

Arkansas OUT *of* DOORS

The Official Publication of the Arkansas Wildlife Federation | Vol. 52, No. 2, Summer 2024

Gallery of Winners: 2024 Wildlife of Arkansas Student Art Contest



THE BUZZ ABOUT CICADAS

The emergence of the 13-year periodical cicada presents a unique opportunity for wildlife watchers in 2024.

SPECIES OF CONCERN

How the Arkansas Wildlife Action Plan addresses the state's most vulnerable and threatened species.



A GRAY HAIRSTREAK (*Strymon melinus*) perched on a blade of grass.

Inside This Issue

- 4** From the Board President
- 6** It's Butterfly Season in Arkansas
- 12** Wildlife of Arkansas Student Art Contest Winners & Gallery
- 20** Arkansas Wildlife Action Plan: A Conversation with the Coordinator
- 22** Wildlife Watching with Sim: Getting Buzzed about Cicadas
- 30** Policy Watch
- 34** Arkansas Wild Kids: Make a Nature Map
- 37** Get the Picture: Remnants, Refuges, & Restorations
- 38** From the Director

ON THE COVER: Wildlife of Arkansas Student Art Contest 10th Grade 1st Place & high school Best in Show artwork created by Elizabeth Lendel of Little Rock, AR



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Arkansas OUT of DOORS

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FROM THE BOARD PRESIDENT

ARKANSAS WILDLIFE FEDERATION



Ask anyone what makes Arkansas special, and they'll likely mention our beautiful natural landscapes and abundant wildlife.

Indeed, Arkansas' wildlife-related economy is strong. Wildlife-watching, fishing, and hunting are top pursuits for many Arkansans and bring visitors and significant revenue to our state.

Inside this issue of *Arkansas Out of Doors*, we celebrate wildlife with a gallery of winning artwork from the 2024 Wildlife of Arkansas Student Art Contest. Over 1,500 K-12th students from across the state entered this year! As a lifelong educator, I couldn't be more thrilled to see so many young people connecting to nature through art.

Special thank you to the parents and teachers who support these talented students in participating, and to our lead sponsor of the contest, the Arkansas Game and Fish Commission, and to the National Wildlife Federation for their ongoing support.

Enjoy!

Amanda Brogdon
Board President



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A LITTLE WOOD-SATYR (*Megisto cymela*) basking in the sun.

It's Butterfly Season in Arkansas!



Article & photos by Katie Morris

Katie Morris is an Aquatic Ecologist with the Arkansas Natural Heritage Commission. She works statewide surveying for fish, crayfish, and butterfly species of concern.

On a warm sunny day in March, colorful tiny creatures named after punctuation marks begin to stir in the glades, prairies, and woodlands of Arkansas. Butterfly season has begun!



Punctuation Marks?!

In fact, three species of butterflies in Arkansas are named after punctuation shapes found on their wings: the Question Mark (*Polygonia interrogationis*), Gray Comma (*Polygonia progne*), and Eastern Comma (*Polygonia comma*).

Of the three species, the Question Mark is by far the most common and widespread across Arkansas. They are one of the first species to emerge in spring. When you stumble onto your first Question Mark of the year, you know the butterfly hunt is on!

Question Marks are identified by the small, white question mark found on the underside of their wings. When their wings are folded, they strongly resemble a leaf allowing them to camouflage

among brown leaves on the ground. They use a variety of host plants, including elms (*Ulmus spp.*) and hackberries (*Celtis spp.*). Question Marks occasionally fly year-round during milder winters.

Arkansas' State Butterfly

Later in the spring, a beautiful black and orange butterfly sits atop gently swaying stems of Beebalm (*Monarda sp.*) next to another bright blue and black butterfly. Don't be fooled - they are the same species!

The Diana Fritillary (*Argynnis diana*) is so special that it was chosen as the official state butterfly of Arkansas. This fascinating species exhibits extreme sexual dimorphism (size and color differences based on gender).

The male is strikingly black and orange while the female is deep blue and black. The female is also notice-

ably larger than the male when viewed side-by-side. The male emerges in late May, several weeks before the female, and females can be seen for several months longer than males.

"Dianas" prefer open woodland habitat and need access to their host plants, native violets (*Viola spp.*), and a good nectar source, such as Butterfly Weed (*Asclepias tuberosa*), Purple Coneflower (*Echinacea purpurea*), or Beebalm.

A Hungry (Carnivorous) Caterpillar

On a beech tree next to a spring fed stream, a carnivorous animal eats a writhing mass of aphids.

The caterpillar of the Harvester butterfly (*Feniseca tarquinius*) has an extremely unique feeding habit. It is the only carnivorous caterpillar in Arkansas. Fewer than one percent of all butterfly species in the world have

a carnivorous life stage.

The Harvester caterpillar eats woolly aphids, and the adult butterfly eats the sugar-rich liquid secreted by aphids called "honeydew." Adults will also feed on carnivore scat and tree sap.

The Harvester caterpillar is a link in a remarkable ecological relationship. It depends on aphids found only on American Beech (*Fagus grandifolia*) and Alder (*Alnus serrulata*) trees. These tree species have high moisture requirements and do best in areas with fertile soil. So many conditions must align for an opportunity to see adult Harvesters flying!

An Iconic Journey

Nearby in the open forest, another butterfly is fueling up for a thousand-mile migration south for the winter.



A FEMALE DIANA FRITILLARY
(*Argynnis diana*)



AN EASTERN TAILED-BLUE
(*Cupido comynatas*) on Nuttall's
Cornsalad (*Valerianella nuttallii*).



A MALE DIANA FRITILLARY
(*Argynnis diana*)



A QUESTION MARK (*Polygonia interrogatoris*)
on mountain mint (*Pycnanthemum sp.*).

Perhaps the most well-known butterfly story in North America is the awe-inspiring annual migration of the Monarch (*Danaus plexippus*). They travel from as far north as the southern border of Canada across several thousand miles of the continental United States to reach the Oyamel Fir (*Abies religiosa*) forests in Central Mexico. There they cling to fir needles and wait out the winter. It's astonishing that a tiny insect with fragile wings has the strength to fly such a distance!

In early spring, Monarchs will begin their migration northward, appearing in Arkansas in March where they lay eggs on their host plant, milkweed (*Asclepias spp.*). The largest number of

Monarchs can be viewed in Arkansas during their fall migration which occurs in September and October.

Large and Small

The largest butterfly in North America is the Giant Swallowtail (*Heracles cressphontes*) with a wingspan as wide as six and a half inches! Numerous species in the citrus family (*Rutaceae*) are host plants for Giant Swallowtails.

On the opposite side of the size spectrum in Arkansas is the Least Skipper (*Ancylocypha numitor*). The maximum wingspan for Least Skippers (one and one eighth inches) is six times smaller than that of the Giant Swallowtail.

The Least Skipper prefers wet, open areas and can be commonly found in the Delta Region and on Crowley's Ridge in Arkansas. Its host plants are Rice Cutgrass (*Leersia oryzoides*) and other grass species.

Skippers are the most diverse butterfly family in Arkansas representing over 50 species. This group has a unique range of shapes and colors and includes Bell's Roadside-Skipper (*Amblyscirtes belli*), Hoary Edge (*Achalarus lyciades*), and Crossline Skipper (*Polites origenes*).

From the lacy white squares on the outside wing edges of the roadside-skippers, to the tiny black and white bands on the legs and antennae of the Least Skipper, their intri-





SEVERAL RED-SPOTTED PURPLE (*Limenitis arthemis*), a Pearl Crescent (*Phyciodes tharos*), and a Question Mark (*Polygonia interrogationis*) puddling (extracting nutrients) on a log.

cate details are well worth the time and effort it takes to distinguish between them. Don't overlook the tiny skippers!

More Than Beauty

Butterflies are truly unique creatures worthy of protection. In the United States, studies estimate that 19% of butterfly species are at risk of extinction. Major threats include prairie and wetland habitat loss, insecticide exposure, and climate change.

Butterflies are important to the



THE LARGEST BUTTERFLY IN ARKANSAS, Giant Swallowtail (*Heraclides cresphontes*) on the left, and inset in the top right, Least Skipper (*Ancyloxypha numitor*), the smallest butterfly in Arkansas.



A HARVESTER (*Feniseca Tarquinius*) extracting minerals.

ecosystem because they pollinate native plants; provide rich food sources for birds, spiders, and other animals; and recycle nutrients.

When and Where to Watch Butterflies in Arkansas

Beginning in March, there are a

limited number of butterfly species flying, which makes it the perfect time to develop your butterfly identification skills and get ready for summer.

June becomes alive with butterflies and is also National Pollinator Month - a great time to start viewing and appreciating these special creatures throughout the remainder of summer and beyond.

Some of the best places to look for butterflies are in the 79 natural areas protected by the Arkansas Natural Heritage Commission, 13 of which have butterfly species of concern.

Cherokee Prairie Natural Area in Franklin County, Arkansas and Terre Noire Natural Area in Clark County, Arkansas are particularly rich in butterfly diversity. And Mount Magazine State Park in Logan County, Arkansas has recorded an incredible 94 different species!

One of my favorite places to look for butterflies is in my own backyard. To attract more pollinators to your yard, add native plants, such



A BRIGHTLY COLORED Common Buckeye (*Junonia coenia*)

as sunflowers (*Helianthus spp.*), blazing-stars and gayfeathers (*Liatris spp.*), beebalms and horsemints (*Monnarda spp.*), or mountain mints (*Pycnanthemum spp.*) Native plants provide rich nectar for adults and serve as a nursery and food source for growing caterpillars.

You can also create a butterfly puddling station by filling a shallow dish with a mixture of sand and soil, add some rocks to the top as perches, and fill it with water. Then sit back and admire the tiny, winged wonders fluttering around your very own butterfly sanctuary!

Butterfly season in Arkansas is open and accessible to everyone. There is no license required and no limit on the number of incredible photos you will take. The only requirement is that you respect them and their habitat so they can be enjoyed season after season.



A collage of skipper diversity: 1) Bell's Roadside Skipper (*Amblyscirtes belli*), 2) Huron Sachem (*Atalopedes huron*), 3) Northern Broken-Dash (*Polites egeremet*), 4) Common Checkered-Skipper (*Burnsius communis*), 5) Fiery Skipper (*Hylephila phyleus*), 6) Crossline Skipper (*Polites origenes*).

WILDLIFE OF ARKANSAS STUDENT ART CONTEST

Gallery of 2024 Winners

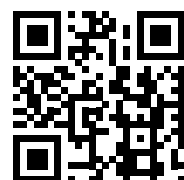
Each year, the Arkansas Wildlife Federation invites students in grades K-12th to submit their original artwork depicting Arkansas-native wildlife. The contest is free and open to public, private, and homeschooled students based in Arkansas.

Over 1,500 students from all across the state submitted their original artwork this year. A panel of four professional jurors shared the difficult task of selecting the winners based on creativity, skill, and interpretation of the theme.

1st, 2nd, and 3rd place winners were selected for each grade, as well as honorable mention/s for some grades. Best in Show awards were selected from among the winners in each grade category: Elementary School (K-4th grade), Middle School (5th-8th grade), and High School (9th-12th grade).

The Wildlife of Arkansas Student Art Contest is provided by the Arkansas Wildlife Federation. It was founded by Sharon Hacker, former Arkansas Wildlife Federation board member and founder of Creative Ideas. The contest is supported by lead sponsor, Arkansas Game and Fish Commission, along with the National Wildlife Federation.

For more information, visit www.arwild.org/art-contest or scan this QR code.



Winners of the 2024 Wildlife of Arkansas Student Art Contest were recognized at a reception hosted by Arkansas Wildlife Federation at the Arkansas State Capitol in Little Rock. An exhibit of winning artwork is touring public locations statewide through the end of this year.



1ST PLACE & BEST IN SHOW, KINDERGARTEN
Zoey James, Rogers
Crazy Fox



2ND PLACE, KINDERGARTEN
Solomon Wallis, North Little Rock
The White-tailed Deer



3RD PLACE, KINDERGARTEN
Sawyer Hall, Vilonia
Great Horned Owl



1ST PLACE, 1ST GRADE
Kynslee Willis, Texarkana
Coyote



2ND PLACE, 1ST GRADE
Max Gomillion, Bentonville
Happy Frog



3RD PLACE, 1ST GRADE
Owen Walker, Springdale
Painted Bunting



1ST PLACE, 2ND GRADE
Alexandria French, Searcy
Owl Chick



2ND PLACE, 2ND GRADE

Braylee Smart, Little Rock

The Night Sky



3RD PLACE, 2ND GRADE

Addy Adcock, Bella Vista

Raccoon



HONORABLE MENTION, 2ND GRADE

Cole Wade, Bentonville

Family Meal



1ST PLACE, 4TH GRADE

Sai Gandu, Bentonville

A Bright Flame Amidst the Dark Shadows



2ND PLACE, 4TH GRADE

Harley Cordell, Cherry Valley

The Little Ladybug's Home



3RD PLACE, 4TH GRADE

Silas Herriman, Bentonville

Jumping Frog



1ST PLACE, 3RD GRADE

Indiana Matthews, Bentonville

Fat Frog



2ND PLACE, 3RD GRADE

Swojasvi Ammanabrolu, Bentonville

The Happy Fox



HONORABLE MENTION, 4TH GRADE

Brianna Yanez, Green Forest

Seeker of the Wild - Northern Mockingbird



1ST PLACE, 5TH GRADE

John Daniel Hartzell, Locust Grove

Alligator Snapping Turtle



2ND PLACE, 5TH GRADE

Griffin Taylor, Malvern

Painted bunting



3RD PLACE, 3RD GRADE

Carleigh Selph, Wiseman

Jasper's Calling



HONORABLE MENTION, 3RD GRADE

Yein Lee, Little Rock

I Love My Backyard Bird



HONORABLE MENTION, 3RD GRADE

Cailyn Wells, Flippin

The Golden Trout



3RD PLACE, 5TH GRADE

Ryker Reed, Rogers

Two Raccoons



1ST PLACE & BEST IN SHOW, 6TH GRADE

Aubrey Huskey, Cord

The Little Stinker



2ND PLACE, 6TH GRADE
Kenley Stanfield, Fordyce
Great Blue Heron



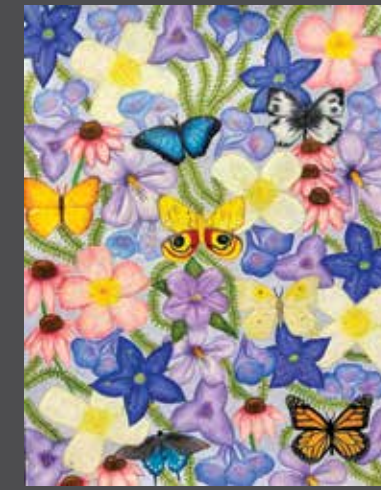
3RD PLACE, 6TH GRADE
Sylvia Hansen, Conway
Meep, Meep



HONORABLE MENTION, 6TH GRADE
Gia Weier, Monticello
Morning of a Mourning Dove



2ND PLACE, 8TH GRADE
Lilith Morris, Flippin
Fly Agaric



3RD PLACE, 8TH GRADE
Sophia Cameron, Jonesboro
Butterfly Garden



HONORABLE MENTION, 8TH GRADE
Morgan Eckl, Greenbrier
Who Goes There



HONORABLE MENTION, 6TH GRADE
Jax Adams, Jonesboro
A Duck in Water



1ST PLACE, 7TH GRADE
Ashley Chen, Springdale
Sciuridae



2ND PLACE, 7TH GRADE
Gavin Henle, Rogers
On the Road Again



1ST PLACE, 9TH GRADE
Adi Storey, Benton
Eastern Chipmunk



2ND PLACE, 9TH GRADE
Sarah Schmitz, Ozark
Raccoon Beneath the Beautyberries



3RD PLACE, 9TH GRADE
Lilian Ouyang, Little Rock
Sunrise in Maumelle Park



3RD PLACE, 7TH GRADE
Emily Porter, Little Rock
The Mockingbird Song



HONORABLE MENTION, 7TH GRADE
McKenley Bryant, New Edinburg
The Mourning Dove



1ST PLACE, 8TH GRADE
Juliana Colburn, Bentonville
The Mockingbird of Arkansas



HONORABLE MENTION, 9TH GRADE
Isabelle Daniel, Benton
Mallard Duck on Lake



HONORABLE MENTION, 9TH GRADE
Elizabeth Van Dorple, Cabot
Rosalind



1ST PLACE & BEST IN SHOW, 10TH GRADE

Elizabeth Lendel, Little Rock

The Anticipation of the Cicada's Emergence



2ND PLACE, 10TH GRADE

Kylie Watson, Jacksonville

The Belted Kingfisher



3RD PLACE, 10TH GRADE

Zakiry Rorie, Mountain Home

Ozark Smallie



1ST PLACE, 12TH GRADE

Kaylee Hendrix, Bentonville

Flying Fast



2ND PLACE, 12TH GRADE

Charlotte Yamaji, Rogers

The Cougar's Bachelor Buttons



HONORABLE MENTION, 10TH GRADE

Dakota Shipley, Russellville

Nest in Hands



1ST PLACE, 11TH GRADE

Mandy Dong, Heber Springs

The Leading Eagle



3RD PLACE, 12TH GRADE

Christian Coppersmith, Magnolia

Beautiful Waterfalls



HONORABLE MENTION, 12TH GRADE

Trammell Hastings, Clinton

Wood Duck



HONORABLE MENTION, 12TH GRADE

Matty Poe, Paragould

In the Garden



2ND PLACE, 11TH GRADE

MaKayla McCollum, Pangburn

Luna Lilies



3RD PLACE, 11TH GRADE

Donovan Warren, Russellville

Takeoff Duck



HONORABLE MENTION, 11TH GRADE

Kylee Skidmore, Corning

Call of the Wild

Jurors Statement

It was a pleasure to review the numerous submissions of original wildlife artworks by young Arkansas artists. From painted buntings and white-tailed deer to sunflowers and waterfalls, our judging panel was delighted by the variety of subjects, artistic styles, and materials showcased. Selecting the contest winners was a collaborative process and our diverse jury panel chose works that blended creativity and skill while featuring a subject or landscape native to Arkansas.

There are a variety of ways to experience nature. One can simply step outside to observe an array of species, however, there are numerous virtual collections of photos, historical and scientific drawings, and other creative works from which an artist may draw inspiration. The winning artworks not only celebrate the wonders of our Natural State but also bring the viewer into the artist's unique experience of Arkansas wildlife. Either

through the specific use of color, gesture and line making, storytelling and character, or sense of time and place, our judging panel contends a scribbled (gestural) drawing of a fox can speak to an emotional experience of the natural world just as effectively as a realistic drawing of an ominous skunk lurking in the shadowy underbrush.

Thank you to everyone who entered the contest, and we encourage you all to continue making and sharing your work with us.

LESLIE MACKLIN

Assistant Professor of Art
Art Foundations Coordinator
The University of Central Arkansas
Department of Art & Design



Arkansas Wildlife Action Plan

A conversation with Nick Goforth, Wildlife Diversity Program and Arkansas Wildlife Action Plan Coordinator with the Arkansas Game and Fish Commission.

Nick Goforth with Cooper's Hawk (*Accipiter cooperii*)



The Eastern Spotted Skunk (*Spilogale putorius*) – (Photo by Grayson Smith, USFWS)



Eastern Whip-poor-will - (Photo by Jim Rathert)

Species of greatest conservation need in Arkansas, like the eastern spotted skunk (*Spilogale putorius*) and eastern whip-poor-will (*Antrostomus vociferus*), are selected through a process that identifies threatened, vulnerable, or rare species within the state.

Q: What is the Arkansas Wildlife Action Plan and how did it come to be?

A: The Arkansas Wildlife Action Plan (AWAP) is the state's blueprint for conserving our native species of greatest conservation need and their habitats. The goal is to help prevent further population declines or potential federal listing under the Endangered Species Act. The original AWAP was developed in 2005 as required to qualify the state to receive State Wildlife Grant funds from the U.S. Fish and Wildlife Service to help implement the AWAP.

Q: Who is involved in creating and updating the Arkansas Wildlife Action Plan?

A: The Arkansas Game and Fish Commission (AGFC) is responsible for maintaining and updating the plan every 10 years. AGFC staff partner with other state and federal agencies, conservation organizations, academia, and private landowners to update and implement the plan.

Q: What are "species of greatest conservation need" and how many are there in Arkansas?

A: Species of greatest conservation need (SGCN) are those species that have been identified as being particularly threatened, vulnerable, or rare in the state. Many are endemic to the state or the region, meaning they are found nowhere else on earth.

Arkansas has listed 380 species of fish and wildlife as SGCN in the current plan. However, this list is currently under review for the upcoming 2025 Arkansas Wild-

life Action Plan revision, which will also be incorporating plants onto the list.

Q: What is the reason for incorporating plants into the Arkansas Wildlife Action Plan?

A: Plants are just as important to our state's biodiversity and native ecosystems as wildlife are. Like animal species, they are also assigned a global and state rank based on their rarity. To date, plants, however, are not eligible to receive State Wildlife Grant (SWG) funding. If the proposed federal Recovering America's Wildlife Act legislation passes as is, it would expand the program to allow plant species of greatest conservation need (SGCN) projects to be funded with SWG funds. We would like to be ready if that were to happen.

Additionally, even without being eligible for SWG funding, identifying plant SGCN in the Arkansas Wildlife Action Plan helps our conservation partners with alternate funding sources to be able to dedicate those resources to identified shared priorities.

Q: 380 seems like a big number. How are species of greatest conservation need determined and how does this number compare to other states?

A: In an effort to help prioritize species conservation efforts, species are assigned a global and state rank (on a scale of 1 to 5) based on their rarity. This system was developed and is maintained by NatureServe and State Natural Heritage programs, along with input from other conser-

vation partners. States then use these ranks and other criteria to determine their species of greatest conservation need (SGCN) lists.

Since these criteria and other factors vary by state, SGCN lists range from just over 300 species to over 1,400 species. A lower number of SGCN doesn't necessarily mean that we have fewer imperiled or threatened species though. Identifying a smaller number of SGCN helps us to better focus our resources to the species and habitats that need them the most.

Q: Some people may be confused about endangered or threatened species vs. species of greatest conservation need. Can you explain the differences?

A: Yes, endangered and threatened species specifically refers to species that are listed under and are federally protected by the Endangered Species Act. These are species that have been petitioned for listing due to their decline and have been determined to meet specific listing criteria. Whereas species of greatest conservation need (SGCN) are identified by the state and are typically not offered any additional legal protections.

This doesn't mean that SGCN are any less important though. A main purpose of identifying SGCN is to identify threats, research needs, and conservation actions to proactively develop and implement management plans for these species and their habitats to preclude further declines and need for federal listing.

Q: Part of your job title includes Wildlife Diversity Program Coordinator. Can you talk about what that means and what else you do?

A: This position serves to bridge the gap between other

Arkansas Game and Fish Commission nongame program staff and to provide additional support, particularly for underrepresented species, like pollinators and other insects, to help protect and preserve our state's amazing biodiversity. One way this is accomplished is through the administration of the State Wildlife Grants process.


I also work in collaboration with our conservation partners across the state to identify and develop plans or solutions to address pressing issues and threats, as well as working to align priorities and resources to better help achieve our common goals.

Q: Wildlife diversity includes both game and nongame species, as you mention. What is the importance of nongame species?

A: Nongame species make up over 95% of our native species, most of which are often overlooked or are unknown to most people, and typically receive less resources and funding than the more popular and well-known game species. However, these nongame species are essential to healthy ecosystems and provide important ecological and economic benefits. We must protect and conserve all native species that make Arkansas such a beautiful and unique state.

We've had some great management successes with our game species, due largely in part to substantial, dedicated funding for these species. A comparable funding source is desperately needed to help proactively conserve nongame species and their habitats as well, to protect our biodiversity before it is too late. Such funding would be provided by proposed federal legislation like the Recovering America's Wildlife Act.

Continued on page 35...



WILDLIFE
Watching
with Sim

By Sim Barrow, Director of
Community Conservation
at Arkansas Wildlife
Federation



Throughout the late 19th and early 20th centuries, the “W” mark on the wings was considered an omen for war. (Photo by Sim Barrow.)



THE 13-YEAR PERIODICAL CICADA is distinguished by its striking black body, red eyes, and orange wing veins. (Photo by Katja Schulz from Washington, D. C., USA, CC BY 2.0, via Wikimedia Commons.)

Getting “BUZZED” about Cicadas: Why 2024 is a Special Year for Wildlife Watchers

The emergence of the 13-year periodical cicada presents a unique opportunity to enjoy a rare natural phenomenon.

Arkansans have experienced several once-in-a-lifetime natural phenomena in 2024, including a total solar eclipse and a surprise showing of the *Aurora Borealis*. These cosmic events are joined by another wildlife-related happening: the emergence of the 13-year periodical cicada.

While several cicada species can be seen annually, the periodical cicada is unique in that they only appear once every 13 years! They also exhibit “synchronous emergence” meaning that they arrive *en masse* over relatively short periods of time. These emergence events are

grouped into “broods,” of which there are several across the United States. This year is especially unique because it is a “dual emergence” of broods of both the 13- and 17-year periodical cicadas in some parts of the United States. Such an overlap is only seen once

every 221 years! In Arkansas we will only see members of Brood XIX of the 13-year cicada; still, this emergence represents an experience shared across history, and holds significance for people and wildlife alike.

THE CICADA LIFE CYCLE EXPLAINED

Cicadas are insects that belong to the Order Hemiptera, a.k.a. the “true bugs.” Among this group of insects are stinkbugs, plant and leaf hoppers, assassin bugs, and others. All true bugs can be recognized by their piercing/sucking mouthparts, which they use to drink fluids from their food. Cicadas are no exception to this

rule. Cicadas possess a long, straw-like mouth that rests flush against its underside, which they use to feed on tree sap. However, there is little to no damage done by adult cicadas as they feed. In fact, for many years the prevailing wisdom was that adults do not feed at all. Recent evidence shows that adults do, in fact, eat. The cicada life cycle begins as an egg laid under the bark of a tree branch high in the canopy. Upon hatching, the tiny nymphs fall to the ground at the base of the tree where they burrow into the soil in search of the tree’s roots. They use their straw-like mouth to drink the fluids from the root. This will be their sole source of nutrients

for the duration of the 13 years they’ll spend growing and developing underground until they reach maturity. On the thirteenth year of their life, the now fully developed nymph must leave its home among the tree roots to transform into the adult stage. When soil temperatures become sufficiently warm, it triggers a mass emergence of nymphs who climb out of the ground and up the nearest vertical structure. The old nymphal exoskeleton splits, and the new adult form pushes itself out. For the next hour or so, this freshly emerged adult is highly vulnerable because its exoskeleton is still soft and pliable, and its wings are wrinkled and shrunken. With time, the cicada pumps its body fluids into

its wings and its cuticle hardens, enabling it to fly away to relative safety. Next, the cicada must find a mate. Male cicadas produce a loud, whining buzz, and the louder the better! Having a loud call increases the chance of being noticed by a nearby female and helps to compete against the other nearby males. Between the massive numbers seen during emergence years and the relative volume of calls, mating chorus can reach up to 100 decibels, equivalent to an ATV or motorcycle engine! When the female finds a suitable mate, she uses a blade-like ovipositor (an insect egg-laying structure) to lay the eggs in the bark of a tree branch, repeating the cycle anew.

The emergence of periodical cicadas may signify the end of a 13 or 17 year cycle, but there are multiple broods that emerge in different years and in different regions. In Arkansas, there are two broods of 13-year cicada: Brood XIX which is emerging in 2024 and Brood XXIII which will emerge in 2028. It is likely that additional broods were present in the past, but for some reason died out.

The long lifespans of cicadas are unique among insects and can be attributed to their feeding habits. The nutritional content of fluids they consume from tree roots is mostly water and has extremely low nutritional value. As a result, it takes a long time to accumulate the nutritional needs

for growth and development leading to such long lifespans.

There are multiple species of annual cicada found in Arkansas, which are seen each year in the Summer. These cicadas have a much shorter lifespan, although they still take around three years to develop.

Cicadas are often called locusts, although this is a misnomer. Locusts are grasshoppers that exhibit swarm behavior under certain conditions – such as droughts and food shortages – which trigger the usually solitary grasshoppers to form large groups and migrate to new areas with better food resources.

Considering the extremely high abundance of cicadas during these

emergence events, it is understandable that they have been mistaken as a locust swarm, and the concerns for crop safety that go with them. Thankfully, cicadas do not cause significant damage to Arkansas crops, except for the damage done by egg laying in trees.

CULTURAL SIGNIFICANCE OF PERIODICAL CICADAS

Throughout human history, cicadas have captivated our imagination and received cultural significance. Due in part to the long interval between emergences, the periodical cicada tends to garner attention from people whenever they appear.

From newspaper articles dating

back to the 19th century, to radio and cable news stories in the 20th century, to websites in recent decades, stories about cicadas range from foreboding predictions that the “W” shaped wing veins were an omen of war, to excited anticipation about the insects making their appearance.

Cicadas have long been the subject of myth and legend across the globe. The Hopi tribe has a legend that the cicada guided their ancestors into their homeland in Northern Arizona.

In ancient Chinese mythology, cicadas represent rebirth, likely drawing inspiration from seeing the nymphs emerge from the ground, shed their skin and reveal their adult winged form. Hand-carved jade cicada totems have been discovered in ancient burials to help the deceased achieve rebirth in a similar fashion.

In the modern internet era, viral videos of the emergence are easy to find. Some highlight the wonder and beauty of the periodical cicada, while others feature the terror of being trapped in the car while millions of cicadas buzz about outside.

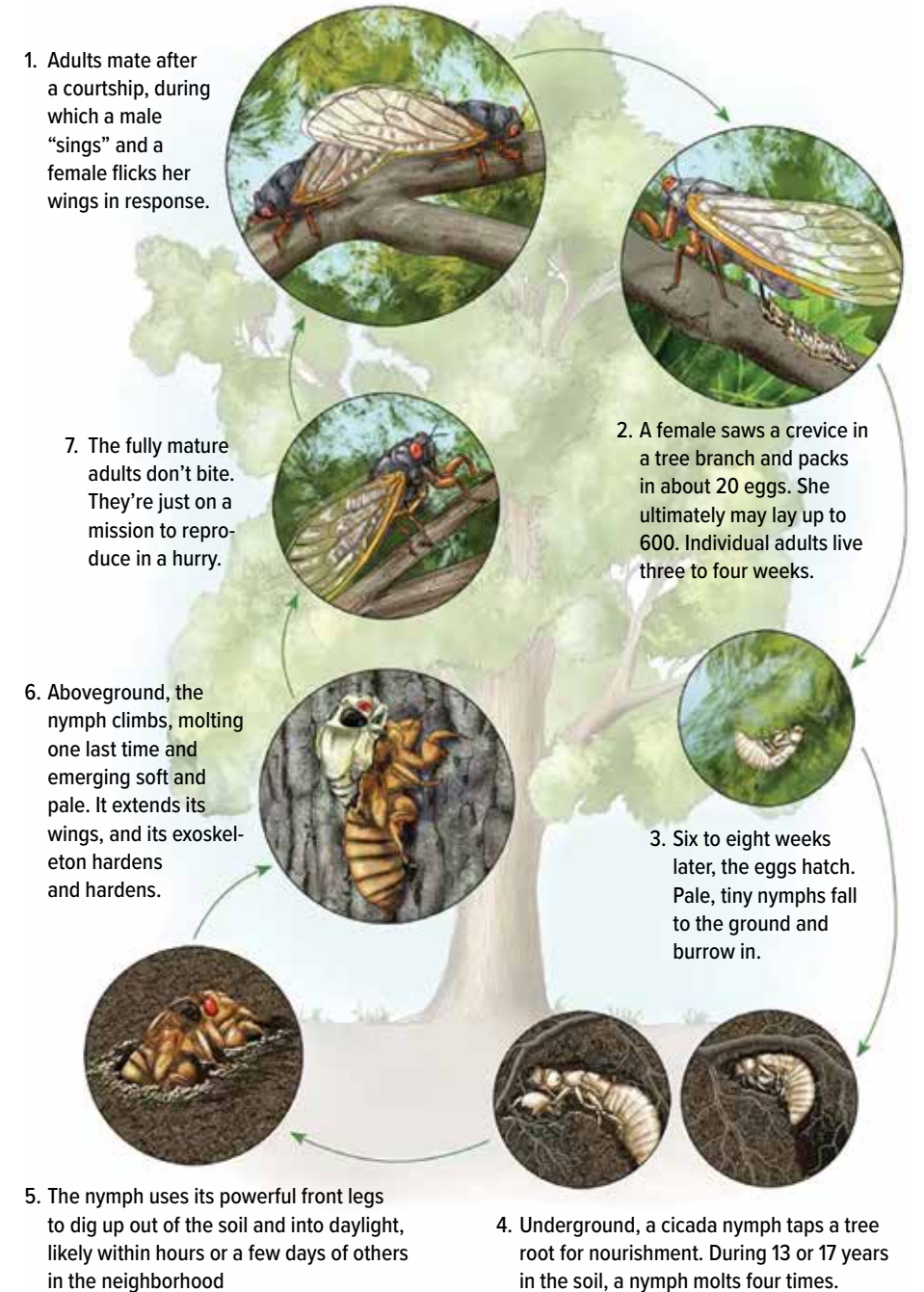
Souvenir t-shirts and mugs are sold online to commemorate the event, and humorous internet memes abound. It is clear that such strong polarized reactions to the emergence are consistent across the generations!

SIGNIFICANCE TO WILDLIFE

In addition to being a cultural phenomenon, the cicada emergence is also quite significant to wildlife in fascinating ways.

First, the nature of the emergence itself reveals a key adaptation for the cicadas. One proposed benefit of synchronous emergence is that there is safety in numbers. Billions of cica-

There are multiple species of annual cicada found in Arkansas, which are seen each year in the Summer. These cicadas have a much shorter lifespan, although they still take around three years to develop.



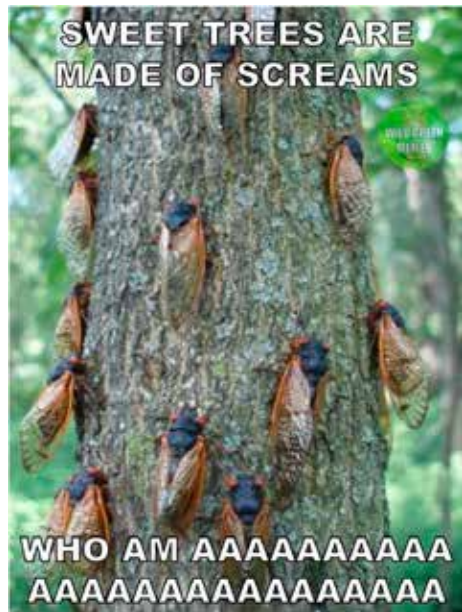
FROM AN ECOLOGICAL STANDPOINT, the mass emergence serves as a valuable food resource for birds and other wildlife. (Photo by Jim Lo Scalzo; Environmental Protection Agency.)

Periodical cicadas take 13 to 17 years to complete their life cycle. (Illustration by Nicolle Rager Fuller.)

In addition to being a cultural phenomenon, the cicada emergence is also quite significant to wildlife in fascinating ways.

das emerge over the course of several weeks, spawning a feeding frenzy among a wide variety of wildlife.

Birds, snakes, fish, and other insects consume massive numbers of cicadas, yet they eat their fill and leave many adults uneaten. As a result, the remaining cicadas are able to produce the next generation. This strat-



IN THE MODERN ERA, internet memes featuring the periodical cicada are common. (Curtis Sarkin; Wild Green Memes.)



SHORTLY AFTER EMERGING FROM THE SOIL, cicadas molt from their nymph form into a winged adult. During this process, they are highly vulnerable to predators.

egy, known as “predator satiation,” is one explanation for the synchronous emergence of periodical cicadas, although more research is needed to better understand the evolutionary history of these insects.

The implications of this suddenly available and abundant food resource are far-reaching in ecosystems.

Songbirds alter their behavior to show preference for cicadas during emergence years, thereby giving other insect species relief from their predators. In emergence years, birds produce larger clutches of eggs and have healthier nestlings.

The emergence also alters the soil

composition and increases nutrient availability which benefits plant communities. Of course, as with all complex ecological systems, our understanding is incomplete, and more research is needed to expand our knowledge in this area.

There are other interesting ecological interactions that can be observed during the emergence as well. For example, the parasitic fungus *Masospora cicadina* infects subterranean nymphs, growing and feeding on their internal organs.

Upon emergence, the freshly eclosed adult undergoes a striking transformation: the exoskeleton



SOME UNLUCKY INDIVIDUALS ARE INFECTED WITH A PATHOGENIC FUNGUS, which takes over its host’s body and behavior to aid in spreading its spores to the next generation of cicadas. (Photo by G. Edward Johnson, CC BY 4.0, via Wikimedia Commons.)

on the abdomen falls off, revealing a fungal body replete with spores. These infected adults demonstrate a much higher reproductive drive, attempting to mate with any cicada that it encounters.

Upon contact, the fungal spores are transferred to the healthy cicada, inoculating them so that any offspring they produce may also be infected with the fungus.

HOW TO MAKE THE MOST OF THE PERIODICAL CICADA EMERGENCE

If an emergence is happening in your area, there are a few ways to experience the phenomenon.

First, find molting nymphs by looking at tree trunks and other vertical surfaces in the early morning. You can also find adults by listening for the loud persistent buzzing call

throughout the day.

As you search, keep an eye out for instances of predation, fungal infection, or other examples of cicadas interacting with their environment. Lastly, be sure to bring a camera to document this remarkable event!

However you choose to experience this unique phenomenon, we hope that you are able to appreciate the significance of the periodical cicada emergence.



Wild News of Note

Great American Campout

The Great American Campout, sponsored by the National Wildlife Federation, kicked off on June 20, 2024, and runs through the end of September 2024.

The nationwide promotion is designed to inspire everyone to get outdoors and enjoy nature. Participants are encouraged to share their camping adventures on social media with #GreatAmericanCampout and #CampoutWithFriends.

Looking for a fun place to camp? Arkansas State Parks offer a variety of environments all across the state. Find a state park near you and reserve your camping spot at <https://www.arkansasstateparks.com/parks/map>.

For more information on the Great American Campout as well as camping tips and resources, go to <https://nwf.org/campout>.

Wildlife Art Exhibit On Statewide Tour

An exhibit of winning artwork from the 2024 Wildlife of Arkansas Student Art Contest, provided by the Arkansas Wildlife Federation, is currently on tour through the end of the year at locations across the state.



All locations are free and open to the public. The tour schedule is subject to possible changes. Be sure to check the latest at <https://arwild.org/events/> and check individual location hours before planning your trip.

Learn more about the Wildlife of Arkansas Student Art Contest at <https://arwild.org/art-contest/> and see a gallery of winners inside this issue of Arkansas Out of Doors magazine.



Summer Outdoor Skills For Everyone

Summer outdoor skills and wildlife courses are in full swing all across the state. There's something for everyone, from kayaking, fishing, and archery to wildlife programs on birds, snakes, alligators, and more.

Summer is also a great time to get your boater and hunter safety classes completed.

To view a comprehensive list of active events and to register for programs, go to <https://register-ed.com/programs/arkansas/>.




THANK YOU to our gold level sponsor, the Arkansas Game and Fish Commission (AGFC). The Arkansas Wildlife Federation is proud to work with AGFC and our other supporting partners.

Keeping the Natural State natural.
www.agfc.com

POLICY WATCH

Arkansas Wildlife Federation serves as an independent policy watchdog, tracking legislation that could significantly impact the future of Arkansas wildlife.



STATE PRIORITIES:

Arkansas Wildlife Federation (AWF) monitors statewide conservation policy and decision-making processes that could significantly impact Arkansas wildlife. Our current priorities are as follows:

Arkansas Wildlife Action Plan (AWAP)

BACKGROUND: In 2001, Congress required states and territories to create a comprehensive wildlife conservation strategy to be eligible for funding through the State Wildlife Grants program. The plans

were due in 2005, updated in 2015, and are due again for mandatory updating in 2025 – every 10 years.

The Arkansas Wildlife Action Plan (AWAP) serves as an important blueprint for conservation partners to identify at-risk species and take actions to prevent further threatened or endangered species listings.

OUR POSITION: The AWAP is a critical guiding document for species recovery, as informed by our state’s most preeminent wildlife experts and conservation partners.

Arkansas Wildlife Federation (AWF) staff serve on the terrestrial and aquatic habitat teams, as well as the mammal and insect taxa teams, alongside other wildlife professionals from across the state. These and other teams help inform and shape updates to the AWAP, as are currently underway.

We strongly support the elevation of the AWAP as a guiding document across all sectors of conservation planning in the state to protect and preserve both game and nongame species alike.

Funding to fully implement the plan, however, is woefully lacking. Passage of the federal Recovering America’s Wildlife Act would provide millions of dollars annually to Arkansas for wildlife conservation and is therefore a top priority for our ongoing advocacy efforts.



THE ARKANSAS WILDLIFE ACTION PLAN sets a critical blueprint for protecting our state’s most at-risk species, like the endangered Ozark big-eared bat. (Photo courtesy of USFWS.)



THE ARKANSAS WATER PLAN sets the state’s long-term priorities for water management, including protecting drinking water supply and wildlife habitat like War Eagle Creek in Northwest Arkansas. (Photo courtesy of Beaver Watershed Alliance.)

To read and learn more about the AWAP see the article on page 20 of this issue and go to <https://www.agfc.com/education/arkansas-wildlife-action-plan>.

Update of Arkansas Water Plan

BACKGROUND: The comprehensive Arkansas Water Plan sets the state’s policy for long-term water management. It was last completed in 2014.

In August 2023, Governor Sanders issued an executive order requiring the plan to be updated. The Arkansas General Assembly uses recommendations from each update to determine how to oversee our water resources.

The current update is being completed in two phases.

OUR POSITION: Arkansas Wildlife Federation (AWF) recognizes that the state water plan must balance wide ranging water resource considerations, including agriculture, drinking water, wastewater, industry, transportation, flood mitigation - and wildlife habitat.

AWF serves as an active stakeholder helping to ensure that the long-term impacts to wildlife are represented in the renewal process.

To learn more about the Arkansas Water Plan, go to <https://www.agriculture.arkansas.gov/natural-resources/divisions/water-management/arkansas-water-plan/>.

UPDATE: Through stakeholder engagement and public input meetings, Phase I is nearing completion. Sections of the 2014 plan that needed to be updated or added are being identified.

Arkansas Wildlife Federation (AWF) staff and board members have been active participants, submitting our formal input in early June of this year.

Along with other partnering organizations and agencies, conservation-related input has centered around the importance of advancing “nature-based solutions” such as wetland and streambank restoration, reconnecting rivers to their floodplains, and promoting low-impact development as a win-win for wildlife and communities.

Phase II will include a more detailed analysis and recommendations. AWF will continue to participate, providing input and serving as a voice for wildlife as Phase II is completed.



FEDERAL PRIORITIES:

The 118th United States Congress convened in Washington, D.C. on January 2, 2023, and is scheduled to continue until January 3, 2025. Arkansas Wildlife Federation (AWF) is pursuing the following federal legislative priorities:

The Farm Bill

BACKGROUND: The Farm Bill is a large package of legislation renewed by Congress approximately every five years that sets national policy on agriculture, nutrition, forestry, and conservation – including America’s

largest investment in voluntary conservation actions on private and working lands to benefit wildlife.

OUR POSITION: We strongly urge Congress to pass the Farm Bill during this 118th Congress with no further extensions. Additional delays will

significantly threaten conservation funding and outcomes.

We also continue to urge Congress to increase conservation funding in the farm bill, ensure climate-smart agricultural practices, and maintain the integrity of important conservation programs such as the Conservation Reserve Program.

UPDATE: The 2018 Farm Bill officially expired in 2023 as negotiations took a back seat to broader political disagreements in Congress. An extension was approved.

Under the expired farm bill, programs are affected differently depending on how they were authorized and appropriated – including conservation programs.

Currently, both the House and Senate Appropriation Committees are marking up their agricultural appropriation bills. But with disagreements in both chambers, and the election nearing, conservation stakeholders are concerned that Congress will yet again extend passage of the farm bill into the next, 119th Congress, which would have significant negative impacts on conservation funding and outcomes.

To learn more about our farm bill priorities, go to <https://arwild.org/2023-farm-bill/>.

THE FARM BILL PROVIDES America’s largest investment in voluntary conservation actions for wildlife, such as bottomland hardwood restoration to benefit waterfowl and other species.



Recovering America’s Wildlife Act

BACKGROUND: Recovering America’s Wildlife Act is a bipartisan bill that would provide millions of dollars to Arkansas annually for on-the-ground efforts to help at-risk species by funding state wildlife action plans.

OUR POSITION: Passage of Recovering America’s Wildlife Act (RAWA) is a top priority for the Arkansas Wildlife Federation (AWF) and many of our conservation partners. It is the gold standard for addressing the current wildlife crisis.

We have pledged to work with our Arkansas congressional leaders to see this bipartisan bill finally passed in 2025.

UPDATE: While RAWA has consistently gained broad bipartisan support in both the House and Senate, including cosponsor Sen. John Boozman, R-Ark., a long-time supporter of the bill, passage stalled due to disagreements on how to offset its spending.

Conservation & Democracy

Visit the National Wildlife Federation’s new Civic Engagement website to learn how you can speak up for wildlife and your community.

www.nwf.org/Civic-Engagement-and-Democracy

At the same time, in March of this year, Rep. Bruce Westerman, R-Ark., chairman of the House Committee on Natural Resources, introduced the America’s Wildlife Habitat Conservation Act which cleared his committee with a 21-17 vote along party lines.

While many conservationists appreciate Westerman’s support for wildlife and habitat, his bill lacked the level and permanency of funding many conservationists see as critical to meeting the

current wildlife crisis and included other provisions such as proposed changes to the Endangered Species Act that RAWA supporters worry would weaken species conservation plans. It therefore lacked the widespread support of RAWA.

House and Senate bipartisan supporters of RAWA vow to reintroduce the bill in 2025 and AWF and other conservation partners will continue supporting its passage.

Learn more at <https://arwild.org/recovering-americas-wildlife-act/>.



Take Action for Wildlife.

Your voice matters!

Go to Arkansas Wildlife Federation’s website at www.arwild.org/advocacy to learn more.



Make a Nature Map

Explore the outdoors with this fun journaling activity!

One of the best ways to improve your nature observation skills is through practice. This activity will help you see the outdoors in new ways and learn about your surroundings. Grab your nature journal and art supplies and follow these steps to make your own nature map!

1. Find a cool spot to study such as a nearby park or your own backyard. Look for a place with interesting natural features like trees, a creek, or a meadow. Settle in and open your journal to a blank page.
2. Add important information such as the location, date, time, and a few observations about the weather (is it sunny, cloudy, or windy?). You can add arrows to

- show the wind direction.
3. Draw a few important landmarks such as the tree you see in front of you, a road, creek, or other feature. Be as artistic as you want or use symbols instead.
4. Draw the habitat including any trees, wildflowers, or other plants that you notice. Use your landmarks to position them accurately in your map.
5. Draw wildlife observations or sightings including any details you notice. For example, draw arrows that describe the flight pattern of a bird that flies by or list the number of petals on the flower you drew.
6. Take time to reflect on your observations. Add labels and measurements for detail and write

- down any questions you want to research later. These will help you remember what you learned from this experience.
7. Go back to any part of your map and add more drawings, color, questions, or anything else that you want to improve on. You can also draw a close-up view of something you're curious about.

Suggested supplies:

- Notebook
- Pencil, eraser, and pencil sharpener
- Colored pencils
- Ruler

This activity was inspired by the book, "The Laws Guide to Nature Drawing and Journaling" by John Muir Laws, available at www.johnmuirlaws.com

...continued from page 21

Q: What are the key threats to wildlife in Arkansas, and how does the Arkansas Wildlife Action Plan help to address those issues?

A: Some of the main threats to Arkansas wildlife are habitat loss and fragmentation, fire suppression, sedimentation, and climate change. Arkansas state and regional partners have worked to identify priority conservation areas, important wildlife corridors, sources of sedimentation, and problematic aquatic barriers, which are then incorporated into the Arkansas Wildlife Action Plan as conservation actions. This helps guide conservationists and land managers in the state to better focus resources and to ensure that we are working towards the same goals to protect and restore critical habitats, remove wildlife barriers, and improve habitat connectivity to increase wildlife populations and ecological resilience.

Q: What can private citizens do to help wildlife?

A: There are multiple ways that you can help. One of the biggest ways to help is by protecting, restoring, and creating native habitat. Whether it's planting native plants in your garden or managing your property for wildlife. There are lots of good resources available to help educate and provide guidance. Arkansas Game and Fish Com-

mission Private Lands biologists or Quail Forever Farm Bill biologists can assist landowners in developing habitat management plans for their properties and help with obtaining resources to implement those plans.

Other ways to help are to reduce herbicide and pesticide use, remove invasive species, reduce mowing, leave the leaves, volunteer with conservation organizations, and help advocate for legislation that would provide additional funding for conserving our native wildlife and their habitats, such as Recovering America's Wildlife Act. Below are links to some of those resources.

- <https://www.nwf.org/Our-Work/Wildlife-Conservation/Policy/Recovering-Americas-Wildlife-Act>
- <https://www.arkansasmonarchs.org/create-habitat.html>
- <https://www.agfc.com/education/private-lands-habitat-division/>
- <https://quailforever.org/Habitat/findBiologist.aspx>

Q: Where can people read and learn more about the Arkansas Wildlife Action Plan?

A: The Arkansas Wildlife Action Plan and other relevant information can be found on the Arkansas Game and Fish Commission's website at: <https://www.agfc.com/education/arkansas-wildlife-action-plan/> or you may contact me directly at Nicholas.Goforth@agfc.ar.gov.

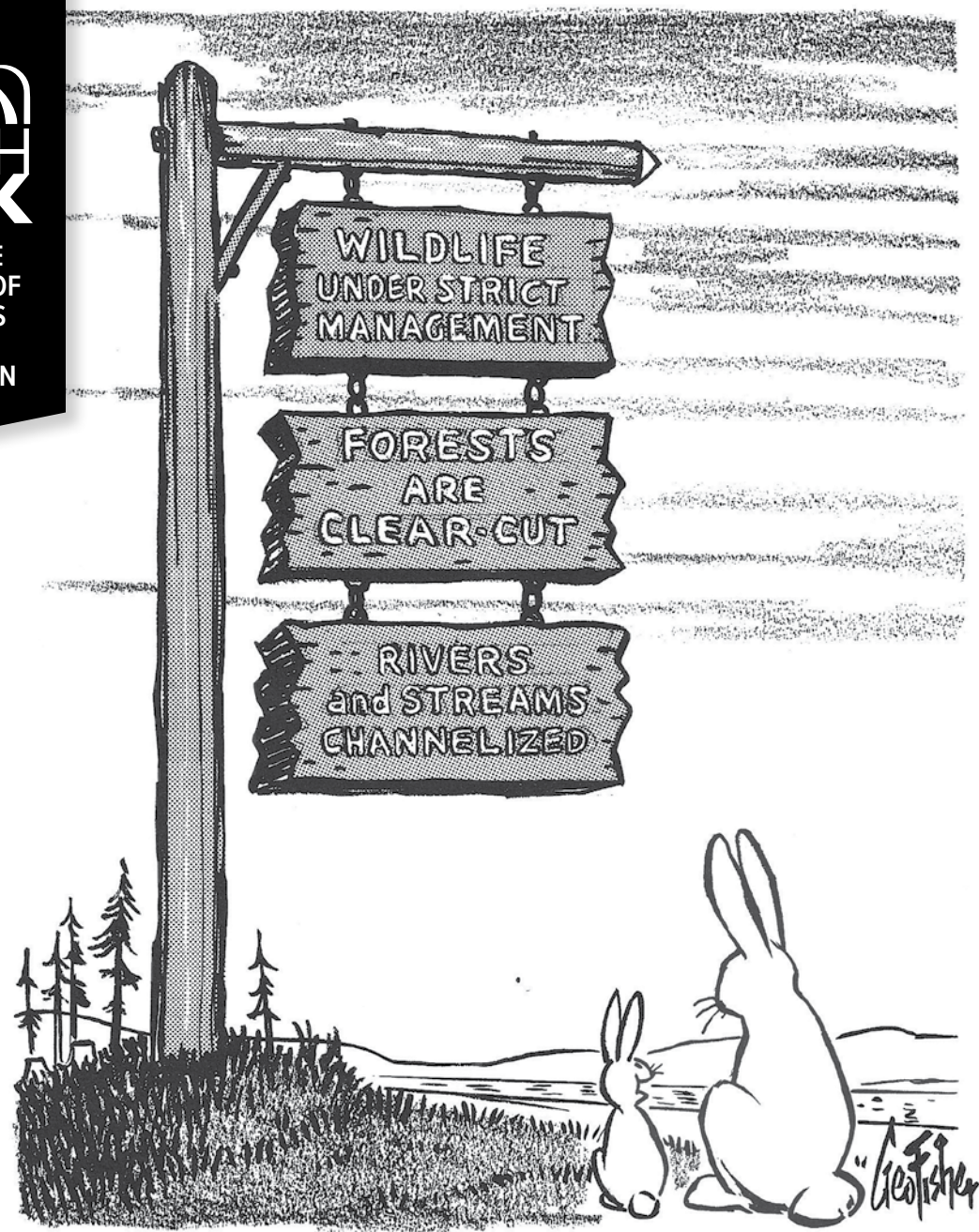
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February 11, 1973

"Daddy, how did our ancestors survive without any help?"

1983: Arkansas Wildlife Federation publishes a collection of environmental cartoons by renowned cartoonist, George Edward Fisher.

Making Us Think

In 1983, with the permission of the Arkansas Gazette, the Arkansas Wildlife Federation published a collection of cartoons by the Gazette's nationally recognized editorial cartoonist, George Edward Fisher (1923-2003). The collection represented the burgeoning environmental movement and the preface of the book stated, "He is an impish pricker of consciences. Fisher makes us think."



GET THE PICTURE

Remnants, Refugees, & Restorations Words & photo by Theo Witsell

This tallgrass prairie in southern Franklin County, Arkansas is packed with life. Part of the Arkansas Natural Heritage Commission's H.E. Flanagan Prairie Natural Area, it is a rare and precious remnant...an old-growth grassland.

It's also an unlikely survivor. While hundreds of thousands of acres like it were degraded or destroyed over the past two centuries, this ancient remnant repeatedly beat the odds, dodging the plow, the cow, and the fescue seed salesman...the coal strip mine, the herbicide sprayer, and the land developer.

Such remnant grasslands are our most endangered habitats, a fact underscored by the sad plight of much of our grassland-dependent wildlife. The bison and elk that once ruled these prairies are a distant memory. Prairie chickens, wolves, and black-tailed jackrabbits are also gone. Many grassland birds, including quail, are now in steep decline, as are crawfish

frogs, crayfish snakes, ornate box turtles, and rare insects like the Arogos skipper and the southern plains bumble bee.

Yet these remnants are strongholds for these and other refugees, sustained by the rich and complex plant communities they support. Even the abundant plants here are only found in intact grasslands, and there are many species of conservation concern, including super-rarities like small-headed pipewort and plantain-leaf sunflower.

One spring I discovered, to my astonishment, a population of Greenman's bluet (*Houstonia parviflora*), known previously only from grasslands in south-central Texas! What other refugees remain to be found in these precious remnants? And what was lost entirely before we could bear witness to its existence?

Statewide, less than one percent of our original grasslands remain. Several types are almost entirely gone,

with only vestiges remaining along roads and in powerline rights-of-way, or as specimens sitting in museums since the 1800s.

The future of our grassland-dependent species depends on ecosystem restoration, and saving remnants like this one is our only hope for success. Even small ones hold the seeds critical to re-planting an infinite amount of native grassland, and the source populations of the species we want to save. Preserving them should rank near the top of our conservation priorities.



Theo Witsell is co-founder and Chief Conservation Officer for the Southeastern Grasslands Institute, a program of Austin Peay State University. He lives in Little Rock, AR.



SAVE ALL THE PARTS

Aldo Leopold once said, "The first law of intelligent tinkering is to save all the parts."

As humans, we've certainly "tinkered" extensively with the natural environment, and I often think of this quote in our work to conserve and protect wildlife. Sometimes we get tunnel vision and miss the bigger picture.

Every species - every cog in the wheel, every link in the chain, every strand in the web - is critical to the greater whole.

There are many amazing connections found throughout nature - some of them known to us, many yet to be discovered, and some we'll never know.

Whether we're talking about the secret life of crayfish (as covered in past issues), or the dazzling variety of butterflies and phenomenal emergence of the 13-year periodical cicada as covered in this issue - one of the things we hope to accomplish through the pages of *Arkansas Out of Doors* magazine is to educate and inspire a greater understanding and appreciation for the whole. Those often unseen, misunderstood, or underappreciated parts.

And through our annual Wildlife of Arkansas Student Art Contest, young people across the state get to learn about and appreciate those diverse species as well. I know you'll enjoy viewing the 2024 winning artwork inside this issue and be just as awe-struck by these talented students as we are.

Let's celebrate and take pride in the amazing biodiversity found in our state. And let's work together to protect it - for ourselves, and for future generations.

As always, reach out. I'd love to hear from you.

Terri Lane, Director
Arkansas Wildlife Federation
tlane@arwild.org



MEMBERSHIP CONTRIBUTION

Joining the Arkansas Wildlife Federation (AWF) as an annual or monthly contributor is a great way to show your support for Arkansas wildlife!

Members receive one mailed copy of AWF's quarterly magazine, *Arkansas Out of Doors*, as well as email updates/newsletters, and early invitations to AWF programs and events.

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