

AMERICAN TOAD

updated 03/17



Range	Found throughout eastern United States and Canada
Habitat	Habitat generalists that can live anywhere with moist hiding spots or vegetative cover and a food/water source. Within their range, they can be found from forests to suburban yards and anywhere in between. During the winter, they only need moist soil and cover to bury themselves in to stay moist and keep from freezing.
Diet (wild)	Adults are carnivorous and eat a variety of insects and invertebrates. They have been known to eat anything that they can fit in their mouths. They extend their very sticky tongues to catch their prey. These toads are well known for their ability to eat huge numbers of insects and are welcome in many gardens to keep pest numbers down.
Diet (captivity)	
Description	Length: 4½ inches. Large, usually chubby toad. Color varies but they are usually brown, brick red, or olive-colored. They have lighter colored patterns on their bodies along with brown spots. All American toads have warts and some have a light stripe down the back. Both male and female toads have light colored, spotted bellies but males have darker throats.
Lifespan	Wild: most live only a year but can live up to 10. One documented toad lived for 36 years.
Reproduction	The female will release 3,000–20,000 eggs into the shallow water where the male will fertilize them (external fertilization). The eggs are attached to underwater vegetation and are arranged in double strings covered in a clear, gelatinous material. The eggs incubate up to two weeks before hatching into aquatic, herbivorous tadpoles that have gills, a tail, and no legs. Within hours, the gills are covered and a single opening, called a spiracle, is formed. Over the course of 5–10 weeks, the tadpoles grow, lose their tails, develop legs, and eat more animal material. When they leave the water in May, they appear as miniature toads and are sexually mature by the next spring. Males call to females with a high-pitched trill during the spring time from a water source. They use a round vocal-sac under their chins to trill. To mate, the male will grasp the female behind the forearms in the amphibian mating posture called amplexus.
Behavior	Primarily nocturnal and most active during warm humid times of the year. When night falls, American toads come out of their hiding spots and hunt for food. As a defensive mechanism against predators, they will secrete toxins from their parotid glands (behind the ears), which produce a foul-smelling toxic chemical. Other defenses include puffing up to appear larger and excreting large amounts of urine when picked up by a predator.
Our animals	2 undetermined sex. Arrived at PPZ in 06/2011. Wild born in Michigan
Cool stuff	<ul style="list-style-type: none"> American toads, while still growing, shed their external skin every couple of weeks or so. Older frogs lose their skin around four times yearly. The skin peels off in one piece, and is collected under the tongue, where it is then gulped down. American toads have one of the most notable calls of all toads: a long high-pitched trill that lasts 4–20 seconds. American toads use this call as a way to attract females for breeding. Toads do not drink water but soak it in, absorbing moisture through their skin. Eastern hognose snakes specialize in eating toads. Some snakes, such as garter snakes, are immune to the poisonous glands of American toads. When these toads are faced with a snake predator, American toads will inflate their bodies with air to make themselves more difficult for a snake to swallow. There are approximately 4,800 species of frogs. The use of the common names “frog” and “toad” has no taxonomic relevance. From a classification perspective, the family Bufonidae is considered “true toads” and the family Ranidae is “true frogs.” True toads are toothless and generally have warty, dry skin. They have a pair of parotid glands on the back of their heads that contain a poison which they excrete when stressed. Male toads also possess a Bidder’s organ: Under the right conditions, the organ becomes an active ovary and the toad, in effect, becomes female. True frogs have teeth, are typically smooth and moist-skinned, with large, powerful legs and extensively webbed feet, and when they eat, their eyes retract into their skull.

Phylum
Chordata

Class
Amphibia

Order
Anura

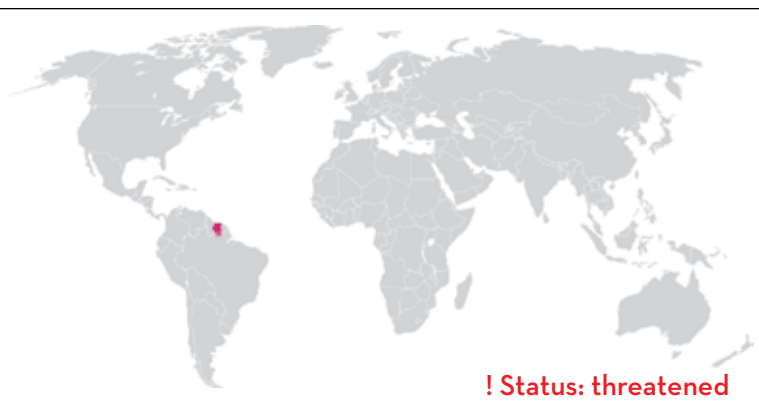
Family
Bufonidae

Genus
Anaxyrus

species
A. americanus

BLUE POISON DART FROG

updated 03/17



Range	Suriname, near the Brazilian border in South America
Habitat	Tropical rain forests, found near water sources in dark moist areas, especially under rocks near streams
Diet (wild)	Variety of arthropods, including ants, beetles, flies, mites, spiders, termites, maggots and caterpillars
Diet (captivity)	Flightless fruit flies and 10-day old crickets
Description	Length: 2 inches. Bright blue colored, legs are usually darker with a unique pattern of black spots on each frog (like a fingerprint). Females will be slightly larger and males will have longer heart-shaped tips on its toes. The feet have four toes each with suction cup pads that are used for clinging and climbing.
Lifespan	Wild: 4–6 years. Captivity: 10 years
Reproduction	The female will lay 5–10 eggs that are placed in a moist mossy area under rocks or logs. The male takes up primary care of the eggs by both defending them and maintaining egg moisture by excreting water on them. The eggs will hatch in 14–18 days and the tadpoles will attach to the males back with their mouths as he carries them to a small pool of water nearby. These are often tiny pools formed in tree holes or the center of flowers. Tadpoles are frequently placed in different pools, as they will become cannibalistic if there isn't ample food. After transporting the tadpoles to the pool, the male no longer cares for the young. However, at this point the female will frequently visit the tadpoles to lay unfertilized eggs that provide the tadpoles with food. Once the tadpoles metamorphose into adults 10–12 weeks later, all parental care will end. The young frogs will reach sexual maturity at about two years of age. In the wild, breeding takes place during the rainy season (February and March). In captivity, the frogs will breed year round. Males call out and the females who answer the calls will fight aggressively over the male. The pair then seeks out a secluded area near water to lay the eggs.
Behavior	The poison secreted by the skin of poison dart frogs is a result of the insects (especially ants) they consume in the wild; living in captivity eliminates the poison. Indigenous people traditionally rub hunting darts across the skin of the frogs to help them kill their target, which inspired the name "poison dart frog." Poison dart frogs are diurnal and move constantly with short leaps. They are known to be bold, aggressive, and very territorial. Males are especially known to fight over territories while both sexes will defend their territory from frogs of the same and different species. Aggressive behavior usually consists of calling, chasing, and wrestling between members of the same sex.
Our animals	2 undetermined sex. Born: 01/2011
Cool stuff	<ul style="list-style-type: none"> Like most poison dart frogs, the blue poison dart frog has evolved aposematic coloration as a warning to potential predators that it will make an unpalatable or toxic meal.

Phylum
ChordataClass
AmphibiaOrder
AnuraFamily
DendrobatidaeGenus
Dendrobatesspecies
D. tinctorius azureus

COMMON GRAY TREE FROG

updated 03/17



Range	Native to eastern United States, southeastern Canada, and as far south as Texas
Habitat	Most common in forested areas; can also be found in many rural residential areas of the East Coast
Diet (wild)	Carnivorous: crickets, moths, flies, and some worms
Diet (captivity)	
Description	Length: 1 ½–2 inches. Variable in color. They can change color to camouflage themselves from gray to green, depending on the substrate they are on. Tree frogs in unnatural surroundings are predominately gray. The skin has a lumpy appearance. The females have white throats and males have black/gray throats. Females are usually larger.
Lifespan	7–9 years
Reproduction	The female lays 1,000–2,000 eggs attached in strings to submerged vegetation or in floating masses. When depositing eggs, both the male and female are submerged in water. Within 2–5 days, the tadpoles have hatched. After 45–65 days, the juvenile tree frogs will emerge as adults. Males establish territories and call to females during mating season in early to mid-April. Females choose their mates based on the duration of the male's call. To initiate mating, the female will approach the calling male and touch her snout to his or leap on his back. The two then travel from the male's territory to the water where the male will grasp the female behind the forearms in the amphibian mating posture called amplexus.
Behavior	Highly arboreal, gray tree frogs rarely ever descend from the trees except to breed. They are nocturnal and usually solitary except during breeding season, when they will vocalize competitively.
Our animals	2 undetermined sex. Born in the wild.
Cool stuff	<ul style="list-style-type: none"> The two North American species of gray tree frog (Cope's gray tree frog [<i>Hyla chrysoscelis</i>] and common gray tree frog) are identical in appearance and since their ranges overlap extensively, they cannot be distinguished in the field. However, Cope's gray tree frog has a faster trill and only half as many chromosomes as the common gray tree frog.

Phylum
Chordata

Class
Amphibia

Order
Anura

Family
Hylidae

Genus
Hyla

species
H. versicolor

GREEN-AND-BLACK POISON DART FROG

updated 03/17



Range	Central and South America, from Nicaragua and Costa Rica to southeastern Brazil and Bolivia; also thrive in Hawaii, where they were introduced by humans
Habitat	Found on the rain forest floor; prefer living near small streams or pools where tadpoles can grow
Diet (wild)	A variety of arthropods, including ants, beetles, flies, mites, spiders, termites, maggots and caterpillars
Diet (captivity)	Flightless fruit flies and 10-day old crickets
Description	Length: $\frac{3}{4}$ –1 inches. Females are larger than males. This frog has varying green coloration. Surrounding the green colors are splotches of black. They are one of the most variable of all poison dart frogs in appearance. Their vibrant colors warn predators of their toxicity. Males are distinguished from females by a barely visible vocal sac under the skin of the throat. This frog has sucker-like discs on the ends of toes to help with climbing. They have poison glands all over the skin.
Lifespan	Wild: 3–6 years. Captivity: 10–15 years
Reproduction	Once the male has caught the attention of the female, he will lead her to a site for egg deposition. The female lays the eggs and then the male will fertilize. After 14 days, the eggs will hatch into tadpoles. The parents (typically the male) will then carry the tadpoles to small bodies of water, with the tadpoles sticking to the mucus on their parent's backs. Once in water, it will take another six weeks for the tadpoles to reach adulthood. They gather in large groups before mating. Males will establish a small patch for themselves by defending their territories. The females will wander among males as the males call to them.
Behavior	Green-and-black poison dart frogs is semi-arboreal and hunt, court, and sleep in trees. Because they are small frogs, they can't jump far enough to span the distances between trees, so they return to the ground to travel. Green-and-black poison dart frogs are diurnal and have excellent eye sight, hearing, and sense of smell. They capture their prey with long sticky tongues. Females are mostly silent while males defend territories and attract mates by trilling or calling.
Our animals	3 undetermined sex
Cool stuff	<ul style="list-style-type: none"> While not the most toxic poison dart frog, green-and-black poison frogs are still highly poisonous. The very small amount of poison the frog possesses is enough to make a human heart stop beating. Like most poison dart frogs, however, green-and-black poison dart frogs will only release poison if they feel threatened, and wild specimens can be handled if the human holding it is calm and relaxed. In captivity, the frogs lose their toxicity in due to a change in diet.

Phylum
Chordata

Class
Amphibia

Order
Anura

Family
Dendrobatidae

Genus
Dendrobates

species
D. auratus

MUDPUPPY

updated 03/17



Range	From New England west through the Ohio Valley, south to northern Georgia; found in all of the Great Lakes, except the western shore of Lake Superior
Habitat	Permanent freshwater bodies like rivers, reservoirs, and inland lakes; have been reported in water as deep as 100 feet (30 meters)
Diet (wild)	Insect larvae, worms, mollusks, fish eggs, and small fish
Diet (captivity)	Small fish and worms
Description	Length: 8–19 inches. A large, aquatic neotenic (permanent larvae) salamander; distinct feature is the red feathery external gills that is the salamander's only method of breathing. The body is usually gray or brownish-gray with black spots. The tail is vertically flattened and there are four toes on each foot. Mudpuppy young have light and dark stripes.
Lifespan	Wild: 11 years. Captivity: 25 years
Reproduction	Between 18–180 pea-sized eggs will be attached to the bottom of a log or rock that is 2–4 feet underwater. The female protects the eggs until they hatch 1–2 months later, depending on water temperature. Mudpuppy young begin life in a larval stage, which can last 4–6 years. Mudpuppies reach sexual maturity when they are about 8 inches long (at about 4–6 years). Mating usually occurs during the fall with solitary males seeking out females in their shelters and performing a courtship display. The male deposits spermatophores that the female stores in their cloaca until she lays eggs in late spring.
Behavior	Mudpuppies are nocturnal and spend the day hiding in deep water under rocks or fallen logs. Mudpuppies can walk along the bottom or swim similar to a fish. Shallow water is preferred during the spring and fall, while they seek deeper water during the summer and winter. Except for the mating season, mudpuppies are solitary creatures that are usually found in clear water but can withstand muddy waters if clear water is available for reproduction. If living in muddy or weedy water, a mudpuppy may be active during the day. Their predators include fish, snakes, and herons.
Our animals	2 undetermined sex
Cool stuff	<ul style="list-style-type: none"> • Mudpuppies from cold, clear, highly oxygenated water have short gills; those from warm muddy water have long bushy gills. • Mudpuppies have no negative impact on humans. Some people believe that they eat the eggs of game fish, but there is no evidence that mudpuppies impact game fish populations. People are also sometimes frightened by the strange appearance of mudpuppies, but they are completely harmless. • Mudpuppies are active throughout the year, even when rivers and lakes are frozen over in winter. They have been found at living at depths of 100 feet (30 meters) in Lake Michigan. • Mudpuppies have sense organs in their skin that help them detect water movement and pressure changes. These sense organs also help them avoid predators. Mudpuppies also have a good sense of smell which is used to locate prey. Their small eyes are used primarily to perceive changes in light.

Phylum
Chordata

Class
Amphibia

Order
Caudata

Family
Proteidae

Genus
Necturus

species
N. maculosus

NORTHERN LEOPARD FROG

updated 03/17



Range	Found in most of northern North America except for the Pacific Coast
Habitat	They generally live near ponds and marshes but will sometimes be found in well-covered grasslands as well
Diet (wild)	Northern leopard frogs will eat about anything that they can fit in their mouths. They will sit and wait for prey to go by and then pounce with their powerful legs. They will eat beetles, ants, flies, worms, smaller frogs, small birds, and even garter snakes.
Diet (captivity)	
Description	Length: 3–5 inches. As with most frogs, males are smaller than females. Northern leopard frogs are named for the array of irregularly shaped dark spots on their backs and legs. They are greenish-brown with a pearly white underside and light-colored ridges on either side of their backs.
Lifespan	Wild: 2–4 years
Reproduction	The female lays up to 3,000 eggs in a large flattened mass of gray/black jelly in water. The eggs hatch in 10–20 days into tadpoles. By early August, the tadpoles have gone through metamorphosis and emerge from water as adults. After metamorphosis, sexual maturity is reached in one to three years, depending on conditions. In late April, males will begin calling to attract females. Breeding begins in May.
Behavior	Leopard frogs are mostly nocturnal and tend to take cover in water when startled. They will also let out a screaming call when captured or startled. Males have thickened thumb pads and paired vocal sacs that inflate over their shoulders as they call.
Our animals	1 undetermined sex. Born: Detroit Zoo
Cool stuff	<ul style="list-style-type: none"> • Leopard frogs are well-adapted to cold and can be found at elevations up to 11,000 feet (3,350 meters). • Leopard frogs migrate to breeding ponds in the spring and may disperse away from water during the summer to forage in meadows and grasslands. They obtain water by absorbing dew from plants during this time. In the winter they travel back to their “home” pond, a permanent body of water, and overwinter in the mud and organic debris at the bottom. • Leopard frogs do not have distasteful skin secretions. They rely on their quick responses to leap into the water or make erratic hops to escape capture. In areas where they occur with pickerel frogs (<i>Lithobates palustris</i>), leopard frogs have spots that are more squarish, like those of pickerel frogs. Because pickerel frogs have distasteful skin secretions, it is thought that perhaps leopard frogs in those areas are mimicking pickerel frogs to avoid predation.

Phylum
Chordata

Class
Amphibia

Order
Anura

Family
Ranidae

Genus
Lithobates

species
L. pipiens

PANAMANIAN GOLDEN FROG

updated 03/17



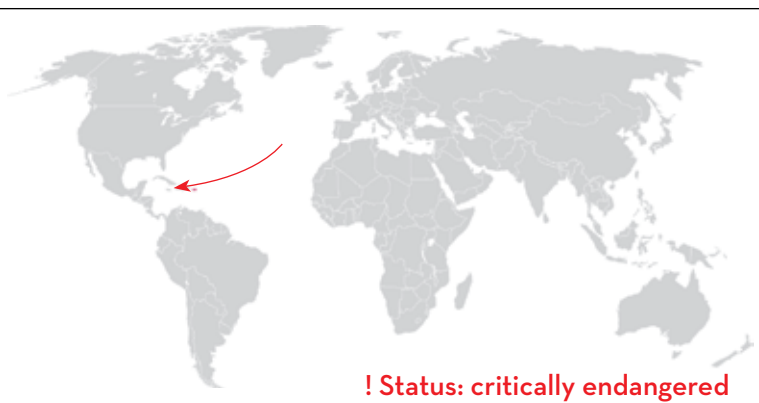
potter park zoo docent manual 2017

Range	Cordilleran Mountains of western-central Panama
Habitat	Both wet rain forests and dry cloud forests: prefer a fast-flowing streams
Diet (wild)	Insects and other small invertebrates.
Diet (captivity)	
Description	Length 1½–2½ inches. Adult males and females have similar coloring: a light yellowish green to bright gold. Sometimes have several black splotches on their back and legs, sometimes none at all. The females are 25 percent longer and heavier than males.
Lifespan	Wild: unknown. Captivity: 9 years
Reproduction	Mating season is between November and January, during the late rainy and early dry season. Males attract females by hand waving. When he finds a receptive female, he will attach himself to her back (amplexus) for weeks until she finds a suitable place to release eggs, preferably a shallow pool of stream water out of sunlight. The female will release a single stream of eggs (200–600) into the water and the male will immediately fertilize them. Tadpoles hatch after 9 days and spend 6–7 months in the stream. The young frogs are tiny and brown and eventually build up the toxins in their skin.
Behavior	These frogs are diurnal, active during the day. Known to make a whistling sound as well as a couple other loud calls. They use a “waving” form of communication to greet, attract mates, and defend territory.
Our animals	1 undetermined sex. Born: 01/01/2016
Cool stuff	<ul style="list-style-type: none"> • The Panamanian golden frog is a national symbol of Panama and is considered to be one of the most beautiful frogs in Panama. • The larger the variety of food they eat, the more toxic the Panamanian golden frog’s skin secretions become. • The nerve toxin Panamanian golden frogs produce is called zetekitoxin, after their scientific name. The skin of an individual frog contains enough toxin to kill 1,200 mice. • These frogs are also called golden arrow poison frogs, golden frogs, or Zetek’s golden frogs. They are considered a sign of good luck and prosperity. Project Golden Frog connects organizations and conservation efforts in Panama and the U.S. • Panamanian golden frogs are classified in the family Bufonidae, which are considered “true toads.” True toads are toothless and generally have warty, dry skin. They have a pair of parotid glands on the back of their heads that contain a poison which they excrete when stressed. Male toads also possess a Bidder’s organ: Under the right conditions, the organ becomes an active ovary and the toad, in effect, becomes female.

Phylum Chordata	Class Amphibia	Order Anura	Family Bufonidae	Genus Atelopus	species <i>A. zeteki</i>
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PUERTO RICAN CRESTED TOAD

updated 03/17



Range	Main island of Puerto Rico
Habitat	Found in drier, semi-arid regions with rocky limestone areas that can collect rain pools for breeding
Diet (wild)	Insects, worms, insect larvae, and other invertebrates
Diet (captivity)	Crickets
Description	Length: 3–4 inches. Females are larger than males. Textured, pebbled skin with striking marbled golden eyes and a distinctive long, upturned snout. Males are olive green and gold while females are dull brown. The skin on females is rougher than that on males and they have a high crest above the eye while the crest on males is less defined.
Lifespan	Wild: Unknown. Captivity: Up to 10 years
Reproduction	Females can lay up to 15,000 eggs in long black strands in rain pools. The growth from egg to toadlet only takes 18 days. The young toadlets will clump together to conserve body moisture as they move away from the breeding pond. Breeding is prompted by and dependent upon heavy rains that form temporary pools of water that are appropriate for laying eggs. Captive breeding and release programs have been used with this species; over 4,000 toadlets and 12,000 tadpoles have been reintroduced to Puerto Rico. However, it is unknown how many of the released animals survive.
Behavior	The crested toad is nocturnal and their dispersed population makes it difficult to determine the exact numbers of adults. The toads only come together during mating season. The filling and draining of breeding sites, competition from an introduced toad species, and predation from introduced rats and mongooses have all contributed greatly to the decline of this species.
Our animals	Several males and females of varying ages. Many are off-exhibit in the breeding room.
Cool stuff	<ul style="list-style-type: none"> • Puerto Rican crested toads are the only toads native to Puerto Rico. • Puerto Rican crested toads were thought to be extinct until 1967. It was the first amphibian SSP animal. • PPZ has participated in the breed and release program for the past few years. Part of the basement of the bird/reptile house has been converted to a breeding room to allow staff to artificially produce the proper conditions necessary for breeding. Puerto Rican crested toads are the only PPZ animals that are part of a wild release program.

Phylum
Chordata

Class
Amphibia

Order
Anura

Family
Bufonidae

Genus
Peltophryne

species
P. lemur

YELLOW-BANDED POISON DART FROG

updated 03/17



Range	Areas in Brazil, Colombia, Guyana, and Venezuela; also found in the Guianan Orinoco drainage of Venezuela north to the Río Orinoco, east into Guyana to the Essequibo River, south into extreme northern Brazil, and west into eastern Amazonian Colombia
Habitat	Found between 160–2,600 feet (50–800 meters) above sea level in leaf litter, fallen trees, forest floors, stones and occasionally living trees; must live near a water source
Diet (wild)	A variety of arthropods, including ants, beetles, flies, mites, spiders, termites, maggots and caterpillars
Diet (captivity)	Flightless fruit flies and 10-day old crickets
Description	Length: 3 inches. One of the largest species in the genus <i>Dendrobates</i> (poison dart frogs). Adult have black backs with three broad cross bands, which are colored bright yellow, yellow-orange, or orange. Black spots or blotches are sometimes present in these cross bands as well as on the limbs. The belly is black. Glandular adhesive pads are present on the toes and fingertips, which help the frogs climb and stay in stationary positions. This frog lacks webbing on the feet.
Lifespan	Wild: 4–6 years. Captivity: 10–12 years
Reproduction	Females will lay anywhere between 100–1,000 eggs per year and produce 10–12 eggs per clutch. The eggs are terrestrial and are guarded by the male parent in a moist area. Once hatched, the tadpoles will be carried on the father's back to small pools to continue developing. Metamorphosis takes between 70–90 days. Males will call to females while showing off their brightly colored bodies for an hour before sunset and before sunrise. When a female chooses a male, she will follow him to his area and stroke his back and snout, sometimes stamping her feet.
Behavior	Yellow-banded poison dart frogs are diurnal and derive their skin toxins from the ants in their diet. They are also fiercely territorial. They live in small groups in the wild and will attack neighboring groups. Yellow-banded poison dart frogs can also warn off rivals with loud calls.
Our animals	2 undetermined sex. Born: 09/2009 at PPZ
Cool stuff	<ul style="list-style-type: none"> • Like most poison dart frogs, the yellow-banded poison dart frog has evolved aposematic coloration as a warning to potential predators that it will make an unpalatable or toxic meal. • Yellow-banded poison dart frogs are the only poison dart frogs to hibernate during dry spells (called estivation).

Phylum
Chordata

Class
Amphibia

Order
Anura

Family
Dendrobatidae

Genus
Dendrobates

species
D. leucomelas