not uncommon, species.

Monitoring an Elusive Species Isn't So Straightforward

The size and density of Arizona's statewide mountain lion population are difficult to estimate because mountain lions typically are solitary and live in rugged terrain. Their secretive behaviors, nocturnal nature and wide dispersal across the state make them a difficult population to study across large geographical scales. The high cost of long-term research projects, which can exceed \$1 million annually, is another limitation, making efforts to count every mountain lion logistically impractical or economically prohibitive.

To offset these limitations, the department uses several methods to monitor the population and estimate abundance. Methods include harvest numbers, age and sex of the animals harvested, sighting reports, depredation incidents, habitat availability and prey density. The department's recent monitoring results indicate a healthy and robust mountain lion population in Arizona.

The department also does small studies to provide insight on

the characteristics of local mountain lion populations in Arizona, such as survival, reproduction, immigration, emigration and diet. These studies contribute to biologists' understanding of local populations and help influence management decisions. As examples, recent research around the cities of Tucson, Payson and Prescott examined mountain lion use of lands and communities adjacent to and surrounded by wildlands and current work in the lower Sonoran Desert should help biologists understand survival, reproduction, movements and prey use in desert environments with multiple prey species.

Managing for Sustainable Populations

Active management is a crucial component of all wildlife conservation, but mountain lion management presents many complex challenges. The department strives to implement management strategies that maintain a sustainable mountain lion population while addressing the diverse needs and views of the public.

Through regulated hunting, hunters fund most wildlife management activities in Arizona and help to maintain the mountain lion population at levels compatible with human activity, various land uses, available habitat and prey density. Mountain lion hunting and harvest are closely monitored to ensure a sustainable population. A hunting license and tag are required to hunt mountain lions, and hunters must report their harvest within 48 hours. They also are required to have their harvest physically inspected by the department within 10 days of take. During the inspection, important biological information is

collected, including DNA that has been used to assess potential barriers to dispersal and distribution across the state. A tooth from the mountain lion also is collected to determine its age using “cementum annuli” analysis (similar to counting tree rings).

Using the sex and age composition of the harvest, the department annually evaluates the impact of hunting on the mountain lion population. By closely monitoring the mountain lions taken in the annual harvest, biologists can ensure that the population maintains an appropriate composition of adults, subadults and juveniles of both sexes, all of which are necessary for a sustainable population.

One of the department’s management strategies is to protect the adult female segment of the population. The proportion of adult females (females 3 years or older) in the annual harvest is a useful indicator of the impact hunting may have on mountain lion populations.

Since 2011, adult female harvest has been monitored in management zones throughout the state, with female harvest limits and/or season closures established if the adult female harvest threshold is ever exceeded. The department has managed for a two-year average adult female harvest to be less than 35 percent of the total take in each zone. This threshold was based on scientific evidence that indicated population declines when adult females make up between 25 percent and 42 percent of the harvest.

Although adult female harvest in Arizona has never exceeded 35 percent in any zone since implementation, more recent research suggests the lower end of this percentage range is a more sustainable limit. For the 2018 mountain lion season, the department will manage for 25 percent of the total take over a three-year average as a parameter to monitor harvest and establish harvest thresholds.

Spotted kittens, and females accompanied by spotted kittens, also are protected by state statutes, and reports of any illegal harvest are investigated thoroughly by wildlife managers.

Mountain lion harvest has remained fairly consistent during the past 20 years, with about 250 to 350 mountain lions harvested annually. A low of 193 mountain lions were harvested in 1984; a high of 384 were harvested in 2001. The steady rate of harvest during the past two decades, along with the consistent number of tags sold, indicates that current harvest levels are sustainable.

Adapting Management to Modern Approaches

The department continually evaluates new and current research and management methods through the hunt guidelines process every five years — which incorporates public comment — and makes changes accordingly. Adapting the best and most effective management strategies ensures harvest levels (and populations) remain sustainable.

Most recently, department biologists re-evaluated management goals and objectives for the minimal occurrence zone and daylong seasons and made significant changes. These season structures had been designed to maintain historically low mountain lion populations in certain parts of the state or were implemented in units where there are concerns about prey populations. It was determined these approaches were ineffective at influencing harvest, so they were removed from the 2017–18 hunt recommendations. The entire state will now be

included in the standard management zone, with a bag limit of one mountain lion per person per year with daylight hunting hours.

Additionally, the department is using other management strategies such as eliminating multiple bag limit season structures; monitoring at a smaller scale using mountain lion management zones based on biogeographical boundaries; establishing harvest thresholds that will close a zone when the threshold is reached; and implementing a season closure during summer months when mountain lion births are at their peak. Furthermore, wildlife managers are using the best scientific approaches for estimating population size, which will help refine management strategies.

As with all other species, management is necessary to satisfy social and ecological goals. Finding balance is the key, as managing some species while leaving other populations unmanaged is detrimental to the ecological balance in the environment. The department is committed to incorporating sound science into mountain lion management and will continue to adapt management to the evolving world of wildlife biology.

April Howard is a predator, furbearer and large carnivore biologist with the Arizona Game and Fish Department.

Humane Society of the United States Backing Arizona Hunting Ban Ballot Initiative

The Humane Society of the United States (HSUS) has now entered the Arizona ballot initiative process for the 2018 election cycle. They have formed a local campaign called **Arizonans for Wildlife** in an attempt to ban all wild cat hunting in Arizona, much like they did in California a number of years ago (and it isn’t going so well there).

Their goal with this action is to get Arizona voters to reject a century of sound scientific wildlife management from our Arizona Game & Fish Department biologists, and turn over the management of wild cats to the ballot box, with an emotion based, non-factual initiative.

The Arizona Wildlife Federation **does not support** this measure as it is our belief that management of ALL 800+ species in Arizona should remain in the capable hands of our state wildlife agency. Please see our Position Statement on page 10.



**Arizona Wildlife Federation Position Statement on the
September 25, 2017 Human Society Proposed Initiative to Ban the killing of all
Arizona Cat Species; Mountain Lion, Bobcat, Lynx, Jaguar and Ocelot in Arizona**

The Arizona Wildlife Federation (AWF), a 501(c) 3 non-profit corporation was founded in 1923 to take politics out of Arizona's game and fish management and to promote the management of Arizona's wildlife and natural resources based on the principles of 'sound science'. The AWF got its start as the Arizona Game Protection Association and will celebrate 95 years of Arizona conservation activity in 2018. AWF believes in the [North American Model of Wildlife Management](#) and the principles of sound science and best governance for all Arizona wildlife species.

The AWF has reviewed the proposed initiative language and suggested modifications to state wildlife statutes by the *Arizonans for Wildlife* – a newly formed front group of the *Humane Society of the US* - which would modify state wildlife statutes to ban sport hunting of all wild cats in AZ. The initiative is both misguided and biologically flawed and does not consider the science behind the Arizona Game and Fish Departments management of these species. In fact, Lynx have just recently been recorded as a species of occurrence in Arizona. Ocelots have been recently confirmed in southeastern Arizona in one canyon with no evidence of a breeding population. Only seven male Jaguars have been recorded since 1996 with no evidence of a breeding population. Of these three federally protected endangered species not one has been recorded as taken either purposely or by accident by any Arizona sport hunter, trapper or resident.

Bobcat and mountain lion populations are robust as evidenced by the annual Arizona Game and Fish Department's management records which estimate a minimum population of 62,000 bobcats and a mountain lion population estimated at between 2,000 and 2,500 animals. Bobcat take averages 3,731 per year and in 2016 records show that 10,577 sportspersons purchased a tag to hunt mountain lion with a resulting harvest of just 313 animals. Those required annual tags purchased created \$200,000 in revenue which is used to employ a full-time professional carnivore biologist. It also provides funding to analyze bobcat and mountain lion tooth data, conduct population modeling and ensure that conservative management guidelines are utilized to maintain healthy bobcat and mountain lion populations. There are no data which suggests that bobcat or mountain lion populations are being negatively impacted under current harvest levels or guidelines.

Position

This initiative proposes to permanently remove key wildlife management tools used by Arizona's professional wildlife managers, which are supported by both the North American Model of Wildlife Management and paid for by hunters to ensure healthy populations. It chooses to prohibit certain methods of wildlife harvest that are legal and carefully regulated. It will permanently remove \$200,000 of feline wildlife management funding. It ignores the science and population data for Arizona's wild cat species demonstrating they are present in robust populations.

In conclusion, the AWF recommends that well informed Arizona residents and voters ignore this attempt to pit personal emotion over wildlife science and to reject this proposal based on sound wildlife science and management.

Frequently Asked Questions

What is the status of mountain lions in Arizona?

Mountain lions are not a threatened, endangered or sensitive species in Arizona. In fact, for a large predator, they are abundant throughout the state especially in areas where their major prey species, deer, are present. An independent scientific organization, the International Union of Conservation in Nature, documents that mountain lion populations are expanding in North America and are listed as a species of "Least Concern," a ranking that supports that mountain lions are not at risk in any fashion. In Arizona, mountain lions are expanding into regions where they were once rare, supporting the fact that in this state mountain lions are following the continental pattern of expanding.

If mountain lions are abundant in Arizona, why do we seldom see them?

Despite having one of the most extensive geographic ranges of any land mammal, their elusive, solitary, primarily nocturnal nature, and distribution in rugged terrain makes it rare to observe them in the wild. They typically hunt at night and are adept at using terrain features to remain hidden. Mountain lions tend to avoid humans and human-dominated landscapes, and although they have been documented near urban areas, they typically use those areas during the night to avoid interactions with humans.

How are mountain lions managed in Arizona?

Mountain lions are regulated by several statutes and Commission Order. For example, it is unlawful to harvest a spotted kitten or a female accompanied by a spotted kitten. The Department has implemented several changes to update "best management practices" as part of the agency's adaptive management protocols that dictate the Commission evaluate and establish management guidelines on a periodic basis. An example of these changes is the establishment of several zones in the state with harvest thresholds that would close the season in that zone when a predetermined number of mountain lions have been harvested in that zone.

What data does the Department use to manage mountain lions?

Mountain lions are difficult to survey due to their cryptic behaviors, and similarly to most wildlife agencies, the Department manages this species on data that are derived from harvested animals. Every harvested mountain lion has to be physically inspected by the Department so age and sex data can be collected and analyzed to determine the age distribution of harvested animals. These data are used to create a

demographic representation of the population in the wild. In addition, the Department uses harvested female data to adjust season prescriptions if a predetermined percentage of the harvest is adult females. This threshold, which is based on the best available science, has never been met in Arizona.

Is there any indication that mountain lion harvest in Arizona is not sustainable?

No, to the contrary, all of the harvest data that the Department uses to ensure sustainable populations suggests that the population is stable to increasing in many parts of the state. The age of every hunter harvested animal is determined by "cementum aging" techniques, the most commonly accepted method to assess age. The age distribution is "normally distributed," a measure that suggests that based on the best available literature, the population is not being over exploited.

If mountain lion populations are not effectively managed, will there be an increase in human-mountain lion conflicts?

In looking at California, where regulated mountain lion hunting has been banned for decades, there has been an increase in human-mountain lion conflicts. While it is difficult to determine cause and effect, there has been an increase and the same is a potential in Arizona.

What is Arizona's mountain lion population?

Mountain lions are a difficult species to assess population size due to their cryptic nature; however, the Department is using a technique that uses age-at-harvest data to back calculate cohort abundance to estimate annual total abundance. This is a newly employed method for Arizona that applies statistical reconstruction of the population and is the method that is being used by several states to evaluate big game species. This is the most practical and cost-effective method available to the Department. The Department is always seeking the most current and scientifically robust methods to manage wildlife and this method constitutes the best available science. The current population estimate ranges from approximately 2,000 to 2,700 statewide, and based on harvest data analysis, there is no indication of population decline.

Does Arizona have a "trophy" mountain lion hunt?

No, mountain lions are managed as are all hunted wildlife for sustainable harvest in a fashion that does not put the species at risk. To ensure this, physical inspections are mandatory so data on each mountain lion can be collected and population status can be monitored. The term "trophy" has repeatedly been misused to mislead people into a distorted view of mountain lion harvest.

LETTER TO THE EDITOR

So the Arizona Wildlife Federation is 95 years old and getting stronger!! That is outstanding in today's world. I also like the number of new members. Keep up the great work.

While I have not been back to Arizona in a number of years, I still stay in touch with friends and since I am a Regional Director of Crime Stoppers USA, I also talk with the leaders of all Arizona Crime Stoppers programs. Your BOW program is remarkable.

Best wishes from a member since the 1980's.

John W. Nelson
Montrose, CO



**Join the AWF on
Facebook!**

www.facebook.com/azwildlife

BOW Happenings:

What We Are All About



by Linda Dightmon



Every once in a while someone will ask via email or Facebook or Message or whatever the latest avenue of information is: This looks like fun? How do I join your group? When are the meetings? Without exception, the questioner has been looking at images of a recent BOW workshop. So...in that spirit and in the hope that this article gets read I thought that it might be time to touch on the basics.

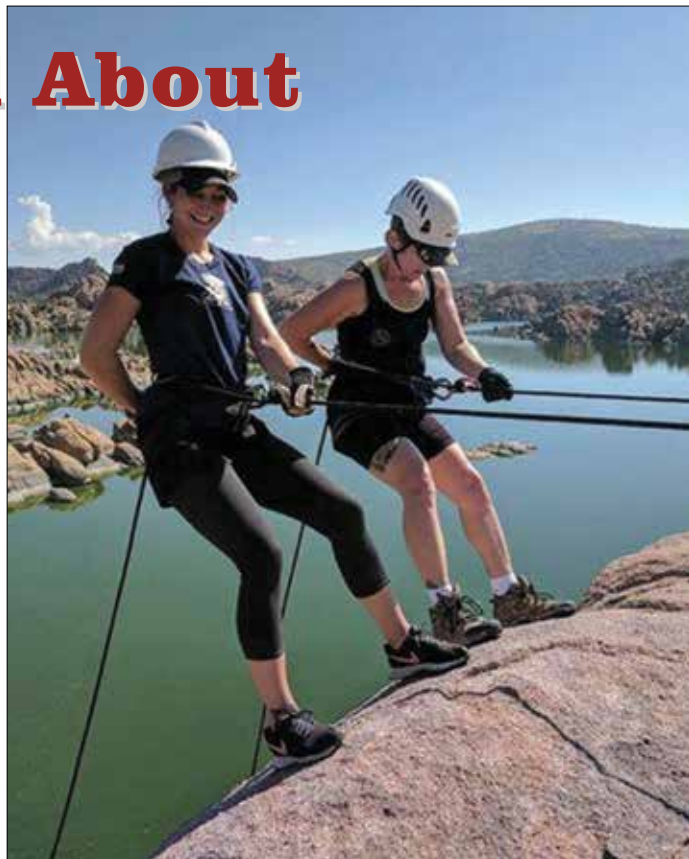
First of all, we are not a club, a gang of men hating ol' hags, nor is there a political agenda. We don't have meetings or pay annual dues. BOW is a workshop program with chapters in most US states and several Canadian Provinces. Most BOW programs are a part of that state's or province's Natural Resource Agency, much like our Game and Fish. In Arizona, the BOW program is sponsored by the Arizona Wildlife Federation (a conservation organization) with Arizona Game and Fish Department as a partner.

In the Beginning

In 1990, a conference called *'Breaking Down the Barriers to Participation of Women in Angling and Hunting'* was held at the University of Wisconsin Stevens-Point. They discovered that finding affordable and suitable gear and equipment for women was one big hurdle. Another was tradition. Women were expected to stay at home while the men ventured out into the wilds. A third major reason was lack of educational opportunities for women and the delegates felt that was a barrier to work on.

The following year, Dr. Christine Thomas of the University of Wisconsin-Stevens point offered the first ever Becoming an Outdoors-Woman (BOW) workshop. It immediately filled to capacity. The main premise was to provide learning opportunities in a supportive, non-competitive, comfortable atmosphere. Rules were simple: safety first, have fun, no politics. The format was to be 1/3 hunting and shooting, 1/3 fishing and boating and 1/3 non-consumptive. All are welcome, young (at least 18) and old, beginners, experts, vegetarians, no matter the athletic ability.

The first Arizona BOW was held in the spring of 1995 at Friendly Pines Camp. The Wisconsin team was there to help with the bumps and we have grown from there. The Friendly Pines workshops are held twice a year (April & September). In 2005, we added the BOW deluxe winter workshop (January) held in the Sonoran desert at Saguaro Lake Ranch. Now, there are three weekend choices. There has been little modification to the formula developed from that original 1991 workshop.



Today

Fast forward to 2018 and we are still here! The initial funding has long since dried up, but the BOW program lives on. Why? because we are still relevant! Now, as much or even more than ever, women need a place to learn without ridicule. A place to find out where and how she can camp safely with her family or learn what it takes to hike the Grand Canyon. Maybe she wants to harvest some hormone free meats for the table. BOW gives her a starting point.

Shooting classes have been a part of the BOW curriculum from the beginning. The goal is to introduce beginning shooters into the sport by making them comfortable. Our instructors accomplish that by making it fun and SAFE. This is not an easy thing and it takes a special teacher to pull it off. These instructors must be extra diligent and super alert without being patronizing or critical. Safety is paramount and this team delivers! We use at least 15 instructors for each workshop. All firearms used for the program belong to this amazing team.

We teach four shooting classes at the larger Friendly Pines venue. First up is a Basic Firearm Safety class. This session is taught in an indoors classroom setting. The participant learns the basic makeup of the rifle, shotgun and handgun and how to safely use them. She will have an opportunity to handle different firearms and see what feels right for her. There is a test that she must pass before traveling to the range to shoot. This is also a great place for those that wish to overcome a fear of firearms. We have helped several ladies with this issue in the past.

On Saturday morning, we load up the van with the handgun class for the commute to the Prescott Trap and Skeet facilities. The instructor loads and handles the firearm until the student is ready to shoot. The ladies begin with .22 caliber, (both revolver and semi-auto) and if she chooses, larger calibers can be used later on in the session. For the afternoon session, the shotgun is the star.

Students shoot at clay pigeons, in relays with one on one instruction. The class camaraderie here is palatable. Part of the reason that this class is so popular is the fun of instant gratification when a clay is shattered. Sunday morning the van takes the rifle class to a different range. Here the ladies shoot open sight .22 rifles at paper targets. The rifles belong to the team. The ladies will experiment with the basic shooting positions and techniques for accuracy is explored. There is even a lesson on cleaning and maintaining the rifles.

I instruct the hunting class. I teach the how to and the where to but I also deal with the why. I touch on the emotions of taking a life and that it is OK if you can't touch the trigger. I teach respect for the quarry and am down right manic on the importance of field care. I have taught this class for 18 years and I am happy to report that the class sizes are growing.

On the registration form for the Friendly Pines workshops, we have three different fly fishing sessions. So, if she chooses the participant can spend the entire weekend fishing. On Friday afternoon, we offer an "Introduction to Fly-Fishing". Here she will learn about equipment, fly patterns and knot tying. Then she will receive hands-on fly casting instruction. It is fun to watch this class as the ladies cast away on dry land with lots of enthusiasm. On Saturday morning, our fly fishing wannabe can test her skills on the water. The entire class and the fly fishing team carpool to nearby Goldwater Lake. Here, she has a real fishing experience with our fly fishers nearby to help. The goal is to have our student confident and capable of going out on her own. I often join the Sunday morning class. It is all about float tubing! The description reads "Float tubing is a fun, stealthy, specialized approach to lake fly fishing." I found it soooo relaxing and effective. I now own the 'boat', the waders, the pump, the booties, the fins and truly enjoy this new-to-me fishing technique.

Warm water fishing has been taught at every camp since the beginning. We teach fishing using various baits and lures with spinning tackle. This past January, we had three volunteers with bass boats that took ladies out on Saguaro Lake. They came back with some yellow bass and made ceviche to share with the camp. It doesn't get any better than that!

Over the years kayaking and canoeing have become more popular. Possibly because it is one of the most economical ways to get on the water. So, it is not surprising that this is one of our more popular classes. So popular that it is offered multiple times at the same workshop. BOW has been the catalyst for many kayak and canoe sales.

"On rope!" "On belay!" Twice a year, for the past 19 years, these phrases have echoed from the granite rocks on the Friendly Pines Camp property. What the heck are we doing? It is just the Rappelling 101 class. They are busy teaching trust, empowerment, having fun and oh yeah...sometimes changing lives. When I started with BOW, I was more than a little surprised to learn that rappelling was THE most popular class (and still is). But, it only makes sense. Here is an outdoor activity that most will not attempt on their own. What better way to finally face that fear of heights? The payoff? Walking backwards over a cliff and then wanting to do it again! For those so inclined there is Rappelling 102, where the participant can conquer a higher cliff. BOW is about stepping beyond the comfort zone. Rappelling IS BOW.

To balance out the offerings the founders wisely made the program 1/3 non-consumptive into the initial criteria. The Arizona BOW has, in my opinion, the best classes in this group. Rappelling being only one, albeit the most popular.

How about photography? Throughout the years, we have

been blessed to have in our army of volunteers some of the most enthusiastic and talented photographers out there. There are many great photographers but not every great photographer can teach. BOW ladies do not want to watch a slide show of the instructor's images. They want to make great images of their own. This is why our current instructor is so popular. After 20 years of researching how people learn, she is pretty darn good at teaching. She preaches ethical field practices. Respect the animal (subject) when shooting. Try not to stress or put any wildlife at risk or destroy habitat to get that perfect image.

We do backpacking in two parts. The morning session is all about gear. Participants learn the essential equipment for an overnight hike without breaking the bank. The afternoon will be a day hike where they can gain confidence and practice skills. Instructor, Stacy travels from her home in Pogosa Springs, Colorado twice a year for us.

Longtime supporter and fun lady Tice teaches a classic that we call Trick Track Trail. Participants learn about the diverse Arizona wildlife. It is fun to watch their reaction to the hides and skulls from the bone box. Animal tracks, scat and habitats are also covered. Attendees make their own camouflage shirt with the materials they talk about and gather as they hike through the woods. This class is an original and still popular after almost 20 years.

How about a bridging class? Usually an Audubon representative teaches this traditional class. This class is always popular, always fun. I love seeing the list of birds that they find. For many participants, this is the first time that they have used binoculars.

Basic Land Navigation and Geocaching are two sessions in my list because I believe that these skills are imperative in order to really enjoy the other. Seriously, how can you have fun if you are lost? Geocaching is a fun and easy way to really learn the capabilities of a GPS unit. When batteries fail, a map and compass will bring you home.

"BOW is about much more than hunting and fishing or even camping and paddling," says Linda Dightmon, coordinator for the Arizona program. "It is all about learning to appreciate our wild lands and wildlife and how to help conserve them. It is all about learning a new skill or conquering an old fear. It is all about meeting like-minded women and making new friends. It could be all about learning a lot more about you."

We have used this quote many times for press releases. I believe it summarizes the take away benefits of the program. The participant's motivation for spending the weekend with us may be to "Just Get Away" and that is in itself is a legitimate reason. The modern woman's lifestyle might consist of driving to beat deadlines, diapers and dishes. To give her a break from that is good enough.

Tomorrow

Often, the first time BOW participant does not know that conservation groups like the AWF exist. Sometimes, the participant has never heard of the Arizona Game and Fish Department and has no inkling what the department does. There is a huge gap, a major disconnect in our society. I remember one lady who was amazed to see the Milky Way. And, make no mistake, it is not just women. The gap is widening.

We are growing, trying new things. New class offerings echoing the locavor movement like Arizona Wild Foods and Freeze Dried Foods are being offered. Gardening for Wildlife and how to certify your yard. We have a new class about Arizona Geology for this Spring session. There are also rumors of adding a new workshop beginning the summer of 2019.

Stay tuned...



The Lee's Ferry Rainbow Trout Fishery: Caught in a Conflict of Values

By John Hamill and John Jordan

The 15.5-mile stretch of Colorado River winding through Glen Canyon between the Glen Canyon Dam and the beginning of Marble Canyon (within Grand Canyon National Park) is commonly referred to as Lee's Ferry. Since 1964, with the completion of the Glen Canyon Dam, this unique tailwater has hosted a recreational rainbow trout fishery that has grown in importance and reputation locally, regionally, nationally, and internationally. This blue ribbon recreational sport fishery has also become a financial and economic mainstay for the small community of Marble Canyon and Coconino County, supporting fishing guide services, hotels, restaurants, fishing and outdoor recreation equipment and supplies, and visitor services.

A 2013 statewide angler survey estimated the contribution of the Lee's Ferry fishery to the State's economy in excess of \$16.8 million, helping to support 251 jobs in Arizona. Anglers support local businesses such as hotels, restaurants and other service providers, in addition to utilizing fishing and outdoor recreation equipment suppliers and guides.

Because of the reliable flows of cold water ranging from 44 to 60 degrees F, the Lee's Ferry reach of the Colorado River has a proven capacity to support a remarkable trout fishery in a desert environment. The fishery itself has changed significantly since it was created following the completion of the Glen Canyon Dam in 1964. During its infancy, the fishery produced huge rainbow trout ranging from 10 to 20 pounds. Since then the fishery has gone through peaks and valleys, but throughout its history has provided one of the most sought-after destination trout fishing

opportunities in the Southwest.

Rainbow trout are the primary sport fish targeted by anglers at Lees Ferry. By agreement with the land and water managers, the Arizona Game and Fish Department (AZGFD) initiated regular stocking of trout in the Lee's Ferry reach in 1964. The sport fishery was maintained through stocking catchable—and fingerling rainbow trout from 1964 through the mid-1990s. Natural reproduction of rainbow trout became more substantial and self-sustaining in the early 1990s with the establishment of more stable flows due to the re-operation of Glen Canyon Dam. Stocking ceased in 1998 when it became clear that reproduction and recruitment of the trout population was meeting angler demands.

An Unstable Trout Fishery

In 2014, anglers spent more than 10,000 fishing days at Lee's Ferry. In recent years, angler use of the Lee's Ferry fishery has declined, and the fishery currently falls short of its potential to generate angling recreation and economic wellbeing in northern Arizona.

One cause in the declining popularity of the fishery has been year to year swings in the trout population which in some years has resulted in poor catch rates and corresponding angler use and satisfaction. Another cause has been a decline the average size of fish over time.

Recommendations to improve the Lee's Ferry Trout Fishery

In 2016, Recreation Fishing representatives to the Glen Canyon Dam Adaptive Management Program published the *Lee's Ferry Recreational Trout Fishery Management Recommendations*

to help inform decisions related to the operation of Glen Canyon Dam and management of the trout fishery. The report concluded that currently the Lee's Ferry trout fishery is ecologically unstable due to an impaired aquatic food base and periodic high levels of rainbow trout recruitment which cannot be sustained by the current food base. The food base in the Colorado River below Glen Canyon Dam consists of only a few varieties of invertebrates (primarily black flies and midges). Assemblages of native may-, caddis-, and stone flies which are present in every other tailwater fishery in the west and are found upstream of Lake Powell and in tributaries in the Grand Canyon are totally absent below the dam. The highest priority recommendation in the report is to pursue establishment of a more diverse aquatic food base by testing alternative flow regimes to promote greater aquatic productivity and diversity including may- caddis-, and stone-flies. Testing of so called bug flows to enhance aquatic insect production is expected to occur in the next several years.

Over recruitment of young rainbow trout has been shown to occur under certain dam operations and hydrologic conditions (sustain high flows or early spring high flows). We believe one of the best long term and most ecologically appropriate solutions to controlling trout densities may be to manage Glen Canyon Dam releases to avoid excessive trout spawning and recruitment. Under certain situations, trout management flows (TMFs) may help achieve desired trout recruitment and abundance targets, especially when spring High Flow Experiments are implemented, or long periods of extended high release from GCD are required to balance water levels in Lake Powell and Lake Mead. However, TMFs are untested and there could be collateral damage to other resources especially the aquatic food base which would further destabilize and impact the quality of the trout fishery. TMF testing is expected to occur in the next several years.

The biggest long-term threat to the trout fishery and the native Colorado River fishes is increased water temperature associated with a lower Lake Powell. The Colorado River Basin is in the midst of a 10-year drought and climate studies suggest significantly reduced water supplies in the future. One of the consequences will be the water temperatures below Glen Canyon Dam will turn much warmer which has the potential for catastrophic consequences to the Lee's Ferry trout fishery and native fish down river. We recommend implementing a water temperature control device (TCD) at Glen Canyon Dam to maintain water temperature regimes that will support a healthy trout in Lee's Ferry and native fish populations downriver.

Lee's Ferry and Brown Trout Management

Brown trout are one of several non-native, cold-water fish species found throughout the Colorado River below Glen Canyon Dam. Recent apparent increases in abundance of brown trout in Lee's Ferry have raised concerns about their potential effects on endangered humpback chub (HBC) downriver from the Lee's Ferry rainbow trout fishery.

Brown trout have been collected in low numbers for decades in the Lees Ferry, but over the period 2014-2016, AZGFD noticed an increase in abundance of brown trout in Lee's Ferry concurrent with observations of increased spawning behavior. AZGFD fish sampling showed an increase from the historic one to two percent of brown trout to three to four percent of collected trout.

Brown trout are known to prey on juvenile humpback chub,

so their presence has been a management concern for several decades. Studies have indicated that brown trout have a much higher rate of piscivory than rainbow trout on native fish including humpback chub. Brown trout also prey on and compete with rainbow trout, so their presence in Lee's Ferry raises concerns about the rainbow trout fishery.

In December 2017, the National Park Service (NPS) began developing an Environmental Assessment (EA) for an Expanded *Non-native Aquatic Species Management Plan in Grand Canyon National Park and Glen Canyon National Recreation Area below Glen Canyon Dam*. The purpose of the EA is to allow the NPS "to prevent, control, minimize or eradicate potentially harmful non-native aquatic species, or the risk associated with their presence or expansion." NPS believes the action is needed due to the increase of green sunfish, brown trout and potential expansion or invasion of other harmful non-native aquatic species that could threaten downstream native aquatic species including the HBC..

NPS is proposing to use a variety of mechanical, physical, chemical and biological actions to reduce or eliminate brown trout and green sunfish in Lee's Ferry. A central element of the NPS's Proposed Action includes "long-term intensive and repeated electrofishing and trapping of all age-classes of harmful non-natives, and site-specific use in the Glen Canyon reach (Lee Ferry) to target brown trout....". Scores of angler, sportsmen and conservation groups, and the AZGFD are concerned that this action would have a significant adverse impact on the quality of the Lee's Ferry trout fishery, the welfare of the local community, and the regional economic benefits tied to the fishery. Specific concerns are that many more rainbow trout would be shocked for each brown trout captured. The focus of mechanical removal would be on shoreline areas that are also prime fishing areas. In addition to direct rainbow trout mortality, the behavior of rainbow trout that are subjected to electrofishing would be negatively affected which would impact angler catch rates and satisfaction. In addition, the collateral damage to the Lee's Ferry rainbow trout fishery from mechanical removal and the negative public perception it creates will significantly harm the economy of the Marble Canyon community that is closely tied to the quality of the rainbow trout fishery. Rather than pursuing an unacceptable intensive mechanical removal effort, we have recommended that the NPS pursue other more cost-effective and less damaging strategies such as a brown trout bounty program or making changes in Glen Canyon dam operations to disadvantage brown trout spawning or recruitment.

Lee's Ferry Trout Fishery and Competing Values

The management of the Lee's Ferry trout fishery occurs within the context of a variety of Federal mandates which governs how Glen Canyon Dam is operated by the Bureau of Reclamation and how fish and wildlife resources are managed by the NPS (see sidebar). In general, the Secretary of the Interior is responsible for managing the dam to meet legal water delivery requirements from the upper to the lower Colorado River Basin, produce hydropower, facilitate recovery of Federally listed endangered species, and protect and enhance natural and cultural resource values and visitor use in Grand Canyon National Park and Glen Canyon National Recreation Area. Anglers and the local community at Marble Canyon consider the Lees Ferry recreational fishery a highly valued resource on par with other

values when it comes to making decisions about Glen Canyon Dam operations and experiments. However, the recently completed *Long Term Experimental Management Plan for the Operation of Glen Canyon Dam* places higher priority on meeting water deliveries requirements to Lake Mead, humpback chub recovery, and maximizing building sand bars in the Grand Canyon than on enhancing the Lee's Ferry rainbow trout fishery.

A major point of continuing scientific debate is the impact that rainbow trout have on the endangered humpback chub (HBC) which exist 60 miles downstream of Lee's ferry near the confluence of the Little Colorado River (LCR). Studies conducted by US Geological Service over the past decade have documented rainbow trout predation and competition between both rainbow and brown trout and humpback chub at the confluence of the LCR. Since 2002, the HBC population has grown from about 4000 adults near the LCR to approximately 10,000 adults today. In addition, the population of humpback chub has also grown in the Colorado River far below the LCR confluence. The HBC population growth occurred during a period when the Lee's Ferry rainbow trout population reached some of the highest level ever recorded, suggesting that the impacts of Lee's Ferry rainbow trout fishery on the overall HBC population appears to be minimal. At the same time, the growth in the humpback chub population occurred during a period when September water temperatures from Glen Canyon dam increased by approximately 4 degrees F. Warmer water is known to benefit HBC growth and survival. Currently, the HBC population remains stable

near the LCR and well above the US Fish and Wildlife Service recovery goal of 2200 adults.

Our conclusion is that rainbow trout competition and/or predation does exist but not at a level that poses an imminent threat to humpback chub recovery in the Grand Canyon. A healthy blue ribbon trout fishery is compatible and can coexist with healthy native fish populations downstream.

John Jordan and John Hamill are volunteers with Trout Unlimited and Fly Fishers International who represent recreational fishing interests in the multi-agency multi-stakeholder Glen Canyon Dam Adaptive Management Program. John Hamill also serves on the AWF Board of Directors



Welcome New Affiliate: Southern Arizona Chapter of Quail Forever

Cruz, Pima and Cochise counties with chapter meetings held in Sonoita, Arizona. It is one of two Quail Forever chapters in Arizona.

Arizona has four species of quail making it an attractive destination for hunters wanting to pursue quail.

The chapter mission includes:

- Sustain and improve quail populations and wildlife habitat.
- Protect and improve access to public land.

The Southern Arizona Chapter of Quail Forever was formed in 2011 by four current members. SAQF has grown to over 175 members of which 40% are from out of state. The chapter encompasses Santa

- Grow chapter membership while keeping the group fun, inclusive, informed and working together.
- Promote the future of hunting by getting novices, youth and women involved.
- Promote ethical hunting and good stewardship of our natural resources.

We also welcome non hunters who want to keep access to public lands, protect and improve wildlife habitat and get our youth outdoors.

Quail Forever is a division of Pheasants Forever, Inc.

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The Badger

Tom Mackin, Region II Director



When we look at the lands south of I-40 in north central Arizona under various ownership and management entities, we think of the more common wildlife we often see when visiting the open grasslands, canyons, pinon-juniper woodlands and ponderosa pine forests, namely pronghorn, mule deer, elk and even bison but there are numerous other species and I'd like to briefly share some information about a less common mammal, the American badger (*Taxidea taxus*). My earliest encounters with this primarily nocturnal interesting species occurred almost 20 years ago when I had an early archery elk tag in Game Management Unit 5B and we were hunting near Chavez Pass. Deciding that we would be more comfortable sleeping in our own beds in Flagstaff instead of roughing it in a tent and sleeping bag meant that each morning we would be driving I-40 to the Meteor Crater off ramp and heading south in pre-dawn darkness. It was during these early morning drives as well as the after dark return trips that I was able to catch numerous glimpses of these elusive burrowing creatures.

I said glimpses because their mottled brown and black hides and short stubby but powerful legs kept them close to the ground in several of the more common open grasslands we would pass through each day. While my hunting partner grew up in Flagstaff he was not too familiar with this species either and so I wanted to learn more, looking at field guides and reading available literature at the library. What I found was interesting and with that knowledge I was able to have additional encounters at other locations and now I frequently see badgers almost every year I'm afield.

Badgers prefer open grasslands, lightly wooded areas, some canyon locations and other sites where they can burrow down into the sandy or not too rocky soil to excavate a burrow that may be 3-4 foot deep and 8-10 foot long, often with several

openings. As previously mentioned, these primarily nocturnal animals like to rest and sleep during the day and so these burrows provide insulated, sheltered living quarters for both males and females, especially when the females have recently given birth. Badgers are pretty much loners most of the year, and so they're not very territorial and are definitely not social creatures like prairie dogs so finding groups of badgers together just doesn't happen. Most interaction occurs in late Summer or early Fall when the males are seeking out receptive females for breeding. If successful, the females go through delayed implantation and the embryo development is active for only about 6 weeks of the total 7 month gestation period. The 1-5 young are born between March and April and remain in the burrow until their eyes open in about 4 weeks and they're fully weaned in 6-8 weeks. They'll remain with the mother until early Fall at which time they'll disperse on their own.

Badgers are omnivores, eating lizards, grasses, small birds, and eggs as well as many small mammals like gophers, mice and even rabbits. This diet will enable badgers to grow to 24-30" long, weighing up to 20 pounds, with the males being the larger of the two. In our area, badgers do not hibernate over the winter but they go into cycles of torpor that can last for over a day, and they will emerge from the burrows to forage when temperatures are above freezing. They'll forage on their home range, which can be several thousand acres, depending on prey and often these ranges will overlap. Abandoned badger burrows are often utilized by other animals including skunks, foxes and burrowing owls. With their large front claws for digging, badgers are feisty fighters but they will be preyed upon by eagles, bobcats, mountain lions and even wolves and bears that may be present. With the settlement of the West, badgers were frequently shot on sight as another pest, responsible for creating hazards for horses and livestock. They were also trapped extensively for their fur which was used for shaving brushes and paint brushes but the market for these uses has significantly declined. In Arizona badgers are considered a fur-bearing game animal, with an August through March open season and a hunting license is required to take these animals.

In closing, due to their nocturnal habits and rural lifestyle, seeing a badger in the wild is a rare occurrence and should be viewed as a special occasion.



by Linda Dightmon

Hunting and Angling Heritage Workshop Group

Yep, that is right! We are taking the acronym in a whole new direction. We are the HAHWG, pronounced hog. We are also known as The Outdoor Skills Network but HAHWG just kinda stuck. It gets your attention.

OK..now that you know our name, Who are we? Well, that is complicated. What the heck do we do? The short answer, is just about everything that has to do with getting folks outside. Why do we do it? Let's start with that one.

We are losing more hunters and anglers every year. The rate is alarming. In 2011, US agencies sold 13.5 million hunting licenses. The number was 11.5 million for 2016. We lost 2 million hunters in 5 years. You might think that this is a good thing. Yay, more tags for me, but you would be wrong.

It is hunters and anglers that foot the bill for conservation. Most state agencies including Arizona do not receive any dollars from tax revenue. Federal excise taxes are levied on equipment purchased. And hunters and anglers directly support about 1.6 million jobs. That totals up to over \$76 billion nationally. Yes, that is BILLION with a 'B' that we spend pursuing our passion in the outdoors. What happens when no one cares? I, for one do not want to find out and luckily there are many folks like me.

HAHWG people want to pass on that passion. We need for more people to care about clean air and water. To keep wild lands wild.

The bugle of the bull elk on a frosty September morning must be experienced in order to be appreciated. And people will not cherish and protect what they do not know.

Who are we? Well, like I said, it is complicated. The best answer is right out of the binder. Yep, we have a binder. Doug Burt from the Arizona Game and Fish Department is the guy that is literally and figuratively our binder.

"HAHWG is an ad hoc coalition of stakeholders united to preserve our hunting and angling traditions, wildlife and habitats."

This is the best part. The stakeholders are clubs, 'critter' groups,

retailers, online chat groups, national and local non-profit organizations representing outdoor interests from hiking to varmint calling. The Quail Forever chapter on page 16 is one of the stakeholders.

Wait. It gets better...WORKING TOGETHER to save our heritage. And guess what? It is working! Other states are beginning to take interest. They are looking to Arizona to see how we do it. How could we get elk people and target shooters and conservation groups in the same room? You can when there is a common goal. Make no mistake, good people working together can accomplish a lot.

There are 6 pages of events in the main Arizona Game and Fish regulations. There are 56 events listed by type and skill level. Most are free, some like the BOW have a fee. There are beginner events that last an afternoon or an entire weekend. Some are focused on youth, some are for adults of all ages. The majority are hands-on and some are actual hunts. These hunts are mentored. Lets say you are an adult that wants to learn how to predator hunt and you have no idea where to start. On August 10-12, 2018 at Vincent Ranch in unit 4A there is the George Knox Memorial Boot Camp hosted by the Phoenix Varmint Callers. This camp has been around for 11 years. Club members will mentor a new hunter. You will learn about the biology of predators and fur-bearers. You will be given the chance to call and harvest a coyote, fox, or bobcat if they come in to the call. And they feed you! FOR FREE. All you have to do is show up with the proper attitude and licensing.

Check it out folks. HAHWG has over 60 partners. Since inception (about 8 years) there has been 325 events with 9,446 people attending. All in Arizona.

Want to get involved? The next meeting will be at the Nordic Center on July 21 and 22nd. Attend the meeting and/or visit one of the camps. Mentors and helpers are always needed. they are all listed in one place at www.azgfd.gov/OutdoorSkills. Maybe you have a skill that can make it better. And the number one thing that you can do? Take someone hunting or fishing and show off our beautiful state.

Area Climate Trends, A Historic Comparison

Tom Mackin, Region II Director

While this photo, taken on February 15th, 2018 may look like all is well on the San Francisco Peaks, the reality is that we're once again in the midst of a significant precipitation shortfall. The Flagstaff area generally receives about 20-22" of precipitation each year and about 50% of that falls as snow during our colder months, September through March. Since 1900, when record keeping was more consistent and equipment for recording data more reliable and accurate, Flagstaff has averaged about 100-110" of snowfall in town at Pulliam Airfield each year. Since September 1st 2017, we have only received 18.8" versus an expected average to date of 68.5", roughly a 70% shortfall.

This snow pack is what insulates our forests, provides runoff water in the Spring for our lakes, streams and other natural and man-made water holes and provides the drinking water for our municipal communities. Recent data collected for the Colorado River watershed in southern Utah and Colorado does not look much better with only about 18-30% of normal snow pack currently available. This does not bode well for Arizona and other nearby states that look to the Colorado for its primary water needs. It goes without saying that various land management agencies are also greatly concerned about our fire danger for the coming year.

Is this a catastrophe waiting to happen or the end of life in northern Arizona as we know it? I think no and I'm basing that on a little bit of research into what has happened in previous years. Just using recent precipitation data, since 1960, we have experienced 23 years when precipitation has been above annual averages and 25 years when we've been below average. While almost equal, a concern is that the variations have been more pronounced and with wider durations, certainly making life more difficult. When it comes to temperature data similar information is also apparent. The period since 1950 has been the longest period of above average warmer temperatures in the past 600 years. Specifically the decade between 2000 and 2010 has been the warmest ever by almost 2 degrees F. and each of the last three decades have shown consistent temperature increases, earmarked by fewer cold spells and more extreme heat events.

With our primary interest in wildlife and wildlife habitat,



the ramifications of these climate changes can be summarized below:

- Decreased available water, runoff, tanks, lakes, ditches
- Warmer Spring, longer Summer, increased water needs
- Greater fire danger and more extreme fire activity
- Drier soil conditions, less plant vigor, increased erosion
- More stress on livestock, wildlife, plant communities
- Reduced "carrying capacity"
- More manipulation required, increased labor, dependence on wells, hauling, etc

In closing I want to reiterate that we've been down this road before and we've been able to deal with these conditions but frequently the costs are great, the problems more expensive and difficult to control and the impacts more far reaching and with higher consequences. We must continue to work for solutions including ongoing conservation measures, effective legislative actions and open, transparent discussions concerning our future here in the Southwest.

Camp Cook

By Ryna Rock



Leonard's Famous Steak Fingers

Take 1 cup flour, 1 egg, 1 cup milk and 1 tsp baking powder, plus a pinch or 2 of salt and 1 full Tblsp of garlic. Combine in a bowl and let sit while you take your favorite cut of hamburger and roll the burger out in small finger-like rolls. Then coat them in the batter.

Take a Dutch oven and heat up 1/2 inch of oil, being careful not to get the oil so hot over the charcoal or campfire that it catches fire. When hot, slowly place the dipped meat in the hot oil. Cook them till they are golden brown on both sides. Salt will tend to bring the garlic taste out so be careful of how much additional salt you use. Place cooked meat on paper towels to drain.

Baked Beans

- 2 large cans of Bush's Baked Beans
- 1 cup brown sugar
- 1/2 cup catsup
- 1/4 cup sliced green peppers
- 1 medium sliced onion

Pour all the ingredients into a 12-inch Dutch oven and stir together. Put 8 briquettes under and 15 briquettes over, and cook for 15 minutes. Remove the bottom coals and simmer with the top coals only.

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

Mixed Berry Crisp

- 1 (10-oz) bag frozen raspberries, thawed
- 1 (10-oz) bag frozen blueberries, thawed
- 1 (10-oz) bag frozen blackberries, thawed
- 3/4 cup sugar

In a bowl combine berries and sugar; set aside. Prepare crisp topping.

- 1 cup flour
- 1 cup walnuts, finely chopped
- 1 cup brown sugar
- 1 cup oatmeal
- 1/2 cup butter, melted

Mix all topping ingredients in a medium bowl. Heat a 12-inch Dutch oven over 9 hot coals. Cover with dutch oven lid and place 15 hot coals on the top. Preheat 10 minutes.

Pour the berry mix into the oven. Sprinkle crisp topping mix evenly onto berries. Bake covered, for 30-35 minutes. Serve warm or cold. Serves 6-8.

2018 BOW Dates

January 26-28

April 13-15

September 7-9

Why Should I Certify My Yard for Wildlife?

by David Mizejewski



Your yard or garden can become a habitat for birds, butterflies and other local wildlife to enjoy right outside your window. If you provide the four components of habitat – food, water, cover and places to raise young – and maintain your garden in a natural, sustainable way, the

National Wildlife Federation will recognize it as a **Certified Wildlife Habitat** through the Garden for Wildlife program. It's an easy and fun way to do something good for wildlife in your neighborhood, and you will definitely see the impact when the animals show up to eat, drink, take shelter or build a nest.

You can, of course, create a wildlife habitat garden without getting it certified. After all, it's the garden that helps the wildlife, not the yard sign. But **getting certified is still important. Here's why:**

Certification Makes a Difference

When you certify your yard or garden, you're contributing to the movement of people making changes to their yards and gardens to support wildlife rather than banish it. When you certify, you help spread the message of wildlife-friendly gardening in your own neighborhood and as part of the National Wildlife Federation. When you post a Certified Wildlife Habitat sign, you're promoting the idea that we can make our own little piece of the Earth – our own yards – better for wildlife.

Certification is the National Wildlife Federation's way of saying thank you for caring about the wildlife that shares our neighborhoods and for taking an action to help them. You deserve recognition and approval from one of the oldest and largest conservation organization for creating a wildlife-friendly garden!

Many people enjoy that recognition, along with the personalized certificate, the subscription to *National Wildlife* magazine, the 10 percent discount to *National Wildlife Catalog* (which offers bird feeders, nesting boxes, bat houses, birdbaths and more), and the opportunity to post an exclusive Certified Wildlife Habitat yard sign, all of which you get when you certify. The application fee for certification and proceeds from purchases of yards signs and catalog products go right back to support the program.

What it boils down to is this: the more people who certify, the more you're helping to get the wildlife gardening message out there. That's a powerful thing, so certify today!

Arizona Wildlife Federation's 95th Annual Meeting Notice

The Arizona Wildlife Federation announces its 95th Annual Meeting and Awards Event, June 2, 2018. We would like to invite you to join us at our meeting marking 95 years of continuous work for wildlife. This year the meeting will be held at the Nordic Center, 16848 US 180, Flagstaff, AZ 86001. This location is 15 miles NW of Flagstaff. There is no better place to escape the well-known Arizona summer heat than Flagstaff. The Arizona Nordic Village offers plenty of wildlife, wildflowers, monsoon, and green! During the summer trails are open for hiking, biking, horse riding, wildlife viewing, and so much more.

Affiliates it's time to think about delegates, getting your membership records updated and resolutions you'd like to present or candidates for office you'd like to nominate. Information and instructions on requirements will be arriving in your mailboxes soon.

If you are interested in attending the annual meeting or joining us for the weekend, please call our office at 480-644-0077



Welcome New Members

Pia	Asem	Tempe	AZ
Shauna	Boyd	Payson	AZ
Cindy	Brady		
Kay	Brownridge	Phoenix	AZ
James	Carpenter	Mesa	AZ
Cindy	Cordery	Tucson	AZ
Mars	De La Tour	Phoenix	AZ
Mike	Declerq	Moab	UT
Laura	Fernandez	Tucson	AZ
Sara	Goroski	Phoenix	AZ
Aaron	Hall	Mesa	AZ
Vicki	Hanna	Mesa	AZ
Dianne	Jensen-Schacht	Tempe	AZ
Karen	Juniel	Phoenix	AZ
Josephine	Karacsony	Surprise	AZ
Sarah	Kristoff	Phoenix	AZ
Barbara	Metzger	Laguna Beach	CA
Piper	Mount	Long Beach	CA
Allegra	Mount	Patagonia	AZ
Jonathan	Orkfritz	Mesa	AZ
Patricia	Orozco	Phoenix	AZ
Lisa	Page-Bruyere	Tucson	AZ
Maria	Pomeroy	Phoenix	AZ
Robin	Quallick	Gilbert	AZ
Brenda	Robillard	De Pere	WI
Barbara	Ruiz	Avondale	AZ
Tracy	Salter	Juneau	AK
Denise	Savoia	Surprise	AZ
Kathryn	Schacht	Tucson	AZ
Darci	Southworth	Lewistown	MT
Kathie	Southworth	Lewistown	AZ
Jeff	Specht	Gilbert	AZ
Claire	Stoneman	Aliso Viejo	CA
Leslie	Thompson	Chandler	AZ
Ann	Vrbnac	Phoenix	AZ
Joan	Wasserman	Tucson	AZ

BOW INSTRUCTOR YEARS OF SERVICE

20 years

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

Donna Walkuski

5 years

15 years

Linda Dightmon
Russ Gunderson
Brian Mazoyer
Amanda Moors
Jeff Sorenson

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

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 Talon
Andree Tarby
Sarah Yeager



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Tell us you belong to the Arizona Wildlife Federation

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Along with other opportunities for 2018, 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 Arizona Wildlife Federation membership entitles you to discounted premiums and/or enhanced benefits on a variety of our insurance products and financial services. No health question asked/no rate increase guaranteed on whole life insurance for seniors and children.



Please take a moment to review the list of Life Members and past Benefactors to make sure we have not missed anyone. If you want to add someone to the list or upgrade your own membership status, please use the membership form provided below.

AWF Membership Application

Name _____

Address _____

City _____ State _____ Zip _____

Phone _____ Email _____

Check Enclosed!

Please bill my Mastercard Visa Discover

Expiration Date: / /

Signature _____

- \$ 15 Junior (17 & under)
- 30 Individual
- 75 Individual - 3 years
- 45 Family
- 110 Family - 3 years
- 100 Patron
- 500 Life Member
- 325 Distinguished Life Member (65+ or Disabled Veteran)
- 500 Benefactor
- 75 Small Business
- 500 Corporate

Mail To:

Arizona Wildlife Federation
PO Box 51510
Mesa, AZ 85208

All Membership fees are tax deductible

Arizona Wildlife Federation Life Members

Alan Abel	Tucson	George Flener	Mesa	Patricia A. McNeil	Payson	Robert D. Tucker	Buckeye
William Acheson	Flagstaff	Chris Fonoti	Chino Valley	Duke Mertz	Chandler	Charles W. Tyree	Tucson
Patsy Apple	Phoenix	James E. Frye	Mesa	David & Victoria Morgan	Anthem	John B. Underwood	Scottsdale
Jeff Augustine	Scottsdale	John Gannaway	Phoenix	Allen Naille	Flagstaff	Ken Vensel	Flagstaff
James Baldree	Phoenix	Gilbert F. Gehant	Mesa	Jack Naperal	Scottsdale	Mark T. Vitt	Scottsdale
John Bauermeister	Scottsdale	Fred Gerhauser	Peoria	Mike Neilson	Dewey	Stephen T. White	Scottsdale
David Beaty	Mesa	Donald Gerould	Sun City	Fred Nobbe	Phoenix	Brian H. Williams	Scottsdale
Diana Beatty	Kingman	J. David Gibeault	Tucson	Daniel & Annalee Norton	Scottsdale	Robert A. Witzeman	Phoenix
John R. Beck	Peoria	Rene G Gilbert	Anthem	Donald J. Parks Jr.	Peoria	Larry M. Wolfe Sr.	Phoenix
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Clarence Bowe Jr.	Scottsdale	Donna J Hallman	San Tan Valley	Robert & Marilyn Recker	Sun City	Jim Breck	Alexandria, SD
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Jonathan Brooks	Anthem	Miles C. Hauter S	Sedona	Ryna Rock	Camp Verde	Roy Kommeyer	Blackhawk, SD
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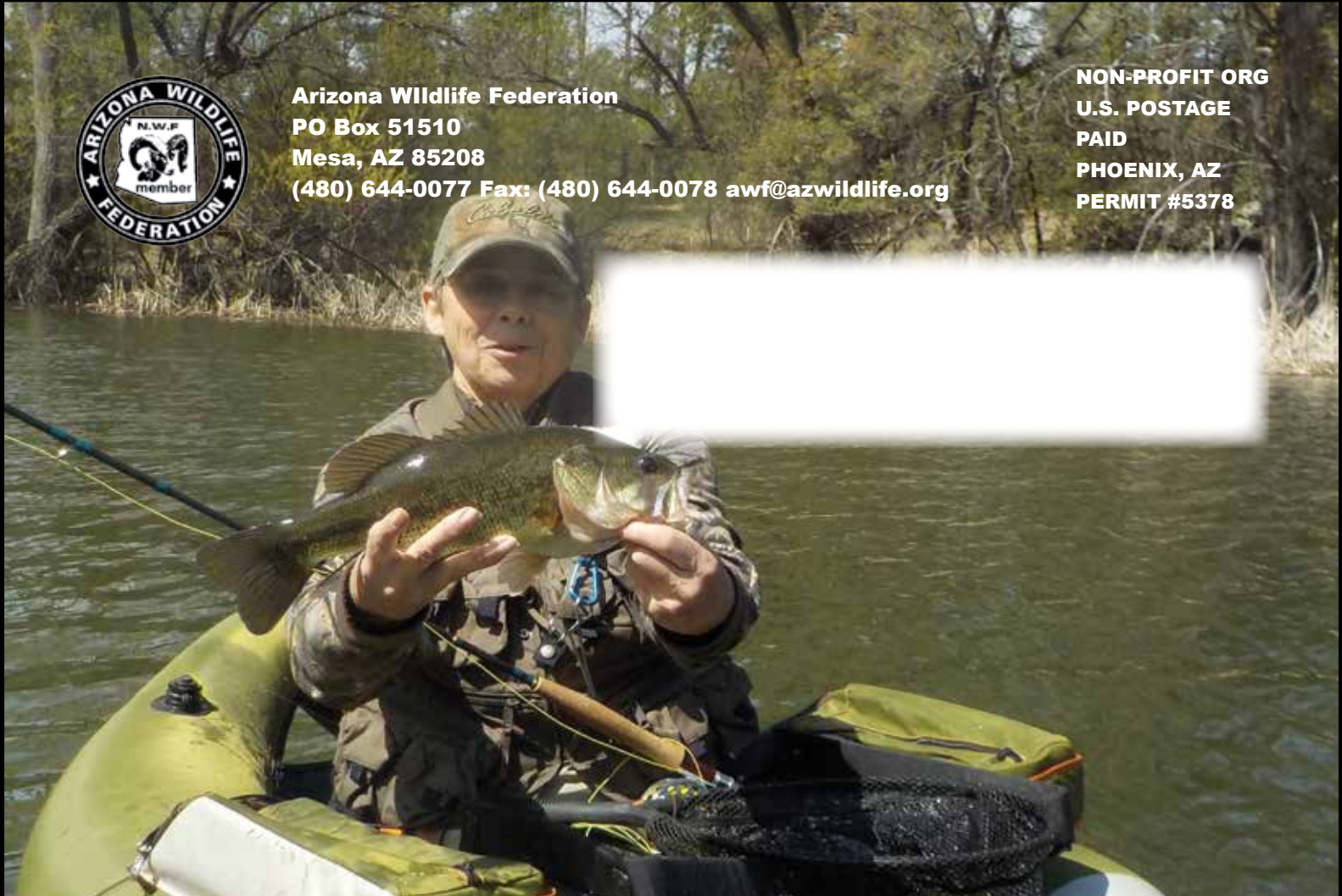
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