

Arkansas OUT *of* DOORS



The Official Publication of the Arkansas Wildlife Federation | Vol. 48, No. 3, Summer 2020





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Summer 2020

Cover photo by Debbie Doss



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ARKANSAS WILDLIFE FEDERATION PRESIDENT'S MESSAGE

Spring! A very nice spring has sprung. My second favorite time of year with the dogwoods blooming and migrating birds chirping. We have some cardinals in our backyard that I love to watch along with a few hummingbirds. It's a great time to get outside. With the advent of COVID19, we have all been working from home. Some of us like me work at home every day but with my wife and step son working from home as well, finding our separate work space can be challenging. We have taken advantage of the spring weather, working outside planting a few new trees (dogwoods) and a few rose bushes in honor of my dad.

Fishing season is here. My crappie fishing buddies are posting pictures with some nice ones. Funny my phone is not ringing - Steve Filipek. Speaking of Filipek, check out his article on social distancing while crappie fishing.

Although I have never had the pleasure of exploring deep into Arkansas' caves for bats, I have seen several and accidentally walked into a few caves containing them. Pedro Adapple-Kindberg's article shares great information about bats and other unique critters calling our caves and karst home.

Turkey season in Arkansas is over, sadly my streak continues of no turkey harvest. Maybe Bryan Hendricks can hook me up next year. I was able to get some trout fishing in with my son over spring break. We did really well with Zig Jigs. Richard Cross out of Fayetteville, AR is the maker of this wonderful jig. He is a good friend to AWF and donates to our banquet every year. If you have a chance to go trout fishing, take my advice and go to zigjig.com to check out some of

their amazing products.

On a sad note, we had to postpone our annual banquet this year. We want to be careful and considerate of others and at this point with the social distancing rules for larger events, we are not able to have the banquet this year. But we will be back next year and hopefully in Heber Springs, AR. We will be having an online auction in August to sell a few items including the AGFC Youth Elk Tag. Please follow us on Facebook to get more details.

If you are not a donor of the AWF, please consider joining. Support from donors and members like you are the reason we are able to continue to educate and advocate for keeping the "natural" in our Natural State. If you have any interest in being on the board or helping out with any of our projects, please email one of us at info@arwild.org.

If you all are not following the AWF on Facebook, please do. Anita Montgomery is doing an excellent job of getting articles and pictures up on a weekly and sometimes daily basis.

"Conservation needs more than lip service, ..it needs ordinary people with extraordinary desire."

— DR. REX HANCOCK - past AWF president,
AWF Conservationist of the Year 1968 and
founder of Save The Cache River

Charles S. Buckner, III (Trey)
President

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Arkansas Wildlife Federation Mission Statement

To promote conservation, responsible management and sustainable use of Arkansas' fish, wildlife, habitat, natural resources and outdoor recreational opportunities through education and advocacy.



Arkansas OUT of DOORS

OFFICIAL PUBLICATION OF THE
ARKANSAS WILDLIFE FEDERATION

PRESIDENT

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LAYOUT / DESIGN

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ZimCreative

Arkansas Out of Doors is published quarterly, 4 times per year by the **Arkansas Wildlife Federation**. This is the official publication of the **Arkansas Wildlife Federation**. Printed matter includes hunting and fishing news, sporting information, articles on pertinent legislation, with special emphasis on environment and pollution problems. All **Arkansas Wildlife Federation** members are entitled to receive one copy of each issue of **Arkansas Out of Doors** for one year.

Permission is granted to reprint any news article or item printed in **Arkansas Out of Doors** with credit, please.

Views and opinions, unless specifically stated, do not necessarily represent the positions of the **Arkansas Wildlife Federation**.

ISSN0884-9145

POSTMASTER: Send form 3579
and address changes to:

Arkansas Out of Doors, P.O. Box 56830,
Little Rock, AR 72215, or call 501-414-2845.

Third Class postage paid at Little Rock, AR
and additional mailing offices.

Arkansas Wildlife Federation

P.O. Box 56380

Little Rock, AR 72215

Email Address: info@arwild.org



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Turtles

A Closer Look

Story and Photos by Dustin Lynch, ANHC Aquatic Ecologist

Turtles (Order Testudines) are a familiar sight in the Natural State, but there is a surprising diversity of form and function among the 16 species that occur in Arkansas. Ranging from the small, fully terrestrial three-toed box turtle to the enormous, highly aquatic alligator snapping turtle, these amazing creatures encompass a variety of physical adaptations and natural histories.

Turtles are famously characterized by the presence of a protective shell composed of an upper portion known as a carapace and a lower portion known as a plastron. This intricate structure is formed from elements of both the skeletal system and the skin. The inner layer of the carapace consists of the greatly expanded ribcage of the turtle as well as portions of its backbone. This is covered by a layer of large scales known as scutes. Some species can retract their necks and limbs fully into their shells, while others cannot. The shell is a part of the turtle's vital anatomy; a turtle cannot leave its shell behind or grow a new one.

Turtles are considered ectothermic (commonly termed

“cold blooded”) meaning that the external environment controls their body temperature. Even the most aquatic turtle species must breathe air and lay their eggs on land. Aquatic turtles are frequently seen engaging in a behavior known as basking, in which they climb out of the water and onto exposed surfaces to warm themselves in the sun.

Basking is used to thermoregulate but may also serve other purposes such as absorption of Vitamin D, drying out algae growing from shells, or relief from ectoparasites like leeches (which may dry up and fall off in the sun after long enough exposure). Turtles are famed for their longevity. Many species attain an age of 20 or 30 years in the wild, but others live much longer. Box turtles, for example, have been documented living to more than 100 years of age!

The three-toed box turtle (*Terrapene carolina triunguis*) is the more commonly encountered of the two species of box turtles (Genus *Terrapene*) that occur in Arkansas. This small terrestrial species typically grows to a maximum carapace length of 4.5 to 5 inches, although larger individuals have been found. It occupies a wide range



of habitats across the state and is an omnivore that consumes both plant and animal matter. This species is active from early April through October, and during the inactive period typically remains burrowed just beneath the leaf litter in wooded areas. The shell color of a three-toed box turtle is variable, ranging from pale yellow to orange or dark brown. Females have small front claws, short, thin tails, flat (or slightly convex) plastrons, and brown to dark red eyes. Males have large front claws, longer tails, concave plastrons, and bright red to bright orange eyes.

Much less common in Arkansas is the beautiful and boldly patterned ornate box turtle (*T. ornata ornata*), a species predominantly associated with drier prairies in the Great Plains. It can still be found at a handful of relict prairies in Arkansas but is uncommon even at these sites. Populations of both species are jeopardized by intense demand for box turtles in the pet trade.

The red-eared slider (*Trachemys scripta elegans*), easily recognized by the broad red stripe behind its eye, is the most frequently encountered turtle in Arkansas. Adults range from 6 to 8 inches in carapace length, although larger individuals have been documented. In the wild this species lives between 20 and 30 years. This is an omnivorous turtle that eats small fish, frogs, crayfish, and insects as well as plants. As a red-eared slider grows older and larger, it usually shifts towards a more plant-heavy diet. It can be found in nearly any sort of aquatic habitat but typically prefers quieter waters with ample spots in which to bask.

The river cooter (*Pseudemys concinna*) is similar to the red-eared slider, but often larger with a carapace length of up to 15 inches. Although this species can be found in a variety of habitats, it prefers flowing waters such as rivers and streams. Its carapace is marked with highly variable and

intricate patterns. It frequently basks and may form large basking aggregations on logs, rocks, or riverbanks. Though a largely herbivorous species, river cooters will also eat carrion and other animal matter.

Arkansas is home to three species of map turtles (Genus *Graptemys*): the Mississippi map turtle (*Graptemys pseudogeographica kohnii*), the Ouachita map turtle (*G. ouachitensis*), and the Northern map turtle (*G. geographi-*



Alligator Snapping Turtle

ca). Sometimes called “sawback turtles” due to the prominent keel (ridge) that runs down the length of their carapace, these mid-sized turtles get their name from the map-like markings on their shells. They also have intricate patterns on their heads, which are the best way to distinguish between the three species. One of the most interesting things about map turtles is the extreme sexual dimorphism exhibited by this genus. Females are significantly larger than males. In the northern map turtle, for example, the male ranges from about 4 to 6 inches in carapace length, while the female can range from 7 to 10 inches.

The northern map turtle is somewhat specialized for feeding on mollusks, though it also consumes other prey such as insects and crayfish. The other two species in Arkansas have broader diets, consuming fish, carrion, and vegetation, as well as mollusks and crayfish. All three species can be found in suitable aquatic habitats across the state, although the northern map turtle is uncommon in the eastern part of Arkansas. Mississippi and northern map turtles prefer quieter waters with plentiful aquatic vegetation and spots for frequent basking. The Ouachita map turtle may be found in faster streams with less vegetation than the other two species and basks less frequently.

The family Kinosternidae contains the mud and musk turtles, small species that are rather weak swimmers, despite their highly aquatic nature. They spend much of their time crawling along the bottom of the water bodies they inhabit.



Common Snapping Turtle



Spiny Softshell Turtle

This family includes the smallest turtle in Arkansas, the Mississippi mud turtle (*Kinosternon subrubrum hippocrepis*), which has an adult carapace length of no more than 3 or 4 inches. Although it is easily overlooked due to its diminutive size and inconspicuous nature, this species is abundant in many aquatic habitats across the state. It prefers quiet, heavily vegetated waters, where it consumes a diet of invertebrates, small vertebrates, and aquatic vegetation.

The musk turtles (Genus *Sternotherus*) are named for their habit of emitting a foul-smelling fluid from glands beneath the carapace, deterring would-be predators. The common musk turtle (*Sternotherus odoratus*), also known as the stinkpot, has a smooth or slightly keeled carapace and three pale yellow longitudinal stripes on its head. It can be found in almost any sort of sluggish water-body across much of the state, ranging from sloughs, oxbows, and ditches, to lakes, ponds, and streams of all sizes. It is a nocturnal species that forages at night for invertebrates, amphibians, aquatic vegetation, and carrion. The razor-backed musk turtle (*S. carinatus*) seldom leaves the deep, running waters it inhabits. The “razorback” in its name refers to the prominent keel in the middle of its shell. It also can be recognized by its large, heavily spotted head. These turtles feed on mollusks, crayfish, carrion, and vegetation and are much less likely to emit musk than common musk turtles. Razor-backed musk turtles are restricted to the southern part of the state.

The softshell turtles (Family Trionychidae) look quite different from other turtles. These aquatic species have flat, leathery shells rather than the hardened, keratinized shells of other turtles, as well as a greatly reduced plastron. While their shells do not offer the protection of other turtle species, they compensate for this in other ways. Their large, paddle-like limbs make them strong, graceful swimmers who can quickly elude potential predators. When cornered, they have powerful beaks and long, flexible necks that allow them to quickly strike out in defense. Arkansas is home to two species – the spiny softshell (*Apalone spinifer*) and

the smooth softshell (*A. mutica*). The spiny softshell has numerous tubercles or spines along the leading edge of its carapace and streaked or spotted feet, features that the smooth softshell lacks. Spiny softshells are more common and found in a wider variety of aquatic habitats across the state, including streams, rivers, ponds, lakes, and ditches, while smooth softshells are restricted to medium to large-sized rivers. Softshells are mostly carnivorous, consuming insects, crayfish, mollusks, and some carrion. These turtles bask frequently and often burrow in the soft mud or sand of shallow waters, where they occasionally extend their necks to the surface to breathe through their pointed snouts.

Perhaps the most remarkable thing about softshell turtles is their ability to hibernate through the winter while buried on the bottom of a stream. They can go without food during this period, but still require oxygen, which they obtain through a process known as pharyngeal breathing. Special structures lining the throat allow them to absorb oxygen from the water that is slowly moved in and out of the pharynx (throat). While the amount of oxygen that can be obtained via this method is not sufficient to sustain the softshell turtle when it is active, it is enough to meet the greatly reduced metabolic needs of a hibernating individual.



Mississippi Map Turtle

The snapping turtles (Family Chelydridae) are sizable aquatic turtles with a reputation for ferocity. They have large heads with potent, hooked jaws, longer tails than other turtles, and legs that cannot be fully retracted into their shells. Like the softshell turtles, they have greatly reduced plastrons. The common snapping turtle (*Chelydra serpentina*) has a relatively smooth carapace, a long tail with three rows of tubercles, and a conspicuous hooked beak. These turtles can attain an adult carapace length of around 20 inches, with adults typically weighing between 10 and 35 pounds, with the largest wild-caught individual known weighing 75 pounds. This common species inhabits nearly any aquatic habitat across the state and can be found in shallow water, where it may lie on the bottom and stretch its long neck up to the surface to breathe.

Common snappers are nocturnal, opportunistic predators that will eat all types of vertebrates, invertebrates, carrion, and plant matter. They may consume fish, frogs, snakes, other turtles, small mammals, and even unwary birds such as waterfowl. While it does not bask quite as much as other common aquatic turtles in the state, the common snapping turtle does move over land frequently and is encountered there far more often than its larger cousin, the alligator snapping turtle. Because of its forceful jaws, long, flexible neck, and aggressive temperament when cornered, it is wise to avoid handling this species.

Our most impressive and charismatic turtle species is undoubtedly the famed alligator snapping turtle (*Macrochelys temminckii*). This is the largest freshwater turtle species in North America, although just how big it can get is a matter of some dispute. Typical adult size in the wild generally ranges from around 20 to 175 pounds, captive specimens have attained weights of up to 250 pounds, and there are unverified historic records of them weighing up to 400 pounds! This turtle is an inhabitant of rivers, swamps, and oxbow lakes in the south-central United States. It was historically found throughout much of Arkansas but has seen drastic declines in portions of its range. This is one of the most fully aquatic turtle species in the state – it rarely basks and typically only leaves the water to nest. Alligator snappers spend much of their time on the bottom waiting in ambush for prey, primarily fish, but also including crayfish, mussels, snakes, other turtles, and almost anything they can catch. One of this turtle's primary hunting methods consists of simply remaining motionless on the bottom with its mouth wide open. It wriggles a tiny red appendage on the tongue, which acts as



Razorback Musk Turtle

a lure to draw unsuspecting prey into the potent jaws.

People frequently confuse large common snapping turtles for alligator snappers, but the former species is much more likely to be encountered on land, as alligator snappers rarely leave the water. Common snapping turtles are also found in a greater variety of aquatic habitats than alligator snappers, which are not usually found in isolated ponds or lakes without a current. The alligator snapping turtle can be distinguished from the common snapping turtle by

the presence of three prominent, serrated ridges (keels) on its carapace and a more strongly hooked beak.

Turtles are remarkable creatures for many reasons. The next time you catch a glimpse of a startled red-eared slider plopping off its basking log and into the water, a common snapping turtle crossing the road after a spring rainfall, or a box turtle munching dandelions in your own backyard, take a moment to appreciate turtles as a reminder of the incredible biodiversity we have right here in Arkansas.

Dustin Lynch is the Arkansas Natural Heritage Commission's (ANHC) aquatic ecologist. He has a doctorate in biological sciences from the University of Arkansas at Fayetteville and a master's degree in zoology from Oklahoma State University.

The ANHC, an agency of Arkansas Heritage, focuses on science-based conservation to protect Arkansas's biological diversity and maintains a statewide System of Natural Areas made up of more than 65,000 acres. The ANHC's Arkansas Heritage Program biodiversity database tracks the location and status of rare animal and plant species, as well as natural communities in Arkansas.



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Hidden in the tall grass

By Johnny Carrol Sain

IT'S JUST A WEEDY FIELD full of the normal browns, blondes and greens of summer. Black-eyed Susans and plains creopsis offer splashes of yellow throughout. The sun is cresting over cottonwoods and willows as the first rays illuminate what look like tiny puffs of white smoke across the field. The puffs shimmer in an unseasonably cool summer breeze.

I'm puzzled at first. Even after looking over countless fields at sunrise in my four decades on Earth, I'm not sure about what I'm seeing. A second later it hits me. They're webs. I've found a spider metropolis.

Each web is highlighted with droplets from last night's dew. Intricate designs by one of nature's master artisans, and I barely notice them most of the time. They get attention only when they scream for it, like when one wraps around my face as I traipse through the woods, or in this case, as the focal point for fusion of water and light.

The field is peppered with webs. So many that even a cursory count of those nearby, those close enough to see each strand, proves futile. You can shine a flashlight across your backyard on a warm night and watch the countless little eyes shining back at you to get the same effect. It's a glimpse into another world.

Spiders don't bother me. The thought of all those little arachnids out there, just out of sight as I walk through the fields and forests, might creep some folks out, but not me. No, the idea that the population of spiders in this weedy field dwarfs the population of people in the rural county of my birth is humbling. My perspective shifts. It centers me. What else could it do? Here is a little world, full of Lilliputian dramas and primordial secrets that I could never know and my only concern with this world has been avoiding webs on the way to a deer stand. That's pretty arrogant. It's not

that the spiders possess some profound truth or anything like that — though they very well might -- it's just a reflection of my awareness or rather, the lack thereof. As the years of my life layer upon one another I notice the gaping holes in my awareness more and more. But taking note of them is a good thing. The holes,

like the spiders, are too numerous to count and have always been there. But now I am aware of them.

Awareness is the first step to... well, everything. It means to perceive, to feel, to be conscious of what's going on around us. We walk through life barely aware of the hum-drum monotony in our daily existence. We pay the bills and answer the emails, and we fill the tank when a dashboard light tells us to. We count down the time — time neatly cut and packaged for our convenience — until the next appointment or planned event. Meanwhile, the life and beauty surrounding us in abundance goes on largely beyond our scope of perception. Innumerable sparks of wonder hidden in the tall grass and mist of our everyday lives.

Losing awareness of the natural world around us is a very recent development for our species. It's also an anomaly. No other higher organism operates in the state of insulation that we do and we pay a high price for this insulation. Sometimes in very tangible ways, like the long list of environmental issues we face, but we also pay with intangibles. We pay for it in ways we don't know or can begin to understand until a tiny sparkle catches our eye.

A rising sun is quickly burning through the light fog as I gaze on the field. I'm thankful I was here to see it, this little world hidden in tall grass. The landscape is changing, and soon the morning mist and dew will be nothing more than vapor on the breeze of a summer day.

Arkansas Game and Fish Commission Stream Team



Nothing is more precious to man, wild-life and the environment itself than clean water and healthy waterways. Arkansas is blessed with more than 90,000 miles of rivers and streams, most of which are small, veins of life running through privately owned ground.

The Arkansas Game and Fish Commission's Stream Team program was formed in 1996 to assist concerned property owners and the general public by building a network of citizen scientists and natural resource stewards to benefit these streams which are vital to the health of our natural world.

In the last 24 years, four Stream Team coordinators across the state, led by a statewide program manager, have reached more than 100,000 Arkansans to build this network. These citizen scientists have submitted more than 650 water quality samples and 450 macro-invertebrate samples, and planted over one million (yes, 1,000,000) trees along our rivers, streams, and wetlands. This accounts for nearly 10,000 hours of service protecting Arkansas's aquatic resources.

The growth and impact of the AGFC's Stream Team is derived through three core principles: Education, Advocacy and Stewardship.

EDUCATION

Stream Team offers information to increase understanding and appreciation of Arkansas's aquatic resources. Concerned citizens can receive training in water-quality monitoring, aquatic ecology, streambank protection and restoration techniques, and water policy and law.

ADVOCACY

People with first-hand knowledge of problems, needs and solutions are best

equipped to weigh both sides of a stream conservation issue, and to speak out on behalf of Arkansas's aquatic resources. Stream Team teaches volunteers how to work for the proper conservation of Arkansas's resources. A new Stream Team Advocacy Tool Kit will be available soon and we hope this will provide concerned citizens with additional information and tools to speak up on behalf of their resource.

STEWARDSHIP

Stream Team Coordinators work with smaller Aquatic Habitat Restoration Teams. These teams are well trained in stream restoration techniques and will assist landowners to plan and carry out projects by matching them with the appropriate agency or organizational efforts. Litter control, streambank stabilization, streamside tree plantings, improvements of fish and wildlife habitat, water-quality monitoring, and other special projects are all possible. In the last two decades, Stream Team Coordinators have assisted landowners in protecting or restoring more than 1,500 miles of streams. This is impressive work, but Arkansas has more than 90,000 miles of rivers and streams, so

we still have a lot of work ahead.

The Stream Team program is constantly working to keep Arkansans informed and updated on our work. Visit the program's web page at www.agfc.com/streamteam. We have also ac-



tivated a digital data submission tool for Stream Team Citizen Scientists to submit their water quality monitoring data. Lastly, we encourage you to join our Constant Contact email listserv available at <https://www.bit.ly/fisheriesnews>. We will use these updates to highlight all the great work Arkansans are doing to protect and promote water quality including team spotlights, streambank restoration projects success stories, information on water quality issues, and other Stream Team opportunities.



Caney Creek (Pike Co., AR) before a Stream Team assisted restoration project (left) and post restoration (right)



HIDDEN GEMS OF ARKANSAS

Discover the Water Trails of Arkansas

Story and photos by Chanel Pennington, Education Program Specialist, Witt Stephen's Jr. Central Arkansas Nature Center

WHAT COMES TO MIND WHEN YOU PICTURE A TRAIL?

A few years ago if someone had asked me this, I would have reflected on the switchbacks along the Ozark Highlands Trail or the paved route along the Arkansas Greenway, but a water trail would have never crossed my mind. Growing up in Northwest Arkansas I paddled the rapids of the Mulberry and Kings River. A flat water trail was new to me, but when our family made the move from Fayetteville to Little Rock in the late spring of 2017 I had the opportunity to discover the beauty that awaited me on these hidden gems.

In the spring of 2019, I met up with Kirsten Bartlow, Watchable Wildlife Coordinator, for the Arkansas Game and Fish Commission at the Bayou DeView Water Trail in Prairie County, AR. We scheduled to meet with Debbie Doss, a friend, and steward of our rivers and watersheds here in the natural state. Debbie has been a long time partner of AGFC when it comes to establishing and maintaining these trails. Her non-profit, Arkansas Watertrails Partnership, not only works to provide volunteer public support, but also offers opportunities for group paddling trips. Arkansas is home to some amazing trails. Most of which are on public lands, your land. Multiple agencies and groups partner across the state work to manage these areas so we can discover the natural resources of Arkansas.

We paddled a few miles, surrounded by giant cypress-tupelo brakes. The water was calm and allowed for a steady and

smooth paddle. Some of the trees date back 800 years. Prior to heading out, I uploaded a georeferenced map to my phone via the Avenza App. This enabled me to see exactly where I was along the water trail, aiding in navigation. There are also trees that are tagged with trail markers along the water trail to help you find your way.

The trail puts you right inside some of the state's most beautiful wildlife habitat. Prothonotary warblers and pileated woodpeckers provided the acoustic experience while the muskrats, deer, and beavers delivered exceptional wildlife watching. The bayou also offered fishing for crappie and bream.

During the paddle, I learned about other water trails that not only provided fishing and wildlife watching but camping platforms and hunting opportunities when in season. Some of these resources were closer than I thought. I live in the Little Rock area, the Little Maumelle River Water Trail is about a 20-minute drive and offers a floating camping platform just near the banks of the Nature Conservancy property in Arkansas's William Kirsch Preserve at Ranch North Woods.

You can discover all the water trails available in the state by visiting <https://www.agfc.com/en/explore-outdoors/wild-life-viewing/water-trails/>. There are also opportunities to develop your own water trail. Arkansas Water Trails are a great way for landowners and communities to conserve habitat while providing recre-



ational opportunities for the public. Water trails promote sustainable economic development and build public support for the conservation of waterways and wildlife.

For more information about the Arkansas Watertrails Partnerships or to see when they have an upcoming group paddle scheduled, you can visit <https://arkansaswatertrails.com/> or follow them on Facebook.

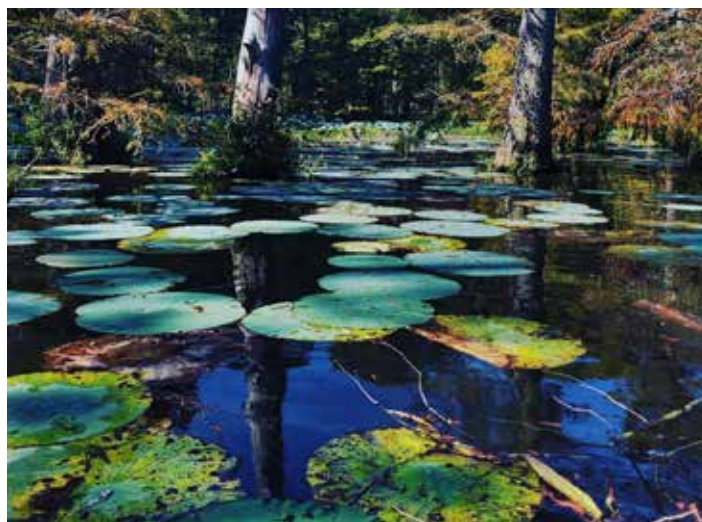
It is always a good idea to plan ahead and prepare before heading out on the trails. Check the weather forecasts and put together a float plan; tell someone where you're going and when you expect to return. Check the water levels and plan your trip so your paddling skills are equal to the water conditions. Safe paddles!

AQUATIC HITCHHIKERS: They like to tag along

Warmer weather allows for more time spent outside and for me that means opportunities to strap the canoe to the truck and get on the water. Our family fishing trips have been especially enjoyable over the past few years now that our daughter is old enough to hook, line and sink for fish all by herself. We enjoy our time on the water and always Leave No Trace. We strive to minimize our impact while picking up what others have left behind such as fishing line or cans. Unfortunately, these items have been in the Arkansas waterways for some time now. But in the past few decades there have been some new kids on the block, or I guess you could say in the water. The ones I'm talking about are microscopic, tiny and fierce. They are invasive little water ninjas that sneak onto your boat, holding onto the bottom and hitching a ride to the next put in. The scary thing is, you may not even realize they're tagging along.

Aquatic Nuisance Species, or ANS for short, have been around for a while but are becoming more of a threat to the wildlife and water quality here in the Natural State. As we know, what's good for wildlife is also good for us. Sadly, human actions have attributed to the spread of some very common ANS such as Zebra Mussels, Didymo (lovingly referred to as 'rock snot'), Giant Salvinia and Hydrilla. Currently, there are 36 aquatic nuisance species in Arkansas.

Arkansas Game and Fish and other agencies are working to manage and eradicate ANS. It's a big job, that will literally take a village. So how can we, the recreational boaters and anglers of our public land and waters help? It's pret-



ty simple. Clean, Drain, Dry! Many of you may already be aware of this phrase, but I feel it is worth repeating. Clean, drain, dry! We can help prevent the spread of aquatic nuisance species by following the three-step process of clean, drain and dry anytime we move to new water:

- Clean all equipment – Remove all plants and pieces of vegetation, seeds, off of your paddles, shoes, boats and any other gear that has been in direct contact with the water.
- Drain your boat – Tip that canoe over and get all of the water out before loading it on our vehicle. Remove plugs from kayaks and drain any dry storage wells that may have had water leak in.
- Dry – Let all gear dry for at least five days before visiting new waters. If drying is not an option, spray all equipment with a high-pressure hose or hot water.

I took the pledge to clean, drain, dry and would like to challenge all of you to do the same. Visit <https://www.wildlifeforever.org/home/invasive-species/>, for more information.

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Corona Crappie (and more)

Steve Filipek, AWF Region 4 Director

WELL FOLKS, WE SURE ARE ALL LIVING IN AND HOPEFULLY THROUGH AN UNPRECEDENTED TIME IN AT LEAST OUR LIFETIME. Many of us were not alive to deal with the Spanish Flu Epidemic in 1918 so the current closure of much of what we're used to doing, going, and experiencing due to the Coronavirus pandemic is insane. While I do live out in the country near Bismarck, Arkansas, still trying to stay at home, not visiting our Dollar General (yes we do have one and it is or was one of the highest selling DG stores in Arkansas), limited to watching church services on our laptop, and in general keeping a very low profile has just about driven me crazy.

Our whole family of four (wife, two sons, yours truly) has always been outdoorsy and we hike, walk our 4 dogs (2 labs, a corgi, and a Rhodesian ridgeback), and enjoy watching wildlife and participating in close encounters with them via angling and hunting. In addition, the mandate to stay at least 6 feet away from all other humans is not totally an overbearing goal to accomplish since no one lives within about 300 yards of us. Because of this mandated behavior, I've done a lot of outdoor work, mowing, putting up a snake fence, and some inside work like going through my file cabinet to recycle pounds of old paperwork and class notes. Nevertheless, I was starting to come down with the southern version of Yankee cabin fever and getting on my wife's last nerve when she quietly said, "WHY DON'T YOU TAKE OUR YOUNGER SON AND GO FISHIN', FOR CRYING OUT LOUD!!! Being a 40-year veteran of married life, I have learned many ways to communicate with my spouse and have learned sometimes just to go along to get along. This was one of those times (LOL) so I prepared our 21-year old boat, got all the



gear needed for the two of us to go fishing and reminded our son to be sure he had a valid fishing license. He quickly got one from the Arkansas Game and Fish Commission over the internet (www.agfc.com) and we were off.

We were on the road in no time flat heading to a small lake close to us which had a pretty balanced population of largemouth bass, bluegill sunfish (bream), channel catfish, and some crappie. We bought some crappie-sized-minnows (smaller than bass minnows or trotline minnows) and in 45 minutes we were at the lake. Uh, "darn"! I said or a reasonable facsimile thereof, because Covid 19 had struck again. The lake was closed...yes, the lake was closed. And so was our goal of catching a bunch of crappie so that we could have a crappie fish fry at home which we all enjoy and is one of the few meals I'm good at that everyone in our family enjoys, even my wife. So, being the cagey old 66-year old angler, I quickly proposed that we head back closer to home and launch our boat on DeGray Lake. Yes, DeGray is only about 5 miles from our house but the crappie are always biting a little better on the other side of the fence you know. So, while not all of the Corps of Engineers boat ramps are open on DeGray, we found one that was and launched our boat at the Arlie Moore ramp (the left one or the south one, whichever you prefer). Whaddya know, only 24 other anglers plus companions had the same idea so it was a little crowded but our son did a good job of launching the boat and we headed up one of the major creek arms of the lake. By this time, of course, we had lost some time and were not fishing in the early morning hours, which with dusk, are often the best times to catch fish. Not the only time, but often the best time.

It was a nice weather day for a change given the dynamic nature of Arkansas' weather, and so we were just outdoors enjoying the air and water and loons calling in the water. Fishing was slow...well, that's not true. "Fishing" went along



well as we started out fishing with crankbaits covering various depths. It was the “catching” that was slow. Our son broke the skunk on the boat fighting a nice white bass of over two pounds that had hit a Bandit 200 shad colored crankbait. After a pretty long fight, I netted the fish for him and after admiring it, we released it back into the lake in good shape. White bass are good eating if you remove the blood line near the center of the filet when cleaning. That “blood line” is actually the lateral line on a fish which is how a fish can “feel” changes in water currents and movement in the water, unique to fish compared to a lot of other animals, both aquatic and terrestrial. We eat white bass but we have quite a few fish in our freezer at home and today, we were really wanting to catch some decent size crappie (longer than 9 or 10 inches) to eat.

The bite didn’t get any better in that location so we moved to a small cove that was just off the main channel and deep water. The cove had an abundance of trees left in it which are good fish attractors, especially for crappie. We changed our terminal tackle to live minnows on crappie hooks with a small weight between the hook and the bobber. Fishing 3 to 4 feet deep in water 5 to 7 feet deep, we began a slow arc around the bank where buck brush and trees were good places to throw our rigs. Patience is a virtue we all hear and for some reason, I am pretty patient when I’m fishing. Maybe not when I’m mowing or putting up a fence or vacuuming you understand, but fishing is such a stress reliever for me that I’m patient even when fishing line gets tangled up in other poles or our dip net or the anchor line, etc. So, with both of us throwing minnows near the bank or vertical trees, we covered the small cove pretty thoroughly. And then SLOOP, the bobber goes under, the fight is on and pretty soon a large black crappie is netted and in the boat.

We measured it and it was 14” total length and about 1 ¾ lb. in weight. That’s a nice crappie! It looked like a male, as dark as the skin’s pigmentation was. So, we put it in the live well and kept patiently moving slowing along the shoreline, casting and sometimes throwing out into the deeper water near a tree. A short time later again, SLOOP, the bobber went under and the strong pulling of a big fish again bent a rod. That fish was big enough to net as well so we don’t lose it bringing it over the side of the boat and another “Nice”! is exclaimed as a large black crappie is brought into the boat. This one is a little larger but still in the 14” range and just under two pounds. Into the live well it goes. “Well, shoot, let’s keep going”. And we did until it was getting late due to the Corona virus time lapse of almost two hours. So, we cruised back to the ramp and waited in line as numerous other boats were being loaded up on their trailers and heading home. Filleting the crappie at home, I was able to validate that they were both male black crappie due to the testes in their body cavity.

So, no, we don’t have a gangbuster story about limiting out with slab crappie. We’re pretty decent fishermen but I’m not gonna lie. Sometimes we do really well and sometimes we don’t. This was one of the latter categories BUT just getting out of the house, knocking out that cabin fever, and always being socially isolated in our boat, that was worth a ton of enjoyment and worth the effort. That’s one thing about fishing, certainly from a boat, but it can be done when fishing from the shore or in the water with waders. As one AGFC staff member has coined; “Most rods are 6 feet long, so you have your suggested distance away from other humans right there”. Coronavirus has changed the way we have to act and socialize. However, it doesn’t have to eliminate the way we fish and enjoy other outdoor activities. Let’s go fishin’!

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Snorkelers move slowly through a cave stream while searching for Ozark Cavefish. Each year staff from around the state team up to survey threatened and endangered cave species. To minimize disturbance, surveys are alternated so that one site is visited no more than once every two years and many sites are kept secret to protect them from additional disturbance.

Protecting Arkansas Karst Species

Story by Pedro Ardapple, Karst Biologist, US Fish and Wildlife Service ~ Photos by 2019 The Nature Conservancy: Michael E. Slay

For many curious individuals finding a cave instills an immediate urge to explore, but few people understand the vital role caves play within a karst ecosystem or the fragility of karst species. A karst ecosystem is a distinctive landscape shaped by the dissolving action of water on carbonate bedrock (limestone, dolomite, or marble) and is characterized by various features such as sinkholes, springs, underground drainage systems and caves. Although caves are characteristically stable habitats with low nutrient availability, their unique environment coupled with their isolated nature has created a bloom in biological diversity. The adaptation of karst species to a normally stable environment inhibits their ability to survive changes from human disturbance and groundwater pollution. This article describes several of the Federally threatened and endangered karst species in Arkansas and briefly discusses protection measures to aid in the recovery of these species. By understanding the biological requirements of these species and implementing protection strategies, we can protect these valuable ecosystems.

Troglobites are species that live their entire lives underground. Due to their environment, troglobites are often adapted to have no eyes and reduced pigment giving them a pink or white, ghostly look. In Arkansas, there are

three Federally listed troglobites; the Benton County cave crayfish, Hell Creek cave crayfish and the Ozark cavefish. The Benton County cave crayfish is found only in three locations in the extreme Northwest portion of Arkansas. It will often approach you as you walk through cave streams. However, they will quickly flee when they sense that you are large enough to be a potential threat. The primary threat to this species and the Ozark cavefish is groundwater pollution from non-sustainable urban development and farming practices.



*Benton County cave crayfish
(Cambarus aculabrum).*



Genetics test results from this unidentified cave crayfish (above) in north central Arkansas are expected to confirm it as the fourth known population of Hell Creek cave crayfish (*Cambarus zophonastes*).



This Ozark cavefish (*Amblyopsis rosae*) was discovered by construction workers as they were excavating a sewer line leak. The species was once broadly distributed through the Ozarks, but its range has been substantially reduced due to groundwater pollution.

Of the many cave adapted species, bats are probably the most well-known species. They are classified as troglophiles, species that live both under and above ground. In Arkansas there are 16 species of bats with a large array of survival strategies. Some bat species utilize caves all year for both hibernation and summer roosts, while other species only utilize caves for hibernation during the winter and roost in trees, leaf litter, or manmade structures throughout the rest of the year. Unfortunately, human disturbance, habitat loss, and white-nose syndrome, an introduced fungus, has led to the near extinction and Federal listing of many bat species, including the Indian bat, Gray bat, Northern long-eared bat and the Ozark big-eared bat.

The Indiana bat was one of the first species added to the Endangered Species List in 1973. The population had started to make a recovery prior to white-nose fungus but has subsequently declined. There are currently 21 known caves where Indiana Bats hibernate in Arkansas and at least 20 sites that had historical use. During the summer Indiana bats primarily forage in woodlands and riparian areas and roost

in trees under loose pieces of bark or in cracks and crevices within the tree trunk. Females can migrate up to 357 miles to their summer habitat where they form maternity colonies to raise their pups. Conservation efforts for the species should target stopping human disturbance of hibernating colonies (hibernaculas), restoration of mature low-density woodland habitat and protection of bottomland hardwoods.

Gray bats are year-round cave dwellers. They form large colonies and arouse from hibernation easily. Dramatic population declines occurred in the middle of the 20th century due to human disturbance of colonies, and the species was listed as endangered in 1976. Over the last 40 years we have seen a large population rebound which is primarily attributed to gating colonies and protection of the species under the Endangered Species Act. Gray bats are river-foraging specialists, and summer colonies are typically within 1.2 miles of a river, large creek, or lake. Conservation efforts for the species should target stopping human disturbance, maintaining good water quality, and protection of riparian habitat. >>



Although you can see eyes beneath the fused eyelids of this grotto salamander (*Eurycea spelaea*), adults of this species are blind and live exclusively in caves. Interestingly, their larvae live in springs near the entrances to caves and have full use of their eyes.



A female Indiana bat (*Myotis sodalis*) gets a haircut prior to attachment of a transmitter. In 2019 the first Indian bat maternity colony in Arkansas was found in a bottomland hardwood stand along the Black River. Aerial tracking efforts to identify additional maternity colonies are currently ongoing.



Ozark Big-eared Bats (*Corynorhinus townsendii ingens*) and one Indian bat cluster together in a winter roost.

Ozark big-eared bats are one of the rarest bats in Arkansas. The total population is estimated to be under 2,000, and in 1979 the species was listed as endangered. The primary cause of population decline is human disturbance to maternity colonies and hibernaculas. While extensive work has been done over the past 40 years, the Statewide population counts have continued to average around 225 individuals. Because this species is extremely sensitive to human disturbance, the U.S. Fish and Wildlife Service partnered with Arkansas Wildlife Federation and numerous other collaborators to gate Ozark big-eared bat colonies at Devil's Den State Park that are heavily impacted by human disturbance.

Gating of caves is often a controversial topic between conservationists and individuals who want to enter caves recreationally. Many agencies have addressed this by only gating caves that are of high biological, archeological, or geologic value and are being damaged by visitors. Cave gates that meet the industry standard have been very suc-

cessful in protecting bat populations that are impacted by human disturbance. However, efforts to preserve cave fauna need to address three primary factors:

1) Disturbance:

Sometimes having an aware landowner is all it takes to protect karst species from disturbance. If that proves to be insufficient, a gate combined with periodic enforcement is almost always effective. For bats, it is key that maternity colonies are not disturbed during the summer and that hibernaculas are not disturbed during the winter.

2) Water Quality:

Water born contaminants such as sediment, fertilizer, and pesticides are the leading threat to aquatic karst species and impact the foraging base of many bat species. While sustainable land management practices are the real answer, one of the most effective tools for landowners to decrease sediment and fertilizer entering streams and eventually groundwater systems is establishing buffers on streams and sinks. By allowing water to filter through vegetation and



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soil prior to entering streams and sinks, the prevalence of contaminants is greatly reduced. For example, establishing a 50-yard buffer on a stream can reduce both sediment and nitrogen entering the stream by over 60%.

3) Foraging Habitat:

Many cave species spend part of their time foraging above ground and many bat species are dependent on healthy aquatic systems for their food. In order to sustain a bat population, it is critical that preferred habitat of the species is available within foraging range of their roost. For Indiana bats and little brown bats, it is beneficial to have open woodlands and healthy riparian corridors. For northern long-eared bats, heavily timbered ridges are ideal. Management strategies should be chosen and implemented carefully to promote habitat diversity in your area and be sustainable over the long-term.



While many of these protection strategies for karst species are currently being implemented on public land, protection of caves on private land will play a pivotal role in saving these endangered karst species. The U.S. Fish and Wildlife Service offers multiple cost share programs to promote water quality protection and habitat management for landowners interested in protecting their caves and helping to save endangered species. There are also several nonprofits that can develop a customizable conservation easement that protects your property based on your conservation interests, even after the property is passed on to future generations or sold. For more information on organizations that hold conservation easements in your area or if you have caves you would like surveyed contact Pedro Ardapple at (501) 548-5152. For more information on U.S. Fish and Wildlife programs available for your property contact Jonathan Baxter at (501) 428-2561.



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ARKANSAS WILDLIFE News-of-Note



Cancellation of annual awards banquet

Since 1936, AWF has hosted the Annual Conservation Achievement Awards program recognizing individuals, organizations and businesses that have made significant and outstanding contributions toward the protection and wise use of Arkansas' natural resources. Due to the COVID19 virus outbreak, AWF made the difficult decision to cancel the annual banquet. We will be hosting several online programs throughout the fall including an online auction for the AGFC Youth Elk tag. Updates will be posted to the AWF Facebook page and at www.arwild.org

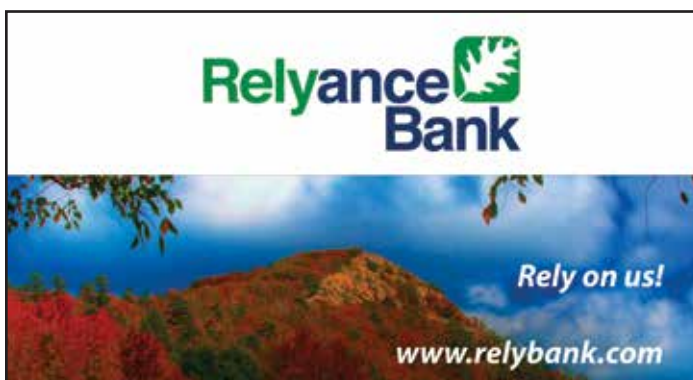
Five-year R3 Action Plan announced

With input from nearly 30 non-profits and other agencies representing the hunting and angling community, the AGFC spent the past year developing a five-year action plan to recruit, retain and reactivate hunters and anglers in Arkansas. The goals of the AGFC Recruitment, Retention, and Reactivation (R3) Action Plan focus on increasing participation in angling, hunting, shooting sports and other wildlife and outdoor recreation activities. Although the AGFC is funded in part by the Conservation Sales Tax, many of the federal conservation dollars allotted to states are based on sales of hunting and fishing licenses. With the downward trend of hunting and fishing license sales, this means less funding for habitat restoration and wildlife conservation. The actions laid out in the R3 Action Plan are intended to reverse this trend, get more people outdoors and maintain Arkansas's outdoor heritage for generations to come.



New Arkansas Turkey Stamp

The inaugural Arkansas Turkey Stamp is now available to order through the Arkansas Game and Fish Commission's online licensing system at www.agfc.com. Conservation-minded individuals may also order the stamp at any license dealer, regional office or AGFC nature center. The stamp is not required to hunt turkeys in the state of Arkansas, but was created to give conservationists and turkey enthusiasts a way to help support conservation efforts for the species. The limited-edition stamps will sell for \$9.50 each, with only 20,000 produced in the first year. AGFC is hoping to generate up to \$150,000 to benefit turkey habitat improvement efforts in Arkansas.





Volunteer Day at Bearcat Hollow

On March 7th, a group of 25 volunteers showed up at the Bearcat Hollow Cooperative Habitat Improvement project ready to work hard and indeed they did. Over a four-hour timeframe, volunteers planted 130 medium to large trees (hazelnut and wild plum). A total of 3,500 trees have been planted in the area since this spring in an effort to increase more natural food sources for wildlife on public land. Thank you to the students and volunteers from University of Ozarks and the Yell County Wildlife Federation. And a special thank you to Wayne Shewmake for his ongoing dedication and leadership to continue habitat improvements at the Bearcat Hollow Wildlife Management Area.

Arkansas Top Destination for Mountain Biking

Did you know that Arkansas is home to hundreds of

miles of mountain bike trails? According to the International Mountain Bicycling Association (IMBA), Arkansas is one of the top mountain bike destinations in the country with five IMBA designated "Epic Rides." Bentonville, Fayetteville and Hot Springs all have world-class facilities with a variety of trail types. Trail riding in the Natural State is not just for the elite. The Arkansas Mountain Biking Guide was created to give cyclists at all skill levels maps and information about the variety of trails in Arkansas. Under a canopy of trees, along a river, over gentle rolling hills, on a gravel rail-to-trail or over a mountain pass, the trail guide will direct you to all the varied terrain for enjoying Arkansas on two wheels. Visit www.arkansas.com to order or view the Arkansas Mountain Biking Guide.

Advocating for Everglades restoration

In mid-April, Amanda Brogdon, AWF's Vice President, had a great conversation with Senator John Boozman's staff to discuss the importance of keeping funding in the budget for Everglades restoration. Senator Boozman sits on the Appropriations Committee, which is the committee that provides funding for issues like Everglades restoration. Although Amanda enjoys most of her days fishing on Arkansas' Little Red River, she recognizes that Florida draws anglers from across the nation to fish the waters of Florida Bay, the Keys, and the Everglades every year. AWF believes that investing in restoring and protecting natural places from the Everglades to the Buffalo National Scenic River to the Great Lakes sustains local economies and provides fisheries and wildlife habitats for future generations.

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Arkansas Wild Kids

By Lola Perritt

Classifying Living and Nonliving Things

The closing of schools from the COVID 19 Pandemic has all teachers scrambling to find activities for students to do that are engaging, relevant, and user friendly enough for parents who aren't trained educators. So often we take the common sights around us for granted, so it is easy for us to overlook these things as educational opportunities. This activity will meet all of the aforementioned criteria as well as meet some of the goals of the Arkansas Wildlife Federation and Arkansas State Science Standards.

Take a nature walk in your yard, neighborhood, a park, or wherever you would like to take a walk and look for living and nonliving things. This may seem like a simple task but many students, especially younger students have difficulty with this concept, they confuse the concept of "nonliving" with "dead". Older elementary students are confused by whether some objects should be classified as living because they are made from living things, for example, a pencil.

The rules are simple:

- A living thing is anything that is alive or has ever lived.
- All living things require nourishment, need air (some bacteria do not need oxygen to survive), can reproduce and grow and change over time, and many need shelter or a home.
- Nonliving things do not meet all of these criteria.

When classifying things as living or nonliving in science, a dead tree is a living thing and a pencil is a nonliving thing.

Living things can be classified in several ways and the depth of the classifications you will explore will depend on the age and ability levels of your child/children. To keep things simple, I have only included categories that could

be seen with the naked eye, there are other classes that older children may want to research. Most of the things that will be found on your walk will be Animals, Plants, Lichens or Minerals.

Animals will be either **vertebrates**, animals with a backbone or **invertebrates**, animals without a backbone. Animals with backbones are **Mammals, Birds, Reptiles, Amphibians, and Fish**. Animals without backbones will be animals **with jointed legs** like insects, spiders, crawfish, and centipedes. Animals **without jointed legs** will be worms, snails, and slugs.

Plants can be placed in two major groups:

- Plants That Make Seeds - These plants are found in two groups, plants with flowers and plants with cones.
- Plants That Don't Make Seeds - These plants are found in two major groups, plants with well defined roots, stems, and leaves like ferns and plants without true roots, stems and leaves like mosses and algae.

Lichens (LIE kens) are those strange things found growing on rocks, fences, tree bark, and anything else they can hold onto. They can be a variety of shapes, sizes, and colors and are often mistaken for mosses or fungi. They look like a single organism but are a combination of fungi and algae or cyanobacteria that live together for the benefit of both species (mutualism). You can tell younger children that they are a very special living thing that is in two different groups. (There are always exceptions to rules!)

Minerals are rocks and metals.

Many of the nonliving things that will be found on your walk will be man-made and that is a whole other article!

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