

SPRING CONSERVATION

CELEBRATE MISSOURI
TREES WITH MDC
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Celebrate Missouri trees with MDC through April Arbor Days

Plant native trees and practice proper tree care. Seedling deliveries extended through May.

JEFFERSON CITY, Mo. – The Missouri Department of Conservation (MDC) encourages Missourians to celebrate the value of Missouri trees and forests during Arbor Days in April by planting native trees and practicing proper tree care.

This year's Missouri Arbor Day is Friday, April 3. Missouri has been observing the state's official Arbor Day on the first Friday in April since 1886 when the General Assembly declared that day be set aside for the appreciation and planting of trees. National Arbor Day is recognized on the last Friday of April, which is April 24 for 2020.

Missouri forests cover about one-third of the state and provide outdoor recreation, wildlife habitat, natural beauty, jobs, timber for many wood products, and much more. Spending time in Missouri woods and forests can also provide health benefits. Exposure to nature contributes to physical well-being, reduces blood pressure and heart rate, relieves stress, and boosts energy levels. Trees also work to help our wallets, our families, our communities, our environment, and our economy. Learn more about how trees work at treeswork.org.

Get information on backyard tree care—including types of trees for urban and other landscapes, selecting the right tree for the right place, planting tips, watering and pruning info, and more -- at mdc.mo.gov/tree-health.

For more information on Arbor Day and Missouri's Tree City USA communities, visit the Arbor Day Foundation at arborday.org.

With the current public-health emergency caused by the coronavirus

(COVID-19), MDC reminds people to continue to heed recommendations for hand washing, social distancing, and all other public-health measures during outdoor activities.

ORDER SEEDLINGS FROM STATE FOREST NURSERY

MDC's George O. White State Forest Nursery near Licking offers residents a variety of low-cost native tree and shrub seedlings for reforestation, windbreaks, erosion control, and wildlife food and cover. **Orders are accepted through April 15. MDC has extended the seedling shipping timeframe through the end of May.**

According to MDC, the shipping season typically winds down in early May after nursery staff have shipped millions of seedlings to schools, landowners, and MDC staff for planting all over the state.

Since the precautionary measures in place to decrease the spread of COVID-19, the nursery has been closed to the public and has plenty of seedlings left.

Order seedlings online at mdc.mo.gov/seedlings, or fax an order form to 573-674-4047. Contact the nursery at 573-674-3229 or email StateForestNursery@mdc.mo.gov for an order form.

Take a virtual tour of the nursery at short.mdc.mo.gov/Zey.



MDC offers free nature-focused online learning resources

Go online for free MDC nature-based curriculum for pre-kindergarten through high school.

JEFFERSON CITY, Mo. – With so many Missourians stuck at home, the Missouri Department of Conservation (MDC) is offering teachers, parents, students, and others its free Discover Nature Schools (DNS) nature-based curriculum for pre-kindergarten through high school online.

Find DNS information and curriculum for pre-kindergarten through high school online at nature.mdc.mo.gov/discover-nature/teacher-portal/discover-nature-schools.

MDC also offers other nature-based learning resources at nature.mdc.mo.gov/discover-nature/teacher-portal/nature-based-resources-during-school-closures.

Find a variety of nature-based video segments from MDC at nature.mdc.mo.gov/discover-nature/teacher-portal/video-segments.

The Missouri Department of Elementary and Secondary Education offers tips on how to support student learning at home at dese.mo.gov/sites/default/files/curr-c19-support-for-families.pdf.

Get more nature-based info from the MDC website at mdc.mo.gov.

With the current public-health emergency caused by the coronavirus (COVID-19), MDC reminds people to continue to heed recommendations for hand washing, social distancing, and all other public-health measures during outdoor activities.

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The different types of bird feeders

Birds are big business. That may come as a surprise to people who have never given much thought to the warm-blooded vertebrates who fly over their heads every day, but tens of millions of people have a passion for birds.

A 2016 survey from the U.S. Fish & Wildlife Service found that more than 45 million people in the United States watch birds around their homes and away from home every year. While statistics aren't as current in Canada as they are in the United States, past studies have indicated birding is wildly popular among Canadians, with roughly 30 percent going wildlife-viewing while on out-of-town trips of one or more nights. That positively affects the economy, contributing billions of dollars to the tourism industry in both the U.S. and Canada

every year.

While birding trips can help birdwatching enthusiasts see birds they otherwise may never see in person, bird feeders can be a great way to bring more birds into your own backyard. Choice of bird feeder can affect just which birds come to your backyard, and the following are some bird feeder options for birding enthusiasts to consider.

- **Window feeders:** Small and easily attached to windows with suction cups, window feeders are easy to maintain and bring birds right to your window. Birds that visit window feeders stand in the seed while feeding, so they must be cleaned and refilled on a daily basis.

- **Tray or platform feeders:** The online birding resource All About Birds (allaboutbirds.org) notes that tray feeders attract the widest variety of seed-eating feeder birds.

That makes them ideal for birding enthusiasts who want to attract a variety of birds to their properties. Tray feeders are simply platforms that hold seed and provide a place for birds to stand while they eat. All About Birds recommends tray feeders with screened, rather than solid, bottoms, as these trays promote complete drainage. Frequent cleaning is necessary with tray feeders, as bird droppings can quickly soil seed.

- **Hopper or house feeders:** These feeders are enclosed and feed seed out through the bottom. Hopper feeders are great for people who don't want to be bothered with daily maintenance, as they can hold several pounds of food at one time, greatly reducing the number of times homeowners will need to refill them. In addition,

hopper feeders don't need to be cleaned as often as other feeders. However, All About Birds notes that hopper feeders, which need to be thoroughly cleaned roughly once per month, are harder to clean than other feeders.

- **Tube feeders:** Tube feeders deliver seeds to birds through screens or ports. Small perches attract birds to tube feeders, making these ideal for small birds. Some tube feeders contain perches designed for

birds that can feed upside down, potentially attracting a greater variety of birds to your backyard. But All About Birds notes that seed can collect on bottom-most feeding ports, providing a breeding ground for mold and bacteria. As a result, tube feeders should be inspected and cleaned regularly.

Bird feeders can draw an array of birds to your backyard.



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Beginner's guide to kayaking

Kayaking is a water sport that can be beneficial to the mind and body. Just about anyone willing to spend a day on the water can benefit from learning about kayaking and how to get started with this rewarding activity.

The history of kayaking is interesting. The word "kayak" means "hunter's boat," and the Inuit used to rely on these small vessels to catch food by sneaking up on their prey from the water's edge. Some people still hunt and fish from their kayaks, but many are happy to use them for sightseeing and exercising.

"Paddlesports are increasing in popularity among Americans who desire to connect with the outdoors," said Christine Fanning, executive director of The Outdoor Foundation. The Outdoor Foundation and The Coleman Company, Inc., found in a Special Report on Paddlesports that 21.7 million Americans enjoyed paddling on rivers, lakes, streams, and other waterways in 2014, the most recent year for which data is available. Paddlesports include canoeing, rafting, kayaking, and stand-up paddling.

Learning how to kayak does not involve a significant initial financial investment. The outdoor experts at REI say there's a good chance a novice kayaker will not go out and buy a boat immediately. It's important

to first get a feel for the sport and then go from there.

Although it's not absolutely necessary, it's recommended that novices take paddling lessons to hone their kayaking skills. Learning the proper technique can help people avoid strain on their neck and back and safeguard their arms from fatigue.

Novices should practice on calm waters until their technique is honed. Lakes are a great place to learn, as rivers and places

with mild currents can overwhelm those new to the sport.

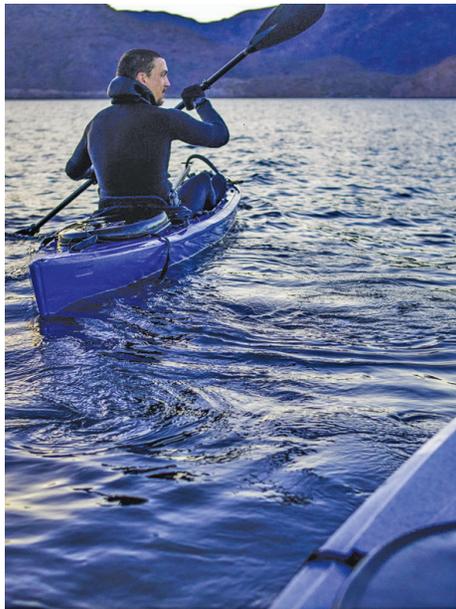
One of the easiest ways to get introduced to kayaking is to go with an experienced paddler or tour company. Such companies charge a set price for an excursion that will provide transportation to the drop site as well as the equipment needed for the voyage. Tours may include travel down several miles of a relatively calm waterway,

allowing novice kayakers to get a feel for paddling and take in the scenery.

Getting in and out of a kayak can be challenging for beginners. The resource Kayakpaddling.net offers helpful illustrations and animated tutorials about entering and exiting kayaks as well as paddling techniques and safety.

Kayakers should bring some essentials along. A dry pack can keep electronics, food and equipment dry. Remember to wear sunscreen and a hat to keep safe from the sun. A life vest also is essential.

Exercise, fresh air and enjoying the open water are just some of the many draws of kayaking.



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How to make the most of kids' first fishing trips

Fishing provides a great way for parents to bond with their children in the great outdoors. The value of first impressions has been well-documented, and parents who want their kids to inherit a love of fishing can take the following factors into consideration so their youngsters' first fishing trips are successful.

LOCAL PROGRAMS

Fishing need not be an expensive hobby, but the costs can add up. Parents who are not sure if their kids will embrace fishing should look into local programs. Many towns, especially those with reputations for fishing, host free family fishing events. These events give parents an opportunity to see if their kids enjoy fishing before they start buying them gear.

STARTING SIMPLE

Any fisherman would love to snag a trophy fish such as a largemouth bass on his or her first trip. And while that's possible, it's unlikely, especially for youngsters. Such fish tend to be difficult to catch, even for seasoned fishermen. When taking kids fishing for the first time, fish for something that's somewhat simple to catch and capable of being caught throughout the day. If you aren't familiar with your local rivers or lakes, visit a local outdoors store and ask for advice about which local bodies of water are home to fish that kids might be able to snag. Though it's not imperative that kids catch a fish on their first trip, doing so might make them more enthusiastic about their next trip.

HAVING FUN

Don't make the day all about catching

fish, as even the most seasoned fishermen have their off days when nothing is biting. If the focus is on catching fish, kids might grow discouraged and not want to come back if they don't catch anything on their first trip. Focus on the fun everyone is having rather than the fish they are (or aren't) catching. Some youngsters might just be thrilled to spend a day out on the water with their parents. Encourage that enthusiasm and kids are more likely to remember their first fishing trips fondly.

BREAK TIME

Kids might not have a full day of fishing in them on their first trip. Frequent breaks to explore nearby nature, enjoy a snack or even toss a ball around can keep children from growing bored throughout the day.

Fishing is a family-friendly activity that youngsters can enjoy from the moment they first pick up a rod.



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Make Room For Batty

WRITTEN BY LARRY ARCHER

The recipe is simple: provide the proper food, water, and shelter, and in no time, you'll have a yard full of fluttery, flighty, little friends. Another primer on attracting monarchs? Not this time. Maybe now it's time to reach out to that backyard visitor who doesn't make friends as easily as the poster child for pollinators. Maybe now it's time to make room for batty.

Unlike monarchs — and butterflies and birds in general — bats are burdened with centuries of prejudice, spawned by literature and myths stemming from their nocturnal nature. Like their more generally accepted flying counterparts, bats play an important role in the backyard ecosystem and benefit from many of the same landscaping steps we take to make our backyards more hospitable to other species we enjoy.

BATS IN YOUR BACKYARD

After accounting for species that haven't been seen in decades or only visit the state on accident, Missouri is home to 16 species of resident bats (See Bats of Missouri), but most city-dwelling Missourians are likely to encounter only two of these, said MDC Naturalist Shelly Colatskie, a bat biologist.

"In urban areas, you're going to likely see the big brown bat and the eastern red bat," Colatskie said. "Big brown bats are often associated with houses, barns, manmade structures, and hollow trees, but red bats are associated with leaf litter, so they're actually in the leaves of the trees or underneath the leaves on the ground. You can see both of those in urban areas, but one's going to be on your house, versus one is going to be in your trees."

NATURE'S INSECT CONTROL

Given their nocturnal nature, most will only see bats right after dusk and right before dawn, and then only in silhouette, so bat viewing in your backyard is limited. What, then, would be the incentive to lure them to set up house on your property? In two words, insect control.

"All of the bats in Missouri and most of the bats in the United States eat insects," Colatskie said. "They really do eat mosquitos, maybe not as many as we hoped, but they do eat mosquitos — and a lot of other crop pests."

According to Bat Conservation International (BCI), an organization dedicated to protecting bats and educating the public about issues bats face, scientists estimate that bats in the United States are worth more than \$3.7 billion a year in reduced crop damage and pesticide use.

BLOOMS FOR BATS

When building a hospitable backyard habitat for bats, the first step includes adding native plants to your landscape, Colatskie said.

"A lot of people have been planting more native plants to attract more insects for the bats to eat," she said. "Any kind of native plants that attract pollinators — as well as other insect life — is going to help feed the bats."

When adding natives to your yard, make sure to choose plants appropriate for the available sunlight and soil type. Choosing a variety of plants that bloom at different times of the year will ensure that there's always a selection of insects for the bats. The Missouri Prairie Foundation's Grow Native! website (moprairie.org/GrowNative) can help with plant selection.

TREES — DEAD OR ALIVE

While flowering native plants draw the insects on which bats feed, trees — both dead and alive — provide shelter for many bat species, Colatskie said.

"If you have acreage, leaving some dead trees in areas is perfect, not only for other wildlife, but for bats as well," she said. "They love the hollow trees as well as underneath the bark, so leaving dead trees is definitely going to help a wide variety of bat species."

If leaving dead trees, commonly referred to as snags, isn't possible, many species of bats, including the eastern red bat, also roost in live trees.

"A lot of them roost in oak trees because they hold their leaves longer in the winter," she said. "If it's above freezing, they're going to be in the clumps of the leaves in the tree. If it's below freezing, or even if it's below 40 degrees or so, they're going to be under the leaf litter. It's kind of warmer under the

leaf litter."

Even after the trees drop their leaves, they still provide shelter for the eastern red bat. "You don't necessarily have to rake leaf litter all the time, especially if you have an area with a lot of leaves, and that's going to help other animals, too," she said. "The eastern red bat will be under the leaf litter, especially oak leaves."

BAT HOUSE

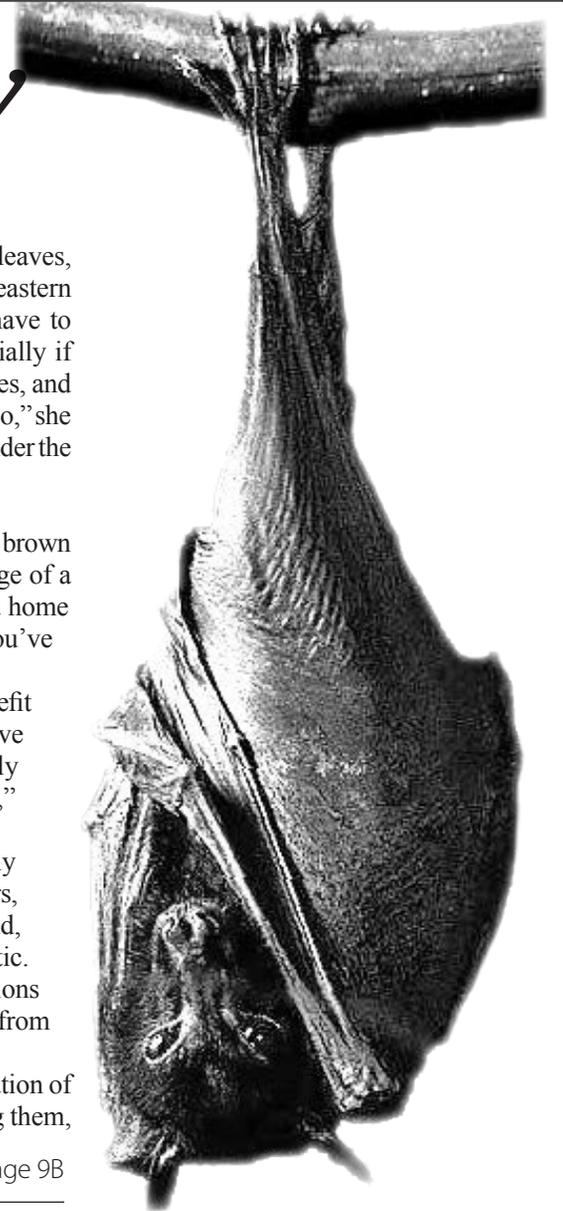
Unlike the eastern red bat, the big brown bat is more likely to take advantage of a manmade structure, whether it's a home you've built for yourself or one you've built for them.

"The big brown bats really benefit from bat houses in areas that have a high bat population, especially urban areas, like downtown areas," Colatskie said.

The big brown bat can frequently be found in the small gaps of shutters, siding, fascia board, and eaves, and, if given the opportunity, your attic. Providing alternative roosting options is vital if you're evicting bats from your home.

"If you have a really big population of bats in your attic and are removing them,

continued on page 9B



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Honeybees are humble insects that benefit the environment in various ways. Unfortunately, many people lump bees in with wasps and other seemingly “harmful” insects and do whatever is necessary to remove them from their properties. But it’s important to be mindful of the beneficial roles bees play and to take steps to maintain healthy habitats so they can thrive.

Bees are one of the most important pollinators of flowers, crops and fruit trees. These small insects can make or break entire food supplies. They also pollinate clover and alfalfa that provide feed for cattle. Some experts place the economic value of bees at roughly \$15 billion per year.

A consortium of universities and research laboratories that reported to The White House in 2015 found that beekeepers lost 42.1 percent of their colonies between 2014 and 2015. Bee populations continue to decline. According to the conservation organization Save the Bees, recent surveys suggest close to a 99 percent loss in bees over the last 150 years, primarily due to increasing agricultural intensification.

To combat this sharp decline in bee populations, people from all walks of life can do their part to help bees thrive once again. And by helping bees, individuals also may indirectly help other beneficial pollinating insects, such as butterflies.

BE AWARE OF THE LANDSCAPE

Not all bees build the wax or paper structures associated with traditional beehives. Those hives may not be readily visible even for bees that do build them. Wood-nesting bees can nest in twigs or dead trees. Bees may nest underground or use the burrows abandoned by small rodents. Before excavating or disturbing more remote areas of the yard, check to see if it is a habitat for bees. Leave some natural areas of the landscape untouched and do not remove twigs, mounds of dirt and native flowers to attract more bees.

Plant native flowers and flowering trees Offer bees plenty of flowering choices so they’ll be happy to come investigate. Native flowers are best because they will be most familiar. Try to plant an array that will flower at different times of the year. Simple flowers will offer more readily available access to pollen than hybrid or exotic varieties bred to produce mounding petals.

LEAVE SWATCHES OF NATURAL LAWN

Instead of properties featuring an entire manicured lawn, set aside an area that is encouraged to overgrow with dandelions and clovers, which are good nectar sources

for many bees.

SUPPORT LOCAL BEEKEEPERS

If you find a honey bee swarm on your property, contact a local beekeeper who may be able to safely collect and relocate that swarm so it will produce honey and provide the additional benefits associated with healthy bees. People can also support beekeepers’ work by purchasing local honey. Not only does it keep jobs in the area, but some research also suggests that consuming local honey can help reduce seasonal allergies. WebMD says the practice is based on immunotherapy. Local honey contains traces of local pollen that may be responsible for seasonal allergies. Repeated exposure to small doses of this pollen might help bodies develop natural immunities.

Bees can be quite beneficial to have around, and it can be an enjoyable venture to customize landscapes to support the propagation of wild bees.

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Batty

continued from page 7B

having bat houses on your property is going to be tremendously helpful,” she said.

For those without an established population in need of relocation, attracting bats to a bat house is not guaranteed.

“The average person putting up a bat house just to attract them, that’s really hit or miss,” she said. “You may get one, you may not. It might take several years for them to find it.”

There are steps you can take to increase your odds of having bats occupy your houses, including choosing the right type of house, placing it in the right place, and maintaining it.

CHAMBERS AND ROCKETS

BCI recommends two different types of bat house: multi-chamber houses and rocket boxes.

Multi-chamber bat houses are the most readily recognized design, typically at least 14 inches wide and 20 inches high, but only 2–3 inches deep. The chambers within this roost are ¾-inch deep, making for the tight squeeze bats seek. They can be mounted on the sides of buildings or back-to-back on poles. BCI recommends against using the similar-looking single-chamber houses or houses smaller than 14 by 20.

The rocket box bat house is exclusively a pole-mounted design with four equal sides of approximately 10 inches and a length of approximately 3 feet. These houses have ¾-inch inner and outer chambers, which allow the bats to control the temperature inside by huddling together in the inner chamber for warmth or spreading apart in the outer chamber to cool off.

Perhaps more important than the style of the house is the location of the house. Regardless of whether a house is building or pole mounted, BCI recommends that it be placed in an area that gets at least 6–8 hours of direct sunlight daily, 20–30 feet from tree branches or other obstacles, and 12–20 feet above ground.

“It mimics the height and conditions of where they would naturally roost,” Colatskie said.

Although bats naturally roost in trees, BCI discourages placing houses in trees. Houses in trees leave bats exposed to predators, including owls and hawks, who perch nearby to snag bats as they leave the house, and snakes and raccoons, who can climb the tree to reach those bats still in the house.

Tree foliage also shades houses, blocking the needed sunlight that keeps the houses warm, and frequently obscures the clear approach needed for take-offs and returns.

Once chosen and installed, bat houses require annual maintenance to make sure the only occupants are the ones you’re wanting to attract, Colatskie said.

“During the winter time when bats aren’t there, get up there and clean them out,” she said. “Clean out the wasp nests; that will really help because they don’t like to roost with the wasps.”

WIDE OPEN SPACES

Planting natives and providing shelter are steps that can be taken almost anywhere, but those working with larger parcels of land have an additional opportunity to attract bats if they have access to the third essential element — water.

Bats don’t perch like birds, so they require water sources larger than the traditional birdbath, Colatskie said.

“Ponds are excellent for bats,” she said. “They actually drink as they’re flying.”

BCI research suggests that the most successful bat houses are those located within ¼ mile of a pond, lake, stream, or river.

PATIENCE PAYS OFF

There are no shortcuts in getting bats to take up residence in your bat houses, Colatskie said.

“People say bring guano to the bat house; that’s just a myth,” she said. “It’s going to be completely hit or miss.”

Similarly, attempting to catch bats (which is illegal without proper permits generally reserved for conservation and academic research) and introduce them to a bat house is unlikely to be successful, according to the BCI website:

“Catching and relocating bats to new areas is, in any case, highly unlikely to succeed. Bats have strong homing instincts, and once released into a bat house, will

continued on page 10B

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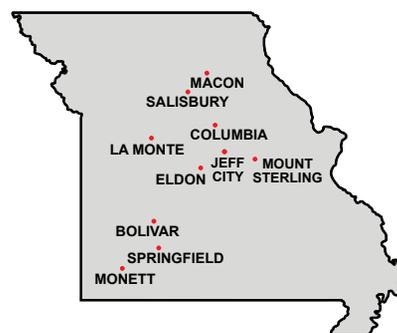
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Photo by MDC Staff, courtesy Missouri Department of Conservation. Need something larger? Contact Us to request different sizes.

Batty

continued from page 9B

attempt to return to their former home area. Consequently, placing bats in a bat house is usually futile and is not recommended. If a bat house remains unoccupied after two full years, consider repositioning or modifying the house.”

Nothing in nature is guaranteed. But with proper placement and plenty of patience, planting natives, and installing bat houses can result in some long-term satisfaction if one’s goal is enjoying the dusk and dawn flights of Missouri’s native bats, Colatskie said.

“Usually these guys are pretty loyal to their spots, so they’ll come back from year to year to year if they find the right spot.”

BAT FACTS AND MYTHS

Despite their somewhat mousey appearance, bats are not members of the rodent family.

Missouri’s largest native bat is the Hoary Bat, which weighs up to 30 grams.

Bats are less likely than most wild mammals to contract rabies. Less than half of one percent of bats have the disease. Experts warn that any bat that is easily approachable is likely sick and should not be approached or handled.

Missouri’s smallest native bat, the Eastern Smallfooted Myotis, weighs only 3–4 grams.

Gray Myotis can have hibernation colonies of 500,000 and maternity colonies of 200,000.

For more information on bats in Missouri, visit short.mdc.mo.gov/ZQR. Information from and about Bat Conservation International (BCI) is available at batcon.org.

BATS OF MISSOURI

The eastern red bat (*Lasiurus borealis*) and big brown bat (*Eptesicus fuscus*) are the two most common of Missouri’s 16 species of bats.

Of the remaining species, many are threatened or endangered:

Little brown myotis (Myotis lucifugus)

Gray myotis (Myotis grisescens)

Southeastern myotis (Myotis austroriparius)

Northern long-eared myotis (Myotis septentrionalis)

Indiana myotis (Myotis odalis)

Eastern small-footed myotis (Myotis leibii)

Silver-haired bat (Lasiurus noctivagans)

Tri-colored bat or eastern pipistrelle (Perimyotis subflavus)

Hoary bat (Lasiurus cinereus)

Seminole bat (Lasiurus seminolus)

Brazilian free-tailed bat (Tadarida brasiliensis)

Evening bat (Nycticeius humeralis)

Ozark big-eared bat (Corynorhinus townsendii ingens)

Rafinesque’s big-eared bat (Corynorhinus rafinesquii)

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MDC FORECASTS CHALLENGING SPRING TURKEY HUNTING SEASON

WRITTEN BY JOE JEREK

JEFFERSON CITY, Mo. — Missouri turkey hunters can expect a challenging spring season according to the Missouri Department of Conservation (MDC). The spring turkey hunting season starts with a youth-only weekend April 4 and 5 followed by the regular spring season April 20 through May 10.

MDC Turkey Biologist Reina Tyl expects spring turkey hunting to be challenging.

“A great deal of what makes for a good spring turkey season depends on the hatch two years prior because it affects the number of two-year-old gobblers on the landscape,” Tyl said. “These young gobblers are not associated with hens as often as older, more dominant birds and are the most likely to respond to hunters’ calls.”

Poor production statewide during 2018 will result in fewer two-year-old gobblers available for harvest during this year’s spring hunting season. Tyl added that in 2018, the best production at the regional scale occurred in the northern half of the state. This could potentially translate to relatively more two-year-old gobblers on the landscape north of the Missouri River.

Considering the prospects for the 2020 spring season, hunters should be prepared

to put in a bit more effort to be successful this year.

“When turkey numbers are down, it becomes even more important to spend time scouting for flocks before the start of the season,” said Tyl. “Hunters should get out to their hunting areas as much as possible to listen for birds gobbling at daybreak.”

Tyl noted that hunters should also take the time to learn where turkeys are spending most of their time after they fly down from the roost.

“Use binoculars to spot turkeys feeding in open areas or look for signs of where turkeys have been feeding in the timber,” she said. “This will help hunters be in the right area when the hunting season gets here.”

Although the prospects for this year’s spring season aren’t encouraging, this isn’t the first-time poor turkey production has reduced turkey numbers in Missouri. After reaching a population peak in the early-to-mid 2000s, Missouri’s turkey population experienced four years of poor production from 2007–2010, causing the population to decline. However, Tyl noted that turkey numbers rebounded following several years of improved production.

“In much of the state, we observed improved production during 2011, 2012, and

2014,” said Tyl. “As a result, turkey numbers increased, and hunters generally had better hunting seasons in the years that followed.”

“We are again in a period of poor production and lower turkey abundance,” said Tyl. “We can expect to see the effects on harvest for several years until production improves and turkey numbers rebound.”

GET MORE INFORMATION

Get detailed information on spring turkey hunting from MDC’s 2020 Spring Turkey Hunting Regulations and Information booklet, available from MDC offices and nature centers, other places where permits are sold, and online at huntfish.mdc.mo.gov/spring-turkey-hunting-regulations-and-information

For more information about spring turkey hunting, visit MDC’s website at huntfish.mdc.mo.gov/hunting-trapping/species/turkey

HUNTER SAFETY

Tyl stressed that hunters can easily avoid the main cause of turkey-hunting incidents —mistaking or being mistaken by another hunter for wild game.

“Each year, most turkey hunting incidents typically involve hunters who fail to identify their targets,” said Tyl. “Unless you are certain that what you’re looking at is a wild turkey,

remember that any movement you see or any sounds you hear while you’re hunting could be another hunter.”

She also advised hunters to wear some hunter-orange clothing when moving through the woods or fields, particularly when hunting public land.

“Bringing along an orange hat or vest is an easy way to stay safe”, said Tyl. “Wear one when you’re moving and put it away when you sit down to work a bird.”

Tyl also noted that many turkey hunting incidents involve members of the same hunting party.

“If you’re hunting with someone else and you split up, be certain you know where your hunting partner will be at all times,” she advised.

BRAG A BIT

MDC hunting certificates are great ways to memorialize a hunter’s first turkey harvest. To create free MDC commemorative certificates, go online to huntfish.mdc.mo.gov/hunting-trapping/trophies-certificates/certificates.

Hunters can share photos of their harvests through MDC’s Hunting Bragging Board by using #mdcbragboard when posting pictures to their social media accounts. Learn more at mdc.mo.gov/huntingbragboard.

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A River Ran Through It

WRITTEN BY CANDICE DAVIS

No matter where you look in Missouri's Bootheel, the mighty Mississippi River has left its mark. The river's influence on the landscape of Missouri's southeast region is even more significant when one realizes the area used to be an ocean, said MDC Systems Ecologist Molly Sobotka.

"Since then, the Mississippi has at various times flowed over and through much of the flatlands of the Bootheel, which means most of the soil was deposited here by the river," she said.

At one time, the river flowed through 1.65 million acres of the area, creating a massive swamp. It pushed sediment across the land, creating natural hills in the floodplain and large areas of sandy ground. The history of the river's influence on the Bootheel is what has created the diverse plants and habitat found there. Now, levees protect many of those areas, creating spaces for agriculture and cities, but the remaining wetlands across the Bootheel are still regulated by the flood cycle. Floods flush water, nutrients, sediment, and all kinds of insects and macroinvertebrates into the wetlands.

Fish spawn during floods, and their eggs and offspring often end up in flooded areas where they take advantage of the growing plankton and invertebrates for food. A rich diversity of young fish thrive in the shallow flooded spaces.

These larval stage crappie, bluegill, alligator gar, buffalo, gizzard shad, and other native species

use the flooded spaces. The vegetation slows the water and provides places to hide from predators.

"When they're larger, they'll move into the deeper spaces of the river," Sobotka said.

Above the water, eagles and herons feast year-round on the abundance of fish. The river also acts as a major migratory flyway for songbirds and waterfowl throughout the spring and fall. These birds rely on the river's offerings, including seeds and fruits from riparian plants and an abundance of semiaquatic invertebrates like mayflies, to fuel their trips.

"In spring or summer, you can whack a tree branch and send mayflies swarming, then they'll kind of settle back down to the branch," Sobotka said. "The mayflies are a great source of protein for birds migrating along the river."

While not found in the main channel of the river, amphibians seek safe-haven in adjacent floodplain wetlands and lakes. Five of Missouri's 12 salamander species thrive in the Bootheel. The western lesser siren lives in the sluggish ditches, sloughs, and swamps. By day, it hides under submerged plants, and then forages at night for crayfish, aquatic insects, and worms.

The river has influenced the spread of plants, as well, dispersing seeds across the region. Trees that "like to have their feet wet" do well in the riparian corridor of the mighty river, Sobotka said.

"We have some very cool, flood-adapted species — like bald cypress, water tupelo, and

cottonwood trees — that grow along the river and can be massive," she said.

BOTTOMLAND

HARDWOOD FORESTS

Imagine thick stands of some of the oldest trees in the state. The soil is rich and the trees are accustomed to surviving seasons of continually wet, flooded ground. The canopy is filled with pinoak, bur oak, swamp white oak, sycamore, cypress, and tupelo that darken the light beneath.

These old trees can reach more than 100 feet high and 2 feet in diameter.

"One of the richest habitats in these low areas are the bottomland hardwood forests," said MDC Resource Forester Ross Glenn.

"These are remnants of what the entire region once was, when it was more than 90 percent covered in these forests, with sandy prairies, bot-

continued on page 15B

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Smart conservation strategies for drought

Drought can affect just about any area of the country at any time. Water conservation remains the most important consideration during times of drought. Drought preparedness can make riding out the weather that much easier.

The National Drought Mitigation Center defines drought as “a deficiency of precipitation over an extended period of time.” Drought indices vary depending on geographic location. What would be a drought in one area may be entirely normal conditions in another. Surviving drought that results in a water shortage and impacts quality of life may require government intervention and the cooperation of citizens and homeowners.

Even if drought is not typically accompanied by the kinds of warnings associated with floods and certain storms, it remains dangerous. Statistics Brain reports that, between the years of 1980 to 2014, roughly 19,000 people a year lost their lives due to the effects of drought.

Drought may be most associated with arid regions, but it is not exclusive to deserts. For instance, drought is a problem in Canada, a country often associated with cold weather. As early as the end of March 2017, the Canadian Drought Monitor indicated large areas of abnormally dry conditions in British Columbia, Alberta, Yukon, and Saskatchewan, with smaller pockets of abnormally dry areas in Quebec, Ontario,

New Brunswick, Nova Scotia, Newfoundland and Labrador.

Conserving water is the utmost priority during times of drought. Just a few changes to daily habits can have a sizable impact.

- Check all plumbing for leaks and have any leaks repaired.
- Install aerators and flow restrictors on faucets.
- Choose energy- and water-efficient appliances.
- Install low-volume toilets, which can use less than half of the water of older models.
- Reduce reliance on sink disposals for

getting rid of food waste.

- Never use fresh water when recycled water can be used safely. For example, collected rainwater can be repurposed to water plants and outdoor landscapes.
- Only wash dishes in a dishwasher with a full load.
- Rely on compostable or recyclable paper dishes during times of big water restrictions to cut down on dishwashing.
- Collect “cool” water when heating up the shower or sink water for washing. Use it to clean areas of the home or water plants.
- Decline water at restaurants unless you plan to drink it.

• Spread mulch in garden beds and aerate the lawn to help the landscape conserve water.

- Store drinking water in refillable containers in the refrigerator.
- Install irrigation devices that channel rainwater, or use root-delivery systems to water landscapes more efficiently.
- Cover pools and spas to reduce water evaporation.
- Use a commercial car wash that recycles water.
- Share successful water-saving strategies with others in your community.



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MISSOURI MOMENTS IN NATURE

Note: While conservation facilities including Nature Centers and offices have been closed due to the Covid-19 virus, conservation areas, nature center trails, and boat accesses remain open to the public. Please consider all health and travel advisories before social distancing in nature. You can enjoy the beauty of Missouri's natural places in pictures and video in the Media Gallery below. And learn some fun facts about our two biggest rivers.

The name, Missouri, comes from a Native American tribe and means "town of the large canoes". Our state's history and nature can be explored by water or on land. Below is a highlight of some areas around the state that may be close to home during this time, or planned for a later date.

Near the gateway, St. Louis, guided tours paddle through the confluence of the two biggest rivers in the country, where Lewis and Clark made passage. You may want to plan for a group paddle later in the year and visit the point of confluence on a solo or social distancing trek. For now, you can watch the video below on the journey with an expert guide.

In the Southeast, near Saint Genevieve, the oldest community in the state, are natural areas with canyons and eagle watching along the Mississippi. Hickory Canyons and Pickle Springs Natural Area are rich in plant diversity and scenic beauty.

Bikers cross the middle of the state on the Katy Trail, an old railroad line. Off the Kansas City boulevard path, are miles of trails through woods and waterfalls. Maple Woods Conservation Area has trails through blazing colors in the fall.

Down Branson way, you can catch rainbow trout below the Shepherd of the Hills fish hatchery. You can explore glades once used by baldknobbers at the Ruth and Paul Henning Conservation Area. Fun fact: This land was donated by Paul Henning, creator of the Beverly Hillbillies, and his wife Ruth, whose family business in Eldon, Missouri, was the inspiration for the television show, Petticoat Junction.

For help exploring Missouri, download the Mo Outdoors app and check out some areas for future trips below.

THE BIG RIVERS

Missouri boasts two major world-class, continent-draining rivers: the Missouri

and the Mississippi.

THE MISSOURI RIVER

The Missouri River forms the northern part of our state's western border, then crosses west-to-east through the center of the state to join the Mississippi at St. Louis.

Between its headwaters in Montana and its confluence with the Mississippi at St. Louis, it is 2,341 miles long — the longest river on the continent.

It drains more than 500,000 square miles, including all or parts of 10 states and 2 provinces about one-sixth of the United States.

The Missouri was nicknamed the Big Muddy before there were channels, dams, and reservoirs, back when it carried huge amounts of sediment hundreds of millions of tons per year. Today, the amount is "only" 20 to 25 million tons, as the river is not allowed to change its course and because dams arrest its flow, making silt fall to the bottom of reservoirs.

Today it's still muddy-looking, and the Missouri River contributes more than half the silt that arrives in the Gulf of Mexico, forming the Mississippi Delta, so the Big Muddy nickname is still apt.

THE MISSISSIPPI RIVER

The Mississippi River forms the eastern border of our state.

It is 2,320 miles long, the fourth longest river in the world.

Counting its many tributaries, including the Missouri River, it drains all or parts of 31 states and 2 provinces, between the Rockies and the Appalachians, more than 1,245,000 square miles.

From its upper reaches in Minnesota to St. Louis, the Upper Mississippi is controlled by locks and dams, channels, and wing dikes. The Upper Mississippi is essentially a series of human-made lakes convenient for river transportation, hydroelectric power, and recreation.

South of St. Louis, where the Missouri joins it, the Mississippi widens and flows more freely. The section between the confluences of the Missouri and the Ohio rivers is called the Middle Mississippi.

The portion of the Mississippi that flows south of the confluence with the Ohio at Cairo, Illinois, and Birds Point, Missouri is the Lower Mississippi. A thousand miles downstream from this point, the mighty river meets the Gulf of Mexico.

Learn more about the Mississippi and Missouri rivers in MDC's Field Guide.

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River Ran through it

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tomland lakes, sloughs, and marshes interspersed within the forest,” Glenn said.

The understory is relatively open, with woody vines and shrubs like spicebush, pawpaw, and buckeye. Cavities in the large, aged trees provide shelter for wildlife, including the region’s rare swamp rabbit, which uses snags and downed logs throughout the forest.

Less than 10 percent of the Bootheel lowlands have forest cover. Looking at what southeast Missouri once was helps to understand what is today, Glenn said. The sections of major habitat types — the St. Francis Floodplain, Little River Basin, Mississippi River Meander Belt, and elevated sandy ridges like Malden Ridge, Sikeston Ridge, and Sand Plains — should all be considered when examining the Bootheel’s bottomland forests, he said.

Trees in the St. Francis Floodplain include sweetgum, cypress, elm, water tupelo, and a variety of oak species on slightly higher elevations. The Little River Basin is a longbroad clay-filled area that extends down through the center of the lowlands, flanked by sandy ridges and once dominated by swamps, backwater sloughs, bottomland forest, and open water marshes. Sweetgum, ash, elm, maple, and a variety of oak trees are found there.

The Mississippi River Meander Belt is where the Mississippi River carved through the land over the last several hundred years. Elm, cottonwood, sweetgum, ash, and cypress trees thrive there.

The elevated sandy ridges of Malden Ridge, Sikeston Ridge, and Sand Plains rarely flood and the sandy soils play a major role in which plants survive. Forests in these higher areas look like the upland areas of the state, filled with sweetgum, oaks, elm, hickory, and dogwoods.

SANDY PRAIRIES

Southeast Missouri conjures thoughts of swamps and bottomland hardwoods, but not necessarily prairie habitats. However, slight variations of elevations and the right soil make a completely different Bootheel habitat — the sand prairie.

Sand prairie is rare in Missouri. The 200-acre Sand Prairie Conservation Area (CA) in Scott County is one of the last remnants of sand-filled land. At 330–340 feet above sea level, it is one of



Wetlands
David Stonner

Photo by MDC Staff, courtesy Missouri Department of Conservation.

the lowest spots in the state, but in the Bootheel, it’s one of the more “upland” areas. Sand prairies were created by the Mississippi and Ohio rivers, Sobotka said.

“As the rivers flooded, they pushed sediment out of their banks and into natural hills in the floodplain, creating large areas of sandy deposition,” she said. Due to the harsh, dry conditions and low soil fertility, few trees thrive in the sand prairies, according to Natural History Biologist Kevin Brunke, manager of Sand Prairie CA. However, in some places, sand prairies give way to sand savannahs and dry sand woodlands, where post oak, black jack oak, black hickory, and mockernut hickory dominate. Some species, like sand hickory, are only found in these sandy, sparsely forested habitats.

“Plants that thrive in sand prairies must endure the harsh conditions provided by easily eroded soils that are dry for much of the year,” Brunke said. “When you go to the sand prairie, it doesn’t look like a typical Missouri landscape. You’ll see split beard bluestem, tickseed coreopsis, eastern prickly pear, snout bean, dotted beebalm, and plains puccoon. These plants are up for the challenge of the less fertile soil.”

The prickly pear, typically thought of as belonging in deserts of the western U.S., thrives in the sand prairie. Plants like dotted beebalm and snout bean are restricted to these sandy habitats, causing

them to be species of conservation concern.

Like sand-selective plants, wildlife in a sand prairie thrive for specific reasons. Many grassland birds, like eastern meadowlarks, dickcissels, northern harriers, and northern bobwhites use sand prairies, as do some species of conservation concern, like dusty hog-nose snakes, Illinois chorus frogs, and northern scarlet snakes. On warm spring nights, Illinois chorus frogs can be heard

near wet swales in an otherwise sandy landscape.

MDC uses prescribed fire to help maintain the area’s biodiversity, Brunke said. Fire allows certain species to flourish while setting back other species that creep in where they don’t belong.

continued on page 16B

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River Ran through it

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“Without fire, trees would also encroach on the prairies in some places, shading out many of the sun-loving species of native grasses and wildflowers,” he said. Just months after a prescribed fire, the native wildflowers and grasses on the area emerge lush and thicker than before. Managers also collect seeds from plants on the area for restoration efforts elsewhere.

Sand Prairie CA is one of the few remaining public sand prairie habitats. Many historical sand prairies are now being farmed. Center pivot irrigation systems allow successful farming of the sandy soils, while leaving the nonirrigated corners of fields available for prairie restoration. Game species like eastern cottontails and northern bobwhites can use these corners, forming an important partnership between farming and conservation, Brunke said. Also, the plant diversity in these dry, sandy corners provides excellent habitat for pollinators.

WETLANDS

Each spring and fall, snow geese tornados — flocks of hundreds of thousands of snow geese — descend on the region’s wetlands to take advantage of the smorgasbord of marsh plants.

The Missouri Bootheel was once an expansive swampland, consisting of 1.65 million acres of bottomland forests and herbaceous swamp, said MDC Wetlands Ecologist Frank Nelson. The re-

maintaining tracts of wetland habitat — nearly 84,000 acres — span several MDC conservation areas, Big Oak Tree State Park, and Mingo National Wildlife Refuge, as well as private land enrolled in the Wetland Reserve Easement Program.

THESE WETLANDS ARE MAGNETS FOR OUTDOOR ACTIVITIES.

“Whether it’s hunting, fishing, birdwatching, or just enjoying the sights and sounds, there is always something to experience in a wetland, and it is likely going to be different from your last outing,” Nelson said.

Missouri’s wetlands are hotspots of natural diversity and top the list of locations with the most documented bird species, which reflects the diversity of other species as well.

Wild game, including deer and turkey, take advantage of the wetlands’ abundant food, cover, and water. Twice a year, songbirds, shorebirds, waders, waterfowl, rails, and others migrate to and through Missouri’s wetlands, stopping to rest and refuel for the next leg of their seasonal journey. During the summer months, a variety of songbirds, ducks, marsh birds, and wading birds use Missouri’s rivers, sloughs, and marshes to breed and raise their young.

“Below the water and under the leaf litter there are smaller, more cryptic creatures that also rely on these wet-dry habitats,” Nelson said. “Salamanders, frogs, snakes, and turtles rest and reproduce using a mosaic of wet and dry habitats in close juxtaposition.”

Periodically, through wet cycles, fish move into other wetland habitats and take advantage

of the flooded bugs and leafy cover for food and refuge before moving back into adjacent rivers and streams. At an even more discrete and hard to discern scale, the base of the food chain is anchored by a host of terrestrial and aquatic invertebrates that move the ecological gears of decomposition and pollination.

“At the end of the day, these dynamic locations are a dizzying array of diversity, which is truly special,” Nelson said.

A RIVER STILL RUNS THROUGH IT

Southeast Missouri’s rich legacy of habitat and wildlife diversity has changed over time. Despite levees and channels that drain excess water away

from roads and fields, the mighty Mississippi River continues to influence the region.

“It’s a love-hate relationship with the flooding,” Sobotka said. “On one hand, the flooding does cause real hardship to us in so many ways. On the other, as I look out across all that mass of water, I can’t deny a little excitement for the equally massive amount of life that is abounding underneath.”

That life, in the form of fish, plant, and amphibian species crossing what would normally be a hard boundary, as well as nutrients spreading throughout the area, will trickle into richer soil and an even greater abundance of wildlife to enjoy.




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10% OFF MSRP UP TO \$1,500 + 2 YEAR WARRANTY
VALID ON ALL 2020 RANGER 1000 AND RANGER XP 1000 MODELS



Precision Water & Power Sports

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Polaris Ag Advantage: This offer is valid through April 30, 2020. Valid on any new and unregistered 2020 RANGER 1000 and RANGER XP 1000 Models. This offer cannot be combined with Polaris National Sales Event offers and is not stackable with other exclusive coupon offers.
Polaris Heroes Advantage: Restrictions: This offer is valid through April 30, 2020. Valid on any new and unregistered 2019 and 2020 RANGER, RZR, Sportsman and General models. Youth models are not valid. Only RANGER models qualify for the extra two-year warranty. RANGER EV and High Lifter models are not eligible for the extra two-year warranty. This offer is not applicable in Canada. This offer cannot be combined with Polaris National Sales Event offers and is not stackable with other exclusive coupon offers.
WARNING: Polaris® off-road vehicles can be hazardous to operate and are not intended for on-road use. Driver must be at least 16 years old with a valid driver's license to operate. Passengers, if permitted, must be at least 12 years old. All riders should always wear helmets, eye protection, and protective clothing. Always use seat belts and cab nets or doors (as equipped). Never engage in stunt driving, and avoid excessive speeds and sharp turns. Riding and alcohol/drugs don't mix. All riders should take a safety training course. Call 800-342-3764 for additional information. Check local laws before riding on trails. ©2020 Polaris Inc.