

Arkansas OUT *of* DOORS

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ARKANSAS WILDLIFE FEDERATION MISSION STATEMENT

*Ensuring a thriving future
for Arkansas wildlife.*

TABLE OF CONTENTS

Fall 2022

Cover photo provided by
Andrew Stevens Photography



- | | | | |
|-----------|---|-----------|---|
| 4 | The Farm Bill | 18 | Little lives of the creek: A system in concert |
| 6 | 2022 AWF Conservation Achievement Awards | 20 | Arkansas Wildlife News-of-Note |
| 10 | Natural areas are managed to preserve our natural heritage | 22 | Arkansas Wild Kids; Autumn's Palette |
| 14 | Historic Lake Frances Land & Legacy Conserved by Northwest Arkansas Land Trust | 23 | 50 Years of the Clean Water Act in Arkansas |



ARKANSAS WILDLIFE FEDERATION PRESIDENT'S MESSAGE

When you get this, fall will be in full swing and moving to winter quickly. This is truly a magical time in our state. Jump in your car and go for a drive to enjoy the remaining fall foliage before winter fully kicks in. It is also a great time to go check out many of the natural areas in our state. Ruth Berryhill shares some of the history of the Natural Heritage Commission and their work to manage and protect natural areas.

The Northwest Arkansas Land Trust keeps on knocking the ball out of the park with their continued efforts to conserve habitat. Check out the article about how NWALT acquired 830 acres of an old resort community and is establishing it as Lake Frances Preserve near Siloam Springs.

50 years ago congress passed the Clean Water Act, establishing laws to keep our waters clean and healthy for fishing and swimming. Brie Olsen, Ecologist Coordinator with the Arkansas Department of Energy and Environment gives us an overview of the Clean Water act and how it has impacted the waters of Arkansas.

On the hill for 2023, we will be keeping the public and legislators informed about the value of conservation title in the Farm Bill. This bill is crucial to farmers and landowners to help improve soil, water, wildlife, and climate. Another bill introduced in congress is the North American Grasslands Conservation Act.

The AWF Art contest is about to kick off. Any student

from K-12 can enter the Wildlife of Arkansas Art Contest. Please go to www.arwild.org for more information.

We are thrilled to be able to get back to recognizing the great people and organizations in the natural state that go above and beyond to work to protect and enhance wildlife habitats. Please check out our 2022 AWF Conservation Achievement Award winners.

If you have a chance to attend any of the events for the Arkansas Outdoor Society, please go. They are doing great work getting young people involved in the outdoors. AROutdoorSociety.org

AWF is excited about our new website coming in early 2023 and keep an eye out for ways to engage in conservation advocacy throughout the upcoming spring legislative session. Stay tuned for details.

"Nature, to be commanded, must be obeyed."

– Francis Bacon

Charles S. Buckner, III (Trey)
Board President



THE FARM BILL

The single
largest annual
federal
investment in
conservation

Content partially provided by National Wildlife Federation

In preparation for the 2023 Farm Bill, this is the first of a series of articles about the history, importance and impact of the Farm Bill conservation title in reestablishing and protecting wildlife habitat.

The Farm Bill is one of the most important federal policies affecting conservation and wildlife habitat. It offers the single largest source of funding for conservation on private lands. And with almost 90% of the land in Arkansas being privately owned and agriculture being the largest industry in Arkansas, funding to support the conservation efforts of farmers and ranchers is key to keeping our Natural State healthy.

Through its voluntary conservation programs, farmers, ranchers, and forest owners work with the U.S. Department of Agriculture to create habitat for wildlife and pollinators, conserve sensitive grasslands and wetlands, improve soil health, sequester carbon, and address water quantity and quality concerns. With pressures on the landscape ever increasing, a Farm Bill with strong conservation provisions is more important now than ever.

“...with almost 90% of the land in Arkansas being privately owned and agriculture being the largest industry in Arkansas, funding to support the conservation efforts of farmers and ranchers is key to keeping our Natural State healthy.”

The federal Farm Bill has existed in different forms since the age of the Dust Bowl (in the 1930's) and comes up for reauthorization approximately every five years. Arkansas Wildlife Federation (AWF) and partners from around the country work to ensure that Farm Bill conservation programs are reauthorized at appropriate levels, achieve maximum wildlife and environmental benefits, and are fully funded during the annual budget appropriations process. The latest Farm Bill passed by Congress was The Agriculture Improvement Act of 2018 (the 2018 Farm Bill), which funds programs through 2023.

In the lead up to the 2023 Farm Bill, AWF is already meeting with landowners, partners and the Arkansas congressional delegation to educate them about the important conservation funding aspects of the Farm Bill. Senator John Boozman serves as the ranking member of the Senate Committee on Agriculture, Nutrition, and Forestry, which works with the House Agriculture Committee to develop and write the Farm Bill. It is then voted on and passed by all members of congress.

Farm Bill Conservation Programs

Several different Farm Bill conservation programs improve wildlife habitat in the U.S. by encouraging environmental stewardship and improved management of farmlands. The Conservation Title of the 2018 Farm Bill allocated 7% of the total authorized (\$60 billion of the total \$867 billion) for conservation efforts. Conservation payments in Arkansas totaled \$567 million from 1995-2020. Conservation programs are administered by the U.S. Department of Agricul-

ture (USDA) and can be grouped into the following categories: working land programs, land retirement programs, easement programs, partnership and grant programs, and conservation compliance.

Many conservation programs established through the federal Farm Bill offer solutions to farmers through technical advice, cost sharing, and land payments to reduce the environmental impacts of agriculture. These programs help prevent complete degradation of numerous ecosystems, wildlife habitats, and watersheds. Farm Bill conservation programs offer some of the most cost-effective solutions available while providing vital environmental protection and employment opportunities in rural America.

For example, through the Conservation Reserve Program (CRP), farmers and landowners practicing erosion and nutrient loss prevention from farmlands receive payments when they take their land out of production and plant perennial grasses. Permanent land cover of perennial grasses is beneficial because it prevents the use of chemicals—reducing agricultural emissions and nutrient runoff—increases carbon sequestration, and the grasses compete better against weeds and insects.

Continued on page 9...



2022 ARKANSAS WILDLIFE FEDERATION **Conservation Achievement Awards**

Whether hiking up Pinnacle Mountain or backpacking the Ouachita Trail, canoeing the Buffalo River or floating Big Piney Creek, catching bass at DeGray Lake or pulling in trout on the Little Red River, hunting elk at Bearcat Hollow or scanning the skies for ducks at the White River National Wildlife Refuge, Arkansas truly is The Natural State.

However, Arkansas is not just about its amazing natural places and abundant wildlife. It is almost more importantly about the people. And for AWF, it's about the people who are the voices for wildlife and the natural resources we all depend on.

The annual AWF Conservation Achievement Awards recognizes individuals, organizations and businesses that have made significant and outstanding contributions toward the protection and wise use of Arkansas's natural resources. AWF is excited to share with you the four deserving award winners for 2022.



*Jonathan Baxter, Rex Hancock
Wildlife Conservationist of the Year*

Rex Hancock Wildlife Conservationist of the Year

AWF has named this special award in memory of Dr. Rex Hancock for his tireless and outstanding contributions to wildlife conservation in Arkansas. This award is for outstanding contributions to the management, enhancement and restoration of wildlife resources in Arkansas.

Jonathan Baxter, Arkansas Partners for Fish and Wildlife State Coordinator, U.S. Fish and Wildlife Service, for creating partnerships to increase habitat restoration and improvement activities on private lands throughout Arkansas. These projects have focused on benefiting Federal trust resources including migratory birds, endangered and threatened species, wetlands, floodplains, streams, and riparian areas through cooperation between the Partners Program, AWF and many other partners and private landowners. The Partners projects are helping to recover listed species or possibly preclude listing of at-risk species. One particular project under Jonathan's leadership is at Williams Hollow Farm (WHF). The WHF is a 140-acre parcel which had become densely overstocked with shade tolerant species due to fire exclusion. The habitat restoration project worked to restore the WHF tract to historical conditions and focused on removal and treatment of undesirable species (hickory, cedar, elm and sweetgum) and restoring open fields with native forbes and grasses. Species to benefit (include but not limited to) Northern Long-eared, Monarch Butterfly, Northern bobwhite quail, and Red-headed woodpecker.

Since its inception, the Arkansas Partners for Fish and Wildlife Program has:

- Implemented 15 voluntary conservation projects on private lands with additional projects in various stages of planning and implementation.
- Completed 30 different accomplishments including Rx fire, Forest Stand Improvement, and streambank stabilization.
- Added eight new partners, 12 landowners, and many AWF volunteers.
- Protected numerous endangered, threatened and at-risk species.

Conservation Organization of the Year

This award is for outstanding conservation achievement by a state or local organization in addressing significant natural resource management and environmental quality challenges.

Backcountry Hunters and Anglers AR Chapter, James Brandenburg, President, for their leadership to protect the wildlife re-

sources and public access of the Pine Tree Research Station. In the summer of 2020, Arkansas hunters and anglers began to hear about the possible sale of over 6,000 acres of public hunting and fishing lands to a private entity in northeast Arkansas. The Pine Tree Research Station was purchased by the University of Arkansas Department of Agriculture in the 1960's from the US Forest Service with the requirement that the property had to remain for public use in perpetuity. Since the 1940's, the area had been managed by the AR Game and Fish Commission (AGFC) and used primarily by locals for subsistence hunting and fishing. The area around the property has one of the lowest income levels in the state, more than 60% minority population and very little public land for family and friends to connect to the outdoors. The sale of this property would have had devastating impacts to the locals dependent on it. Because of public outreach, the Arkansas General Assembly blocked the sale during the 2021 legislative session and in March of 2022 the AGFC signed a 10-year cooperative agreement with the University of Arkansas Division of Agriculture as a wildlife demonstration area (WDA). James Brandenburg, as president of the state chapter of Backcountry Hunters and Anglers, stepped up to ensure that the story reached a broader audience with multiple articles, radio spots and testifying at the capitol. Other key people involved in the protection of Pine Tree Research Station were Michael Burns and state Senator Ronald Caldwell. When Michael Burns heard about the potential sale, he immediately started reaching out to AGFC staff, his state representative and other local users. He elevated other people's voices from the local area and encouraged people to step up and tell their stories. Senator Caldwell played a significant role at the state house by educating other legislators about the need to keep the area open to the public as originally agreed upon with the Forest Service. Because of their efforts as well as countless others, the Pine Tree Research Station remains open to public use and managed for wildlife.



Conservation Educator of the Year

This award recognizes a professional or volunteer for outstanding performance in conservation education. Emphasis is on teaching and working with students or the public rather than on research or administration.

Dr. Brenette Wilder, Kansas City Teen Summit and Dr. Michael Blazier, University of Arkansas at Monticello College of Forestry, Agriculture, and Natural Resources for establishing the Summer STEM Connections program - Through a partnership with the University of Arkansas

(UofA) at Monticello, the Summer STEM Connections pilot program was launched in June 2022 with the goal to engage students of color who are underrepresented in STEM careers and address some of the barriers to student participation. The program led 9th through 12th grade students through a three-week classroom and hands-on learning experience about STEM degrees and careers in their local area. With a theme of "Forest, wildlife, and livestock management in a changing climate," the students spent each day interacting and engaging with professors to learn about forestry, wildlife management, animal husbandry, and climate science. All the participants in this summer's program were students from nearby Wilmot, AR. Inspired by her own career, Wilder founded the program as a way to provide exposure to STEM careers for underserved and underrepresented youth in the communities of Altheimer and Wilmot where she and her husband grew up. Wilder is a University of Arkansas graduate and started the program after retiring from a career as a chemical engineer. As a way to give back to these communities, she started a camp at UofA Pine Bluff and now the pilot program at UofA Monticello. As Dean of the College of Forestry, Agriculture and Natural Resources Division, Dr. Blazier saw this initiative as an opportunity to play a crucial role in the educational and career learning of local students. The initial summer program was started in 2004 with partner universities in the Kansas City area where Wilder now resides. Although the STEM Connections camp is in its pilot phase at the UofA Monticello, plans are already underway to continue to host the program UofA Monticello and serve the students of southeast Arkansas for years to come.



Dr. Michael Blazier & Dr. Brenette Wilder, Conservation Educators of the Year



Conservation Partnership of the Year

This award recognizes an Arkansas partnership between non-profit, business, and/or agencies for significant efforts toward habitat restoration/stewardship and conservation education/awareness.

Little Rock Garden Club (LRGC) and Central Arkansas Water for leading the effort to convert an old sod farm back to native prairie. The Covey is a Partners for Plants project developed by LRGC that combines the efforts of many state agencies and nonprofit organizations to restore native prairie plants and pollinator species on 12 acres of land belonging to Central Arkansas Water. Before Central Arkansas Water acquired the property, it served as a sod farm for several decades. Libby Davis, LRGC, spearheaded the effort and coordinated volunteers who spent more than two years collecting native seeds from near-by properties to then be planted at the site. Raven Lawson, Central Arkansas Water, led the onsite implementation and Alison Fowler, AGFC, recruited and coordinated partners. Additional partners on the project included Arkansas Game and Fish Commission, Arkansas Natural Heritage Commission, Audubon Arkansas, Central Arkansas Water, The Nature Conservancy and Quail Forever. This partnership has led to the re-establishment of a native prairie that benefits species such as northern bobwhite and pollinators like monarch butterflies.

...*"The Farm Bill"* continued from page 5

CRP also benefits wildlife by incentivizing farmers to provide vital cover within agricultural working lands that support numerous species, such as grassland birds or waterfowl. When CRP fields are in close proximity to wetlands, the potential to increase duck production is greater. Species such as mallards, gadwalls, and northern pintails can benefit from CRP cover immensely.

Equity across USDA programs has been a challenge throughout the history of the Farm Bill. Financial, cultural, and knowledge barriers persist in the delivery of conservation and broader USDA programs. As our farming population ages and more and more producers reach retirement age, it is important we bring in talented, hardworking individuals to continue the agricultural productivity and stewardship of land and water.

The USDA recently released an Equity Action Plan with the aim of improving equity in the delivery of conservation program funds and technical assistance. In August, the USDA announced that it would be investing \$4.5 million to bolster outreach and education for the Conservation Reserve Program's Transition Incentives Program (CRP TIP). TIP provides landowners and operators with an incentive to return land to production on an expiring CRP contract in a way that preserves established conservation practices. It also provides an opportunity for beginning and socially disadvantaged farmers and ranchers to purchase their own

land or rent land. New landowners or renters must return the land to production using sustainable grazing or farming methods.

Other programs, such as Conservation Stewardship Program (CSP), pay farmers already implementing conservation practices and provides an incentive to implement further conservation practices for the duration of a contract. Additionally, Environmental Quality Incentive Program (EQIP) provides cost-share and technical assistance to farmers to help them implement numerous techniques that improve waterways, reduce nutrient runoff, capture methane emissions, and it provides funds for implementing cover crops or transitioning to organic production.

Though just a few benefits of Farm Bill conservation programs are described above, there are many opportunities for farmers and landowners to help improve soil, water, wildlife, and climate.

The Farm Bill is vitally important legislation that is uniquely structured to address the most serious threats to wildlife within working landscapes in the United States: habitat loss and climate change. Farm Bill provisions can and should work hand-in-hand with our agricultural economy to ensure a resilient landscape for wildlife, habitat, and our communities. AWF and partners will continue to share the importance of strong agriculture conservation provisions to providing economic opportunities for thriving communities and wildlife habitat through the 2023 Farm Bill.



ARKANSAS
HERITAGE

*Your partner in preserving
our natural heritage*

www.naturalheritage.com
501-324-9619



Natural areas are managed to preserve our natural heritage

by Ruthie Berryhill

Since 1973, the Arkansas Natural Heritage Commission has been working to conserve Arkansas's natural landscape. Some of the best, and last, remaining examples of the state's original natural landscape can be found within the ANHC's statewide System of Natural Areas. These natural areas are managed to preserve, and sometimes restore, habitat that has become rare. They also help us to understand how Arkansas's diverse ecosystems originally functioned.

Settlement and land use have changed Arkansas's landscape throughout time. We know about Arkansas's historic landscape from primary source records like journals, letters, General Land Office (GLO) survey notes and other descriptive historical accounts. The Caddo, Quapaw and Osage depended on and managed the land for hunting, fishing and gathering wild foods. When European explorers and early settlers first came to what is now Arkansas, they encoun-

tered a diverse patchwork of dense forests, open woodlands and treeless grasslands. Historical records indicate that there were as many as 2 million acres of naturally open grassland habitat in Arkansas in the 1800s.

The ANHC's System of Natural Areas is currently comprised of 78 natural areas and more than 73,000 acres. When many hear the term "natural areas," they think that these places are fenced off and left untouched. This idea is far from the reality of what natural areas are or how they are managed.

Many of our natural areas are surrounded by lands that have been altered in some way from their historic state. What happens on neighboring lands (or doesn't happen in some cases) can have an impact on the ecological integrity of natural areas. Long-term viability of natural areas and the habitats they protect requires science-based conservation through active and sound management.



To protect these natural areas, management by the ANHC is essential. Staff take methodical steps to restore ecosystem functions and maintain or enhance habitat conditions needed by rare species and the natural communities they belong to. In some cases, natural areas must undergo restoration to improve their overall condition.

Stewardship work activities are conducted within the framework of a conservation vision and are guided by management plans specific to individual natural areas. Management plans are updated in a five-year review cycle and incorporate research findings and the results of proactive land management practices. Where appropriate, staff apply a variety of techniques to maintain or restore a site's ecological integrity. These techniques include non-native and/or invasive species control, timber stand management and prescribed burning. Staff also routinely conduct ground maintenance activities including boundary demarcation, installation of appropriate signs, removal of trash and establishing public access points.





“Our 78 natural areas are living museums and great places to experience what Arkansas looked like at the time of settlement. ANHC’s land management practices protect, preserve and restore these areas, providing visitors with the opportunity to observe and enjoy our natural heritage.”

To give you a better idea of what this means, during the summer of 2022, ANHC stewardship staff – a team of five land managers – surveyed, mapped and treated warm-season invasive plant species and conducted selective thinning of woody plants. These activities occurred regardless of heat, drought conditions or sudden downpours. In order to conduct these management activities in the safest way possible and in keeping with conservation goals, staff participate in continuing education and professional training in pesticide application; chain-saw use and safety; wildland fire and prescribed burns; wilderness first aid; and swiftwater safety.

Natural areas are managed for varying levels of public usage, and site development varies widely. When compatible with the overall conservation vision, efforts are made to provide safe opportunities for moderate, low-impact public use such as birding, photography, hiking, scientific research, education and even public hunting. Travel is limited to foot traffic to minimize erosion and disturbance to sensitive species. Some areas or features are not directly accessible by road and may require a significant hike. Trails and parking are not available at all locations and may be very limited at some. Camping and campfires are not allowed.



Our 78 natural areas are living museums and great places to experience what Arkansas looked like at the time of settlement. ANHC's land management practices protect, preserve and restore these areas, providing visitors with the opportunity to observe and enjoy our natural heritage.

Arkansas Natural Heritage Commission

The Arkansas Natural Heritage Commission was established in 1973 to identify and protect the state's remaining high-quality natural communities. To protect the "best of the last," the Commission manages a System of 78 Natural Ar-

reas that encompasses more than 73,000 acres and maintains data on the status of rare species and natural communities in Arkansas.

Arkansas Department of Parks, Heritage and Tourism

The Arkansas Department of Parks, Heritage and Tourism protects and promotes our state's natural, cultural and historic assets, contributing to a thriving economy and high quality of life. It is made up of three divisions: Arkansas State Parks, Arkansas Heritage and Arkansas Tourism. Stacy Hurst serves as the cabinet secretary for the department.



602 President Clinton Avenue, Little Rock, AR

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Historic Lake Frances Land and Legacy Conserved by Northwest Arkansas Land Trust

The breeze rustles the leaves of stately oaks, bending the tall grass in gentle unison. The faraway cry of a hawk belies the fact that the area was once the site of a bustling resort catering to wealthy Tulsans for nearly 40 years.

Where there was once a grand hotel, dance hall, swimming pool, restaurant, tennis courts, golf course, and guest cabins on the shores of glistening Lake Frances, there are now acres of shortleaf pine stands and oak savannas, making it one of the largest tracts of contiguous forest in western Benton County. Lake Frances is gone, but in its place is an area considered one of the most significant pine/oak woodlands in Northwest Arkansas. With the purchase of approximately 830 acres of this historic property, the Northwest Arkansas Land Trust (NWALT) will ensure

this area, now known as the Lake Frances Preserve, will protect wildlife habitat and water quality, as well as allow future public access.

Its storied past begins in 1926 when businessman Julius Livingstone and his partners purchased 1,200 acres on both sides of the Arkansas/Oklahoma border and constructed a dam on the Illinois River to create a 70-acre lake. Originally called Forest Park, the name was changed to Lake Frances when James Sloan gained controlling interest and renamed the property after his daughter. It quickly became a hot spot for the privileged and celebrated, where visitors could sail and fish in the lake, lay by the Olympic-size pool, enjoy a round of golf, and dance the night away in the park's pavilion. Legend has it that the famous outlaw Belle Star hid along the property's bluffs in the late 1800s. Hank Williams Sr. honeymooned on the property in 1952.

In 1954, when the dam was rebuilt after flooding and storm damage, the city of Siloam Springs purchased the lake as a source of drinking water and as a place for recreation. The hotel closed in 1971 and was demolished. In 1989 the Lake Frances dam was irreparably damaged, and the lake drained, restoring the course of the Illinois River.



Today, Lake Frances Preserve has over seven miles of mapped streams, much of which consists of seasonal and ephemeral streams that support an abundance of plants and wildlife. With NWALT's purchase, the property will permanently protect these streams and their habitats and help protect water quality in the Illinois River. The Illinois River Watershed has been a priority since the Land Trust was founded in 2003. The property was purchased from the descendants of Frances Sloan Thomas, for whom the lake was named, and is the largest tract purchased by NWALT to date, making it their biggest conservation property in Benton County.

"Permanently protecting the Lake Frances property ensures a piece of Benton County's natural heritage is protected forever. The shortleaf pine stands and oak savanna are unique in our region and help tell the story of what it was like for the native Americans who lived here and before pioneers settled here nearly 200 years ago," said Marson Nance, Director of Land Stewardship and Research. "We've already found unique plants on the property but have barely scratched the surface in documenting the land's biodiversity. There is also a large post oak savanna of regional conservation significance along Lake Frances Gate Road. These habitats are important and ecologically significant in Northwest Arkansas"

The area is rich in wildlife and is a significant area for neo-tropical migratory songbirds, including Summer Tanagers, Scarlett Tanagers, a variety of warblers, and the Yellow-Bellied Cuckoo, a state species of greatest conservation need. According to Pam Nelson, NWALT Director of Land Protection, "Population in the region is expected to double by 2045, reaching nearly one million residents. Northwest Arkansas is one of the fastest-growing regions in the central United States. On average, the region loses nine acres of open space each day."

The Northwest Arkansas Land Trust is the region's first

local and accredited land trust dedicated to preserving and enhancing the quality of life for all people in Northwest Arkansas through the permanent protection of land. By holding and managing donated land and providing conservation easement services, the Land Trust protects water quality, local farms, wildlife habitats, and places for outdoor recreation while enhancing the quality of life for today and future generations. The service area of the Land Trust includes 13 counties in Northwest Arkansas, with a core focus on Benton, Washington, Madison, and Carroll counties.

While the property is fully protected from commercial and residential development, there are plans for the public to enjoy its natural beauty. NWALT public access plans include site-appropriate hiking trails, natural surface multi-use trails, and a hard surface multi-use trail connecting Oklahoma Highway 59 north of the WOKA Whitewater Park to Arkansas Highway 59. "This is NWALT's first partnership with the development and construction of hiking, running, and mountain bike single-track trails to encourage public engagement with the preserve to better understand the significance of protecting these special habitats," said Grady Spann, executive director of NWALT, "and we are excited about this partnership and how we provide recreational opportunities to all visitors to the Lake Frances Preserve."

"We're grateful and excited to showcase another example of a strong conservation partnership to save land in Northwest Arkansas," said Nelson. "We're honored to preserve a family legacy and the history of this important property, along with the natural legacy that makes Northwest Arkansas a special place to live."

To date, NWALT has permanently protected over 6,000 acres in Northwest Arkansas, including 1,300 acres in Benton County and 1,700 acres in the Illinois River Watershed. This acquisition was made possible through a grant from the Walton Family Foundation.

“Wildlife of Arkansas”

2023 STUDENT ART CONTEST

presented by



**AR Wildlife Federation
& Creative Ideas**



This exciting visual art contest offers K-12 students in Arkansas the chance to display their creativity. The theme “Wildlife of Arkansas” acknowledges the natural beauty of Arkansas by providing the perfect inspiration for students to explore their natural artistic abilities.

ALL ARTWORK MUST BE SUBMITTED ONLINE.

Visit www.arwild.org for more information about deadlines and criteria.



**Keeping the Natural State natural.
www.agfc.com**



Little lives of the creek: A system in concert

By Johnny Carrol Sain

My first memories of a creek trace back to Hacker Creek. As water runs its course, Hacker transforms it from the spirited rapids of the Ozark foothills to the somber brown might of the Arkansas River.

Topography is the deciding influence for any creek's personality, and Hacker reflects the gentler rolling hills and long stretches of flatland through which it meanders with longer pools, subdued riffles and nary a waterfall of any size. Its water looks like weak tea — clear as air at its thinnest points, tannin stained by sycamore and oak leaves at its thickest. If you've seen the movie "O' Brother Where Art Thou," and you remember the creek scene with the three sirens, then you've got a good idea of what Hacker looks like, minus the sirens. But who needs sirens when you're six-years-old and there's fish to catch?

As a six-year-old, the best thing about Hacker, other than the fishing, was that every flat rock in the creek was a doorway to another world. It was a world full of creepy-crawlies and mysterious tiny fish — tiny fish that mostly fell under the

column of "minners", according to Dad — that darted and flashed away as their stone fortress was lifted. Bass and bream brought me to the creek bank and into the water, but other more obscure forms of life held me captive

when the fish weren't biting. And sometimes, even when the fish were biting, I'd still spend my time looking for salamanders and crawfish, and wondering how the tiny black catfish my dad correctly identified as madtoms could pull a Houdini and seemingly dissolve into the water.

Forty-five years later, I'm still drawn to moving water and I'm still looking under rocks.

You'd think that age and education would pull me away, toward more important things. I think they have. When I learned that those bottom-hugging little fish that dart from rock to rock are really called darters, it led to a desire to learn even more about them. Did you know darters are really perch, cousins of the yellow perch and walleye? They hug the bottom because they don't have an air bladder. Through eons of time they've been crafted to deal with swift currents

by living underneath them. I've learned that besides being a food source for predatory fish, biologists now think that many species of darters, along with other fish, are integral in the reproduction of some species of freshwater mussel.

Decades ago, Aldo Leopold, the father of modern wildlife biology wrote about the importance of every organism, even the unseen, in an ecosystem: "The last word in ignorance is the man who says of an animal or plant, 'What good is it?' If the land mechanism as a whole is good, then every part is good, whether we understand it or not. If the biota, in the course of aeons, has built something we like but do not understand, then who but a fool would discard seemingly useless parts?"

Ecosystems are greater than the sum of their parts, but each part is precious.

Darters are only one of those "minners." There's also stonerollers and hog suckers and bigeye shiners along with other representatives of various fish families. And I haven't even mentioned the freshwater snails and hellgrammites and tadpoles. Or the aquatic sowbugs that aren't really bugs at all but are in fact crustaceans related to the familiar terrestrial roly polys found under rocks and rotting logs in the forest.

Just imagine all the critters in your favorite creek. Hopefully, you already know them. Hopefully, you already have a sense of place regarding your favorite water.

Though he didn't coin the term, Leopold understood a sense of place. What I'm talking about is an awareness of the organisms and cycles of the places where you live or hike or hunt or fish. Leopold went the botanical route in talking about a sense of place: "Tell me of what plant-birth-

day a man takes notice, and I shall tell you a good deal about his vocation, his hobbies, his hay fever, and the general level of his ecological education."

Tell me of what creatures other than game fish an angler takes notice, and I shall tell you a good deal about the richness of his time spent in the water.

The more I know and understand about the smaller and often unnoticeable denizens of the stream, the more I get a sense of the overwhelming complexity that, frankly, is beyond our limited capacity of comprehension. God, and I'm referring to "god" in the deistic god of nature sense, lives in those tiny details and tiny lives that are the most important but often forgotten gears of life in the creek. Bass eat crawfish and crawfish thrive in clean water and mussels filter the water and the mussels are here because of the darters. Every bass that comes to hand deserves a "thank you" to the darters. Actually, a few words of gratitude for the creek system as a whole are in order. And with this gratitude comes a sense of understanding that were it all not working in concert in this symphony of life, there's a good chance that there would be no reason at all to visit the creek.

It's a grand system built on humble creatures and cycles that don't catch the consumer's eye. Pictures and stories about a greenside darter won't sell a lot of rods or lines or beer. But without that quiet and cryptic circle there is no place or use for rods and lines. Yes, there'd still be a place for beer, but beer is so much better when your mouth is dry after talking about all the fish you caught, right? So lift a bottle to the crawdads and the mussels and the darters. Lift a bottle and toast the little lives we don't always notice, the little lives that give life to the creek.



ARKANSAS WILDLIFE News-of-Note



AWF receives national conservation award

In October, the US Fish and Wildlife Service's Partners for Fish and Wildlife Service (Partners) recognized AWF for their outstanding contributions towards voluntary wildlife habitat restoration on private lands. Over the past seven years, AWF has worked in partnership with the Partners Program to increase habitat restoration and improvement activities on private lands throughout Arkansas. These projects have focused on benefiting Federal trust resources including migratory birds, endangered and threatened species, wetlands, floodplains, streams, and riparian areas through cooperation between the Partners Program, AWF and many other partners and private landowners. The AWF and Partners projects are helping to recover listed species or possibly preclude listing of at-risk species. The Arkansas Partners for Fish and Wildlife Program has:

- Implemented 15 voluntary conservation projects on private lands with additional projects in various stages of planning and implementation.
- Completed 30 different accomplishments including Rx fire, Forest Stand Improvement, and streambank stabilization.
- Added eight new partners, 12 landowners, and many AWF volunteers.
- Protected numerous endangered, threatened and at-risk species.

Recovering America's Wildlife Act

In the final stretch of the 117th Congress, we wanted to share a quick update on the recent progress on Recovering America's Wildlife Act. Recovering is in a solid position right now and excellent progress has been made this fall in getting a few more key Senators to commit their support for passing it this Congress. Funding from the bill would provide Arkansas \$14 million annually to support habitat enhancement for species of concern with the goal of keeping them off the Endangered Species list. AWF is hopeful that by the time you are reading this, the bill has been passed and signed by the President to make it a very happy new year celebration for wildlife.

North American Grasslands Conservation Act

In late July, Sen. Ron Wyden (D-Ore.) introduced new legislation which would provide funding to private landown-



Jim Taylor, AWF Board member, accepting the Partners Conservation Award on behalf of AWF.

ers to restore, protect and manage grassland ecosystems. The North American Grasslands Conservation Act seeks to empower farmers, ranchers, Native American tribes and rural communities to conserve some of the continent's most imperiled ecosystems while combating the climate crisis. AWF and partners met with Senator Boozman and Representative Westerman educating them about the long-term impact funding from this bill could have on re-establishing grasslands on private lands throughout the state.

2023 Farm Bill

As you read in the article about its history, the Farm Bill is one of the most important federal policies affecting conservation and wildlife habitat and offers the single largest source of funding for conservation on private lands. Senator Boozman serves as the ranking member on the Agriculture, Nutrition, and Forestry Committee. Farmers, ranchers, sportsmen, and conservationists are calling on Congress to follow through on additional and historic investments in sustainable, climate-smart ag practices. In August, AWF Executive Director, Terri Lane, met with Senator Boozman and others at the tree farm of Miles Goggans to discuss the importance the Farm Bill has in Arkansas. We appreciate Senator Boozman's efforts to learn more about the impacts of the conservation title to wildlife.



Terri Lane meeting with Senator Boozman and others to discuss the positive wildlife impacts of the Farm Bill.

Waters of Arkansas

With the 50th anniversary of the Clean Water Act, we wanted to share with you one way to get out and enjoy some of the great waterways of Arkansas by joining the Arkansas Canoe Club (ACC). The ACC is a recreational organization consisting of over 1000 members representing ten chapters in Arkansas, Louisiana, Oklahoma and Texas. ACC Members love to paddle the rivers, streams, bayous and lakes of The Natural State and beyond. Re-

gardless of whether you are new to canoeing, kayaking or rafting or if you are a veteran, you will be among friends in the Arkansas Canoe Club. The ACC is dedicated to participating in and promoting the sport of paddling by holding paddling schools and clinics, whitewater rescue courses, river cleanups and being active in conservation and river access issues. To find a chapter near you, visit <https://www.arkansascanoeclub.com/>

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Autumn's Palette

By Roger Di Silvestro,
National Wildlife Federation

As winter descends, trees face colder temperatures and frigid winds, conditions that would damage leaves, so trees have to reduce themselves to their toughest parts—stems, trunks, branches, bark.

Evergreens (such as pine trees) can hang on to their leaves through winter, because their foliage is coated in a wax that helps protect against cold, and their cells bear anti-freeze chemicals that ward off winter's worst woes. Not so for broadleaf, or deciduous, trees, like oak trees. The fluids that flow through their leaves are thin and susceptible to freezing, the tissues tender. Winter cold dooms the leaves, and trees save energy by getting rid of them.

As the days begin to darken, trees can sense the loss of light. Thanks to chemical light receptors—phytochrome, which detects red light, and cryptochrome, which is sensitive to blue—trees can register day-length changes of as little as half an hour. When they do, they undergo chemical and physical changes that produce autumn hues.

Chlorophyll is the green pigment that allows plants to absorb sunlight and turn it into food that can be stored for winter dormancy, much as a bear stores fat for hibernation. During the growing season, trees create chlorophyll as fast as they use it up, so leaves stay green. But as daylight declines, trees slow the production of chlorophyll until, finally, it stops. Producing more would be a waste of energy because, as temperatures near the freezing point, the process of photosynthesis slows to impractical levels.

While the green pigment ebbs from the leaf, other pigments hidden in the greenery during warm months begin to appear. Carotenoids—which produce the yellow, orange and brown colors in the flowers of daffodils and the roots of carrots, in the rinds of pumpkins and the peels of bananas—are present in leaf cells throughout the growing season, but they're masked by the green pigment. Once the chlorophyll disappears, the carotenoids give leaves a burst of color. Trees produce another pigment group, the antho-

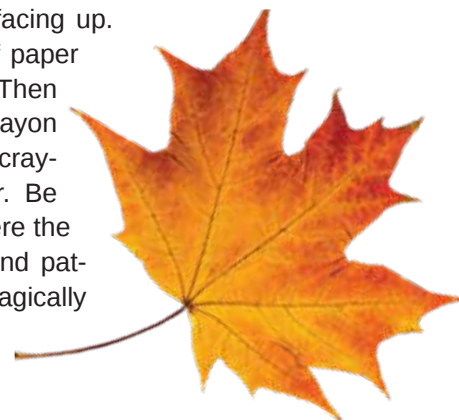
cyanins, primarily in autumn. These pigments give red and purple to such things as blueberries, cherries, red apples, concord grapes, and plums. And autumn leaves.

Eventually, autumn leaves must fall. By the end of summer, they may be damaged by insects, disease or general wear and tear and ready for renewal. They are equipped to self-destruct. At the point where leaf stem meets twig or branch is an array of cells called the abscission layer. As autumn days shorten, this layer begins to choke off the veins that move water into the leaf and food into the tree. Once the leaf is completely choked off, the layer becomes dry and flakey and, through decomposition, detaches the leaf from the tree.

When fall comes and the leaves start turning beautiful colors, look around you with the eyes of an artist. Take a walk and make drawings, take pictures, or just enjoy the lovely view.

1. Pick up some fallen leaves and see if you can match them to the trees they came from. (Look for more of the same kind of leaf still attached to the tree.)
2. Fall leaves come in many colors. Line up the leaves you find in a spectrum from green to yellow to orange to red to brown.
3. Sketch some of the different leaf shapes and colors you find.
4. Make a leaf rubbing. Lay your favorite leaf on a flat surface with the veins facing up.

Lay a blank piece of paper on top of the leaf. Then rub the side of a crayon (or several different crayons) over the paper. Be sure to rub everywhere the leaf is. The shape and pattern of the leaf will magically appear!



50 Years of the Clean Water Act in Arkansas

Brie Olsen – Ecologist Coordinator
Arkansas Department of Energy and Environment
Division of Environmental Quality
Office of Water Quality



October 18, 2022, marked the 50-year anniversary of one of the most influential and protective environmental statutes in America, the Clean Water Act (CWA). The CWA established a network of programs and requirements that keep our waters clean enough to be “fishable” and “swimmable.” The CWA comprehensively addresses point source pollution (pollutants in water discharged from linear conveyances such as pipes) under the National Pollutant Discharge Elimination System (NPDES) program. Any facility, industrial, municipal, or other entity that discharges directly to waters of the United States must obtain a NPDES permit.

In Arkansas, NPDES permits are issued by the Division of Environmental Quality (DEQ). DEQ writes permits to ensure that discharge effluent meets water quality standards for the receiving water. These permits consider several known pollutants, the capacity of the facility to treat wastewater, the quality of the receiving water, and additional factors. Arkansans can access the DEQ website to review permit limits, permit compliance, and comment on permits during the public notice process.

Controlling discharge through permits is an effective way to reduce water pollution from point sources—as long as the standards under which our waters are managed are adequate to maintain the fishable and swimmable condition. DEQ uses ongoing field studies and literature review to set water quality standards. The first water quality standards in Arkansas were adopted in 1967: a full five years before the CWA was adopted into law.

New and emerging contaminants are continuously being identified, which necessitates the development of new and updated standards. Additionally, standards are typically developed on a state-wide or ecoregion-wide level. Unique geology or other local features means that some waters may need more specific standards. A typical study in this process involves comparing water quality and biological community structure across a pollution gradient to determine a threshold at which healthy biological communities, comprised of fish and macroinvertebrates, can no longer be sustained.

After standards are adopted and permits issued, the CWA requires DEQ to conduct an assessment of Arkansas’s waters every two years, using all available data. Any water-

bodies that do not meet applicable water quality standards will be added to the 303(d) list of impaired waters and eventually receive a total maximum daily load (TMDL). A TMDL is the maximum amount of a given pollutant that a body of water can receive and still meet water quality standards. TMDLs identify all point source and non-point source pollutants discharging into a given body of water and may impose more restrictive permit limits in an effort to return that waterbody to compliance with water quality standards.

Based on data collected throughout the state, 14.7% of Arkansas’s delineated streams, as established by the USGS High Resolution National Hydrography Dataset, are impaired and are in need of a TMDL. An additional 6.3% are impaired and have a TMDL currently in place. The most common parameter not meeting its standard, according to the draft 2020 303(d) list, is dissolved oxygen. This is followed by turbidity, a measure of water clarity. Impaired waters are commonly targeted for restoration and other watershed-based programs to return the waterbody back to compliance, if the pollution source is known.

The CWA does not address non-point source pollution, which cannot be traced to a discrete source and generally occurs by way of rainwater runoff. In watersheds with few or no NPDES dischargers, non-point source pollution is the primary mechanism of impairment to our waters.

The CWA is concerned only with the quality of surface water; it does not regulate water quantity nor does it consider the quality or quantity of groundwater. Although Arkansas is a water-rich state, groundwater withdrawals have affected both the quantity and quality of our aquifers. Aquifers are the primary water source for certain agricultural areas as well as drinking water in the state. They also recharge many of our rivers and streams.

Clean water is vital to human and environmental health but requires a high level of time and attention. We are fortunate in the United States to have laws that protect our water. We are especially fortunate in Arkansas to have an abundance of water—but an adequate supply of clean water is something we must work to maintain and should not take for granted.

For more information about the Clean Water Act, visit <https://www.nwf.org/Our-Work/Waters/Clean-Water-Act>.

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