



A rainbow of native flowers. From left to right; cardinal flower (by Kristine Lochart), butterfly weed (Elizabeth Gill), black-eyed susans (Andrew Rimel), Virginia bluebell (DNR staff), and spiderwort (Andrew Gosden). From photos submitted to the DNR Photo Contest.

"If you look the right way, you can see that the whole world is a garden."

~ Frances Hodgson Burnett

Happy summer to all who enjoy sunshine! To those of us less inclined to experience the radiative effects of the hot anger ball, we continue our exploration of the more mild large astral body with an article about Summer Moons. Some of us may find joy in cool streams on these hot days, and for them in particular we've written about crayfish, or crawdads, or crawfish (take your pick, there are enough names to go around!)

Speaking of wildlife, the State Wildlife Action Plan (SWAP) final draft is complete, and we'd love to share the blood, sweat, and tears that went into this massive undertaking! If you're looking for something a little lighter (or just a way to entertain yourself or even out-of-school kids), read up on our DIY Wildlife Houses and decide if any of them are right for your space.

Team Habichat

In This Issue:

Moon Mythology and Maryland Wildlife: Summer Moons

Learn how the full moons receive their nicknames, and maybe consider creating our own. This modern folklore gives us an excellent opportunity to learn more about both the night sky and Maryland's wildlife!

Natural Heritage Program Spotlight: The SWAP

How should we as Maryland citizens work collaboratively to protect rare species and keep abundant wildlife from becoming rare in the future? DNR's Natural Heritage Program staff and community stakeholders across the state have been working tirelessly to tackle this challenge. We are proud to share that the final draft is complete!

Native Animal Profile: Crayfish

This creek critter is uniquely charismatic and still quite common despite the increase in threats to its survival. Whether you call it crayfish, crawfish, mudbug, crawdad, freshwater lobster, or another of many common nicknames, this humble crustacean is often seen but not often fully appreciated.

No Place Like Home: DIY Wildlife Houses

Looking for some hands-on activities when it gets hot outside? Stay cool and let your wildlife neighbors do the same with these inside projects designed to make the outside a little more homey! Great activities to share with kids!

Moon Mythology and Maryland Wildlife: Summer Moons

By Katy Gorsuch



Assateague at Night by Rick Dove, DNR Photo Contest 2020. The next full moon after this photo was taken would have been the full Buck Moon, on July 5th in 2020.

Continuing our exploration of the diverse and wonderful ecology of Maryland, we turn to the warm summer full moons and all they represent!

As with [winter](#) and [spring](#) moons, summer full moons have folk names often in alignment with animals responding to the changing seasons, or locally important events. Recorded in English as far back as 1722, indigenous peoples named the full moons, although some are more recently derived.

Full moon names varied widely depending on geographic location and language family amongst Native Americans. For example, in some locations one full moon might be named “Goose Moon,” while in another location the same time period could be the “Cold Moon.” The practice of naming moons this way doesn’t seem to have been historically universal, and in the centuries since moon names were first recorded by colonists, misinformation has proliferated. For our purposes, we use supposed Algonquian full moon names as a starting point to explore Maryland’s unique wildlife, and how the seasons change!

Summer Moons:

July

Buck Moon



Photo by Matthew Doged, submitted to the 2016 Maryland DNR Photo Contest. The buck in this photo, taken in late August, shows what may be close to the full extent of his seasonal growth, but still retains the velvet indicative of growing antlers.

This moon is often called the **Buck Moon**, which is attributed to the time of year wherein antler growth of deer is at its height. Unlike many moon names, we have evidence that this name is likely to have been used locally; the name “the Moon of Stags” [appears in a 1722 printed text](#) called “A history of Virginia, in four parts.”

When European colonists first arrived in what is now known as Maryland, there were two native species of deer (family Cervidae) that lived in the area. Today, we are familiar with [white-tailed deer](#) (*Odocoileus virginianus*) as the sole native species in the state, but at the time elk (*Cervus canadensis*) were also common. [Sika deer \(*Cervus nippon*\)](#), a Japanese elk species, would be introduced on the lower Eastern Shore in 1916 by Clement Henry.

Elk were extirpated (locally made extinct) in Maryland [by 1874](#), and in neighboring Pennsylvania [in 1877](#), but the ghosts of the species remain in the names of many Maryland towns (e.g., Elkton, Elkridge, Elk Neck, etc). Although the subspecies of American elk that lived on the East Coast [was driven to extinction](#), the species as whole survived thanks to Western populations.

The names of many members of Cervidae get confused frequently; in North American English, “elk” is used to refer to *Cervus canadensis* (also called “wapiti” based on Cree and Shawnee linguistic tradition, which fall into the Algonquian language family). The

word in British English was originally used to refer to moose (*Alces alces*). While the name “moose” comes from Algonquian, the word “elk” likely originates from proto-Germanic languages (dating back to as early as 500 BC). The rune [alzig \(also called elhaz\)](#) is from the Elder Futhark runic alphabet, translates as “elk,” and appears as a vertical line with three tines reaching upward. This is consistent with the appearance of the European moose, who have more branching antlers than North American moose.

Elk and white-tailed deer both [shed their antlers every year](#), regrowing them starting in the spring. Unlike caribou (aka reindeer), only male elk and white-tailed deer generally grow antlers ([females with certain hormonal differences](#) sometimes grow small antlers). Antler growth is a nutrient-intensive process, requiring significant calories, and the antlers are protected during this period by a soft layer called the “velvet.”



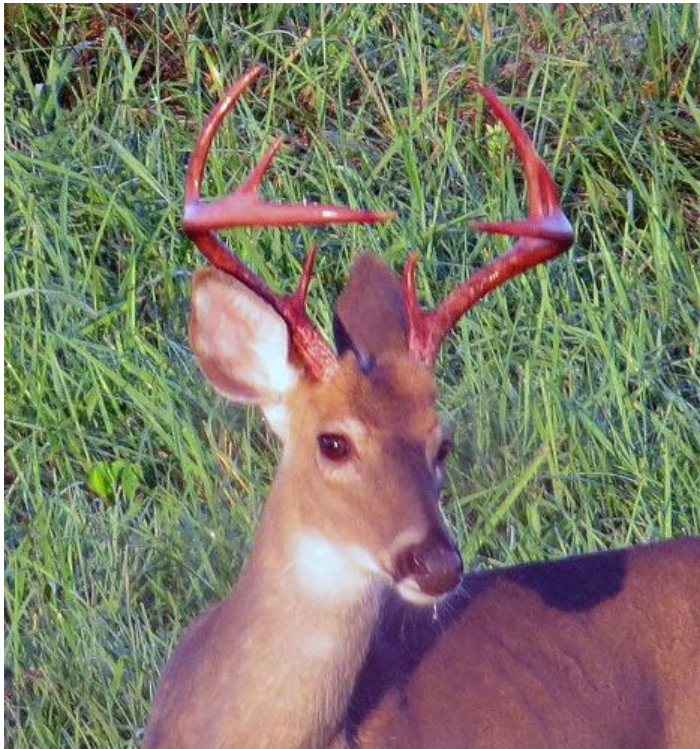
A White-tailed Deer that recently shed its antlers in Montgomery Co., Maryland (2/11/2020), by Bonnie Bell [Via Maryland Biodiversity Project](#).

The antler in this stage is “precalcified,” beginning as cartilage before bone tissue develops, so is softer than it will be later in the process. The velvet layer is important; during the growth period, the bone itself is full of blood vessels, needed to supply the growing sections with minerals and blood cells that grow the bone. Injuries that occur to antlers while in velvet may cause them to develop abnormalities.



Velvet on moose antlers by Karen Laubenstein, US Fish and Wildlife Service

Later in the season, generally in September, antlers solidify and blood flow is cut off, causing the velvet to dry up and fall off. It can result in an alarming, “gnarly” look, but the process is over quickly, [often taking less than a day](#). It’s possible that the growth process for antlers, and the shedding of velvet, is an itchy one; many humans can relate to both the itch of dead skin and the discomfort of growth during adolescence.



A male white-tailed deer in Howard County, taken by Jeff Culler (9/14/2016). [Via Maryland Biodiversity Project](#). This deer has recently shed its velvet.

Suggested Buck Moon Activities:

Make your own antlers with aluminum foil, wire, and an outer layer of fabric or clay. While shed antlers are legal to collect ([see Maryland's shed policy here](#)), we encourage Marylanders to leave shed deer antlers in the environment to provide much needed mineral sources for other wildlife.

Sign up for a [mentored hunt](#) or a **[Becoming an Outdoors Woman \(BOW\)](#) workshop**; hunting remains a key control measure for the deer population in Maryland. In the absence of gray wolves who historically kept the population at stable levels, humans have taken their place as deer's primary predators. If hunting isn't your thing, BOW workshops also include many other outdoor activities and opportunities to learn new skills.

Regardless of interest in hunting, give some thought to [archery](#) via the **Maryland National Archery in Schools Program**. Archery is a skill that helps hone patience, physical stamina, and concentration, and as school approaches again, finding a youth sport that is unique and rewarding without the stress of team expectations can be a relief for many young people.

Read more about antler development and its intriguing cycle [on the DNR website](#), and about [Maryland's deer here](#)!



Blue Skies by Yazan Hasan, submitted to the 2020 Maryland DNR Photo Contest.

August _____ Sturgeon Moon

August is often called the **Sturgeon Moon**, allegedly because it was a time of year known among Great Lakes peoples as a time of abundant fishing of lake sturgeon (*Acipenser fulvescens*). For European colonists living along the Atlantic Coast, [Atlantic sturgeon](#) (*Acipenser oxyrinchus*) and shortnose sturgeon (*Acipenser brevirostrum*) were important food sources, with remains of countless sturgeon being [found in the Fort in Historic Jamestowne](#).

Sturgeon look like dinosaurs, so it's no surprise that they trace their origins back to [the Late Triassic](#) period, although the earliest fossil of a sturgeon may be from the Jurassic period. The fish are scale-less, instead sporting hard "scutes" that act like a kind of armor to protect the slow-moving and slow-developing fish. Like many other animals with slow metabolisms, they prefer colder temperatures, can grow to large sizes, and can live 70-100 years, [a long time for a fish](#).



Skeletonized Atlantic Sturgeon on beach at Parker River National Wildlife Refuge. U. S. Fish and Wildlife Service - Northeast Region. The bony plates called scutes are fully on display.

Most sturgeon species have the ability to reach incredible sizes; the record is held by a beluga sturgeon (*Huso huso*) caught in 1827, which reportedly was 23 feet long and weighed more than 3,000 pounds. The Atlantic sturgeon ranges a modest 6-8 feet at maturity, although individuals have nearly doubled that size, the largest coming in at [14 feet and 800 pounds](#).

These fish reach sexual maturity a decade into life, and in some places not until their 20s, and don't breed every year. Subsequently, it becomes hard for them to replenish their numbers when populations decline. A combination of overharvesting, pollution, and restriction of habitat has created a massive population loss in the giant prehistoric beasts. Today, Atlantic sturgeon and the smaller shortnose sturgeon are both Federally and State Endangered. You can read about the Department of Natural Resources [efforts for conservation here](#).



DNR and New York Aquarium staff help transfer sturgeon in 2018. Photo by Julie Larsen Maher, Maryland Department of Natural Resources.

Suggested Sturgeon Moon Activities:

One of the hotter parts of the summer is always a great opportunity to **visit the [National Aquarium](#)** to see the pallid sturgeon in their care and learn about conservation efforts that have been undertaken to restore habitat in the Chesapeake.

Join a river cleanup to get outside and get involved in habitat restoration! Check with your [local state park](#) to see what volunteer opportunities are available.

If you'd like to make a difference for the habitat of Atlantic sturgeons and all the other beautiful and unique animalian Marylanders that call our waterways home, you can get your yard certified as wildlife habitat with the National Wildlife Federation [through the National Aquarium](#), or a [Bay-Wise certification](#) through UMD Extension.



Cornfield Sunset by Monica Hawse, submitted to the 2015 Maryland DNR Photo Contest.

September

Harvest Moon, Barley Moon, Corn Moon

September's full moon has many names, both contemporary and older, and often they center around the harvest of crops. The name **Corn Moon** was recorded in 1722 as used by native peoples of Virginia, although it is unclear whether this is meant to be August or September.

In contemporary times, the full moon closest to the autumnal equinox is known as the **Harvest Moon**, which can occur in September or October.

Much has been written about the history of corn in the Americas, so perhaps a better focus for us is the underappreciated [corn snake](#) (*Pantherophis guttatus*).



A Red Cornsnake in Howard County (7/26/2015), by Bonnie Ott, via [Maryland Biodiversity Project](#). Any snake with a round pupil in Maryland is harmless.

[Corn snakes](#) are so named both for their habit of frequenting corn fields (to eat the mice) and for a distinctive mottled pattern they often sport on their bellies that resembles the calico or checkered appearance of traditional [flint corn](#). Due to their breeding for a wide range of color variations (called morphs), they are popular in the pet trade. These harmless snakes are often mistaken for copperheads, due to their vivid colors. Unfortunately both the non-venomous corn snake and the shy copperhead are victims of misplaced alarm – either way, it is illegal to kill any snake in Maryland.



Corn snake showing the mottled or irregular checkerboard pattern on their belly at Chattahoochee Nature Center by muffinn from Worcester, UK, [CC BY 2.0](#), via Wikimedia Commons

Like many snakes, corn snakes are generalists; they can eat a wide variety of foods depending on what's available, as long as it's meat. This can mean anything from small

rodents to smaller snakes, frogs, bats, and insects. While they are not as good at climbing as their central ratsnake relatives (*Pantherophis alleghaniensis*), they have been known to climb trees to eat out of nests. Interestingly, a [2015 study](#) showed that of four species observed eating via nest predation (eating eggs or nestlings directly from the nest), corn snakes were the only species to eat this way exclusively at night. This is possibly a conflict avoidance technique, as another behavior noted by the researchers was that the corn snakes would avoid striking at the sleeping adult birds, favoring to simply push them off the nest or wiggle underneath them.

Corn snakes in the wild are a non-aggressive species, making them a welcome partner for corn fields, or during any harvest season. In September, many snakes are preparing for brumation (the reptile version of hibernation), and taking advantage of whatever sunny days are left to bask!

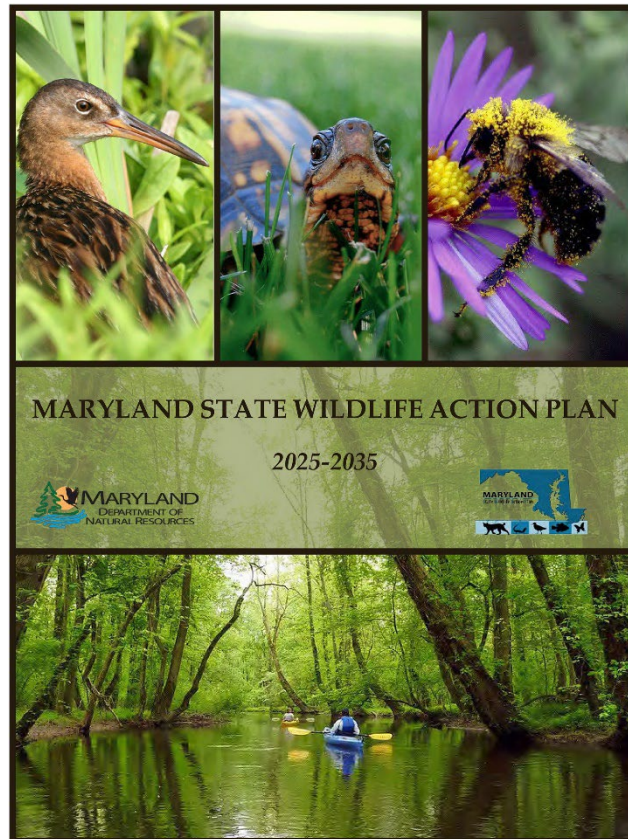
Suggested Corn Moon Activities:

[Learn the patterns of Maryland snakes!](#) Or at least the [venomous ones](#); this can help you and others from mistaking a harmless corn snake for a snake you should avoid. Teach at least one other person the patterns of these snakes, and remember that the patterns are more important than the colors for identification.

For an additional resource, the Wildlife and Heritage Service finished an intensive update of our reptiles and amphibians of Maryland poster series! [The series is free to download](#), or [available as print copies in the DNR store](#)!

Natural Heritage Program Spotlight: The SWAP!

The tagline of the 1990s television show *Captain Planet* told kids weekly, “the power is yours!” Just like those cartoon characters, you can help make a plan to save the Earth from environmental danger. Maryland’s State Wildlife Action Plan (SWAP) is a real-life Planeteer challenge: How should we as Maryland citizens work collaboratively to protect rare species and keep abundant wildlife from becoming rare in the future? Natural Heritage Program staff and community stakeholders across the state have been working tirelessly to tackle this challenge. We are proud to share that a final draft is complete!



Every ten years, all fifty states and the District of Columbia are required to update their [SWAP](#). The plan is meant to serve as a non-regulatory guiding document for conservation efforts concerning the state's Species of Greatest Conservation Need - including all shapes and sizes of wild animals and plants - and the habitats where we find them. The last SWAP cycle was completed in [2015](#). The updated SWAP was due and submitted to the federal government on May 1, 2026. Compliance is necessary for states to access State Wildlife Grant ([SWG](#)) funding, which funds a large chunk of non-game species conservation work [nationwide](#). According to the US Fish and Wildlife Service, these funds are used “for improving public and private lands, ensuring the availability of sufficient habitat for species, and providing quality recreational experiences for outdoor enthusiasts of all kinds.” Examples of funded efforts include research, fish and wildlife surveys, species restoration, habitat management, and monitoring. States must also match 25-35% of those funds, and for Maryland that funding often comes from the

[Chesapeake Bay and Endangered Species Fund](#). Anyone can donate to it on their tax return each year.

“Let our powers combine!” ~Captain Planet

Writing a plan to protect a bright future for all wild things in Maryland is not an easy task - and not to be undertaken alone. Expertise and experience is spread around like cottonwood seeds in a state like Maryland, so the invitations to discussion were designed to be as inclusive and comprehensive as possible. To capture the big picture of the work being done, a lot of people needed to get together in the same rooms and talk to each other, from government agencies to nonprofit organizations, business owners to community groups. More than 30 meetings were held in 2024 and 2025 to prepare for the 2026 SWAP submission, with more than 250 people involved in its development from more than 100 organizations. Once all those insights and contributions were gathered, they all had to be boiled down into one hefty document (almost 500 pages with 13 appendices), edited meticulously, and then opened up for [public comment](#).

As it reads in the SWAP Acknowledgement section: “Ultimately, it is the citizens of Maryland who will reap the benefits of the direction of Maryland’s State Wildlife Action Plan. It is to them that these efforts are dedicated. [We thank] the citizens of Maryland for their input during the revision process and for the public appreciation of Maryland’s wildlife that drives statewide conservation efforts.”

For the 10 years until the next update, everyone who works in wildlife conservation in Maryland will have collaborative data in a statewide plan to point to as they prioritize projects, justify next moves, and plan for the future. Even hobby naturalists can check up on their new favorite [rare species](#) and see what we have planned to do to help. And the priority any conservation activity conducted by the department can be confirmed against the SWAP.

The final version will be available [on the Maryland DNR website](#) upon approval from US Fish and Wildlife Service.

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A snapshot of the contents of the SWAP.

Native Animal Profile: Crayfish



A biologist holds up a crayfish found in the Patapsco River. Maryland Department of Natural Resources photo

Most of us who have played in shallow water or let our children play in Maryland streams and pond, vividly recall an encounter with a crayfish. It's usually hiding under a rock, hurriedly scampering along a sandy stream bottom, shooting quickly backwards away from disturbance, or angrily shaking small claws at us as we pluck it out of the water. This creek critter is uniquely charismatic and still quite common despite the increase in threats to its survival. Whether you call it crayfish, crawfish, mudbug, crawdad, freshwater lobster, or another of many common nicknames, this humble crustacean is often seen but not often fully appreciated.

*Did you know? The scientific study of crayfish is called Astacology, from the Greek word *astakós* (ἄστακός) which means crayfish or lobster, and *Astacus* - the Latin genus name for European crayfish.*

[Maryland](#) is the proud home to a total of [14 species of crayfish](#), nine native species in four genera, and five introduced or invasive species. We've got just a small piece of the species distribution pie, with [more than 640 species](#) total found globally. The southeastern United States boasts a hotspot of global diversity, with [more than 370](#) species dwelling in our ideal freshwater ecosystems. Crayfish and lobsters don't just look alike – they are closely related even though crayfish are found in freshwater and lobsters prefer saltwater. A classroom [dissection](#) or perusal of a field guide or [key](#) will demonstrate the many nuances of their complex anatomy. They have ten legs, two of which are claws (called chelipeds, and often lost in battle), strong abdomens for speedy backwards swimming, and feathery gills for breathing underwater. Sometimes you'll

encounter one that's soft and squishy, having just molted its exoskeleton to allow for growth, get ready for mating, or in response to environmental stimuli. The [largest crayfish](#) in the world are quite impressive, growing over two feet long, but these hefty specimens do not dwell in our part of the world; our largest species max out at closer to five inches.

As a keystone species, crayfish hold an important place in the center of freshwater ecosystems. Like beavers, crayfish are widely considered “ecosystem engineers.” They physically modify their environments by foraging, substrate restructuring, and burrowing; three of our Maryland species build characteristic “chimneys” when they burrow in the mud. These movements and behaviors influence sediment, water, and nutrient flow, creating microhabitats and increasing overall biodiversity. Crayfish serve as omnivorous scavengers and predators, eating just about anything they can grab, other animals’ leftovers, and sometimes even each other! As prey, they feed many hundreds of other species, composing a large part of the diets of countless fish, reptiles, birds and even some mammals. Humans like to eat crayfish too, and we can catch them via various methods here in Maryland with [a fishing license](#). The US [crayfish industry](#) is valued at more than \$200 million annually.



A kingfisher snacks on a crayfish.

Despite the appearance of abundance in our local streams, crayfish are in fact one of the most vulnerable groups, with a [high percentage of overall species listed as imperiled](#) or rare. The Endangered Species Act came about in 1973, but it wasn't until [the late 1980s](#) that any crayfish were recognized and listed for Federal protection. Right under our noses in streams all over

Maryland, many native crayfish are struggling to survive under heavy pressure from invasive species. Unlike most other imperiled animals, local population declines are influenced more by non-native crayfish introductions than habitat loss. These animals have been moved around extensively, introduced all over the world via [released bait](#) and aquarium pets, as well as some intentional stocking for food or biocontrol purposes. Like other invasive species, they compete with and often introduce disease or hybridize with the native species, causing a severe and rapid decline in biodiversity. Contrary to popular belief, more prey items for fish doesn't necessarily mean more fish for fishermen. Studies have shown that invasive crayfish can hurt recreational fisheries and create negative economic impacts.

Though we may have been the cause of the crayfish's population decline, we can also be a major contributor to their recovery! Here's how:

- **NEVER release bait animals (alive or dead) or any pet into the wild, or move wild animals from place to place.**
- Create a great crayfish habitat in your backyard! If you own property with a stream or [pond](#) (or even a drainage ditch), plant your buffer areas with [native plants](#). Even if you don't have water in your yard, every Marylander lives [within 15 minutes](#) of a stream. Planting natives will increase water quality and keep water temperatures cooler in our changing climate.
- Give crayfish some love. Teach your friends what you've learned! If you're a teacher, [help students understand](#) aquatic invasive species.
- Don't have them in your yard, but want crayfish on your wall? Download our free PDF or get a poster! <https://dnr.maryland.gov/wildlife/PublishingImages/crayfish.jpg>
- Do you like to eat crayfish? Get a fishing license, learn to [identify them](#), and go catch some invasive crayfish for dinner tonight (consider a side of [garlic mustard pesto](#) pasta and [wineberries](#))!

Fact sheets on invasive crayfish:

<https://dnr.maryland.gov/invasives/documents/virilecrayfish10.pdf>

<https://dnr.maryland.gov/invasives/documents/rustycrayfish10.pdf>

<https://dnr.maryland.gov/invasives/documents/redswampcrawfish.pdf>

<https://dnr.maryland.gov/invasives/documents/southernwhiterivercrawfishfactsheet.pdf>

No Place Like Home: DIY Wildlife Houses for Home Habitats, Gardeners, and Kids

By Katy Gorsuch

If you're anything like me, you spent much more time as a kid carefully constructing homes for roly pollys (aka isopods) than you did playing sports. And there's no reason that should stop! Below are a selection of houses you can build for our wildlife neighbors, each with a difficulty rating based on the time and materials needed to put them together (Note: if you need to change the size, you can use the same scale).

Toad Abode



Create Your Own State Park, 2020

Toad Abode

Rating: Easy, 1 out of 5 Slugs

Materials: a flower pot or a bowl or some rocks or an old birdhouse (or anything else that works where you are and with what you have)

A home for a toad, or a “toad abode” is one of the simplest wildlife homes you can put together! The goal is to create a spot that is cool, shaded, and on the ground, in whatever form that takes. If this is going to go in a sunny spot in your space, choose materials that don’t heat up much, like ceramic, or tuck the house back underneath bushes or shrubs.

Some ideas:

- A rock cave: Take some conveniently shaped rocks (or bricks), and securely arrange them to make a small cave.
- A broken flower pot: Sand down any sharp edges to make sure a thin-skinned amphibian doesn’t cut themselves. Other options include digging down into the earth to make a hollow depression and simply flipping an intact flowerpot upside down, providing a space for a frog or toad to enter with no work on your part.
- A tree frog palace: PVC pipes provide a sleeping place for tree frogs during the hot day times, and a 90° turn piece can help prevent tree frog hideaways from flooding in the rain. The base should be soil, for digging down if necessary, and the top layer of gravel prevents soil from overflowing the edges of the bowl when it rains.



A PVC pipe palace for petite pollywogs (just kidding, it's for adult tree frogs). Katy Gorsuch, 2024.

Be aware that predators can learn that these abodes are a reliable source of snacks. Keep the cats indoors and put the houses away if it seems like they are becoming a fast food stop!

Any materials that are durable enough for outside, while also being kind to your animal neighbors (i.e. not sharp, and avoiding plastic that may leach microplastics), is a usable material to make a toad abode!

Bee Hotel



*Bee hotel for native bees. MD Coastal Bays Tour, Chincoteague Bay with Ocean City Inlet.
Photo: Anthony Burrows*

Bee House/Bee Hotel

Rating: Medium, 3 out of 5 Flowers

Materials: a weather-proof container and some hollow reeds (dried bamboo is perfect for this, and often readily available when homeowners cut back the invasive species) *or* a block of wood and a drill *or* some bare ground

There's been a lot of conversation in recent years around the decline of bee colonies, but solitary [native bees](#) are often left out of the discussion. Only [about 10% of North America's 4,000 bee species live in hives](#)! This means the *vast* majority of our native

bees are solitary, and so need somewhere to care for their young (or at least drop them off).

Some options:

- Wood block: Drill holes in an untreated wood block. Holes should range from 3/32 - 3/8 inches in diameter, with holes smaller than 1/4 inch in diameter being 3 - 4 inches deep, and holes larger than 1/4 inch being 5 - 6 inches deep ([Xerxes Society Guide](#)). The variation in these sizes is based upon the different bee species who will use the holes as nesting sites.
- Reed bundle: Using only materials not treated with pesticides, cut lengths of hollow reeds and or bamboo to 6 - 8 inch lengths. Arrange them in a bundle in a container, then put the container on its side so the reeds are horizontal. Stem-nesting bees will lay eggs with a mixture of pollen and nectar food for when their larvae hatch, then close the cell and lay another egg. It's best to change out the reeds on a yearly basis to minimize loss of the baby bees to nest predators and parasites. The best time to do this is after bees have emerged from hibernation in the spring (after the weather has been consistently above 50°F for several days in a row).
- Bare ground: The easiest way to support native bees is to simply clear some bare ground. 70% of native bees are ground nesters, and will simply burrow to lay their eggs. A patch that is in sunlight for at least part of the day will provide warmth that will encourage nesting, and ensuring it is away from regular foot traffic keeps the peace between humans and our flying friends. Soil type will dictate what kind of bees burrow there! Remember not to treat this soil with pesticides to avoid hurting the baby bees.
- Native plants: An even easier way to provide bees with nesting habitat is to plant pithy native flowers! This is the natural home for stem-nesting bees, so simply leaving them to dry in the fall allows them to have a nest site for their overwintering babies. Don't cut the plants below 18 inches before spring, when the ground warms up and native bees awaken from hibernation. Some examples include joe pye weed, goldenrod, wild bergamot, and swamp milkweed. [Read Find more examples here!](#)

Secure any of these nesting sites out of major weather, but somewhere where it can get partial sun (east and southeast-facing work best)

To read more, see the Xerxes Society [Save the Stems](#) brochure and their [Nests for Native Bees](#) guide, and our [own guide for Bee-Friendly Backyards!](#)

Bat Box _____



*Bat house, St. Louis Zoo, St. Louis, Missouri, 2006.
Robert Lawton, via Wikimedia Commons, [CC-BY SA 2.5](#)*

Bat Box/Bat House

Rating: Intricate, 5 out of 5 Moths

Materials: untreated wood, nails or screws, potentially a saw, measuring tape, sand paper or dremel

Some wildlife houses are for raising babies, others are shelters for sleep, but a bat house can take either role depending on its location! Spring and summer are the times bat houses are most likely to be used, and whether they're used by nursing mothers raising pups, or bats without pups, depends on the internal temperature. Bat houses in locations that get early sun warm up a house for babies who have been left alone overnight while mother bats hunt. Meanwhile, bats without pups tend to prefer a house that warms up in the evening, as this will allow them to maintain a cool torpor through the day until it is time to exit their roost to hunt.

See the [bat house plans here](#) (rocket boxes are especially favored by temperate bats) and Bat Conservation International's Guidelines [here](#) for additional (and *useful* advice).

When building your bat house:

- Use untreated wood: Bats groom by licking themselves, and may ingest chemicals from treated wood.
- Bat boxes should be tall: Bats prefer roosting in spaces where they can find a wide variety of temperatures and humidities (called microclimates), so their tiny bodies get neither too hot nor too cold.
- The more boxes the better: Multiple locations nearby mean bats can leave for a nearby roost if needed due to predators or temperature needs.
- Attach 10-16 ft from ground to bottom of house: Bats “drop and fly” to leave their roosts, and this gives space to do so.
- Make sure there's a lip extending from the bottom: This is how bats will enter; bats land on a rough surface and use their thumbs to crawl upwards into their shelters. So, either ensure the lip is roughed up with sandpaper, or use a dremel to carve horizontal grooves to allow them to climb in! Avoid using mesh, as this may detach and trap a roosting bat.
- Make sure the house doesn't overheat: High heat indexes can cause problems for tiny bats; ensure the location for the house isn't in direct sunlight for too many hours at a time, or install a sunshade that you can deploy on hot days!