



American Toad

### **Taking a Closer Look at American Toad!**

**By Merrill Tawse**

On Ground Hog Day I arrived at the Nature Center to present a Mammal program and was greeted by someone saying they had just heard our Screech Owl call out in the quiet building. That brought back memories of our previous owl and how it would frequently call out in response to the sirens of approaching emergency vehicles. Our current owl has been silent. Well, five minutes into the program the trilling started up but it was not the Screech Owl but rather *Bufo americanus*.

In the aquarium near the owl a male American Toad, (*Bufo americanus*), had inflated his vocal sac and was emitting the trill. This is a call that the males do in spring when at the breeding pools. Maybe we should have been celebrating the Toad as the harbinger of spring instead of the Ground Hog.

We keep American Toads on display, as they are an excellent specimen to interpret. Their survival adaptations are numerous. In Ohio there are two species that are in the toad group; i.e. Genus *Bufo* the American that is found statewide and the Fowler's Toad that is more limited in its distribution. I have not found any Fowler's Toads within our area. The Fowler's is easily distinguished from the American when calling in the spring. Their call is reminiscent of the bleating of sheep, rather than a trill. The two are distinguished throughout the year by differing arrangements of warts and spot patterns.

There are many fascinating adaptations in these common animals. I will cover some of the major ones that assist this organism to successfully acquire its basic physical needs, protect itself from its environment and assist in successful reproduction. The first is related to the "Warts" that many people fear they will get from toads. As an amphibian, a good portion in the exchange of gasses is accomplished through dermal respiration. That is breathing through their skin. In the case of salamanders and many frogs in order to accomplish this, their outer skin surface needs to be wet so that the oxygen can dissolve in water and then pass into their blood stream. This limits their comings and goings to where they have to stay near water to remoisten their skin or come out only in wet

conditions. The toad however, keeps the moisture in its warts, allowing it to exploit other areas and therefore reduce competition with the others.

Toads will venture out into summer rains to soak up moisture and during drought years they will bury down into the soil to reduce the risk of drying out. Toads can not drink water with their mouth but rather soak it up through their skin. With our toads, they re-hydrate themselves by sitting in their water bowls. That is why the bowl needs to be big enough for them to fit in and why we only fill them  $\frac{1}{2}$  to  $\frac{2}{3}$ 's full.

The larger glands behind the eyes are the parotid glands; these along with the larger skin warts produce a distasteful secretion that repels would-be predators. This learned repulsion gives the slower moving toad the freedom to travel away from the protection of a body of water. Their cousins the frogs need to be quicker and stay within hopping distance of water to take refuge in. The bad taste adaptation is also involved with the "peeing" in your hands that toads do when first picked up. It does not hurt our hands but can cause a burning if it gets into your eyes or mouth. So if you learn nothing else from this remember **don't order Toad Legs at your local restaurant.** They are not as good as frog legs, or so I'm told. Toads eat a variety of animal materials, including insects, worms and isopods. These they find in the leaf litter area of the woods or in your gardens. Food is captured with their moist tongues. In order to have a larger target area the tongue's point of attachment is towards the front of the mouth so it can extend out farther. Our tongue is attached in the back of our mouth so it can assist in the swallowing process. The toad's tongue does not push the food back for swallowing; instead, they use their eyes. Like many other amphibians, the toad has protruding eyes. When swallowing, the eyes are drawn in, becoming bumps on the inside roof of their mouth. The eyes push the food down to their stomach.

Their tongue is not so much sticky as it is moist and the dry food material adheres to it. Feel the freedom to get out a toad and feed it when you have visitors. We feed it the mealworms that are kept in the upper aquariums. Note do not feed them the adult beetles or the cream colored pupas, as both these life stages seem to have some toxins in them. We would hate to poison our "poisonous toads".

Toads are cold-blooded animals and can not remain in an area where the temperature goes below freezing or their tissues will be torn apart by ice crystals. In response to the shortening of the days in fall, toads will find an old burrow to use to get under ground for the winter. Their spring wake up call is when the dirt around them becomes "mud". Nice alarm! The first frogs and toads of the year are frequently seen on a warm rainy spring night. As they emerge, it makes a safe time to travel from their summer and wintering sites to their spring breeding pools. It also gives some credence to notion from long ago that frogs and toads came from the sky with the rain.

Toads are later breeders than the Mole Salamanders, Wood Frogs and Spring Peepers. They will not call unless the temperature is above 55 degrees. When they arrive at the breeding pools the males will "claim" a section and inflate their vocal sacs and let out a trill. Their calls can be heard on spring nights and even during the day at the height of mating activity. If another toad enters a male's spot he swims out and begins to climb on piggy-back style. With his front legs he grasps the other toad's mid-section, if it calls out it indicates it is another boy and he is wasting his time. If, however it is quiet it is a female and he waits for her to release her long string of eggs. As she does he fertilizes them. All of our frogs and toads have external fertilization. With our mole salamanders they have internal fertilization.

With our captive toads you can tell the males from the females by picking them up and gently squeezing their rib cage. If it makes noise, it's a male. The males do not grow as large as the females. She needs the larger body cavity to produce and carry the hundreds of eggs that she lays each year; sometimes she can lay over a thousand eggs. At the ponds their eggs can be identified because of their long "string of beads" pattern.

Here at the Nature Center, the toads breed in the smaller pools on either side of the Covered Bridge as well as our large pond. Success of hatching and transforming from tadpoles into small toads is next to zero in the large pond because the fish eat the tadpoles. These tadpoles are swimming in the pond before the summer vegetation has grown dense enough to provide refuge. Green and Bull Frogs spawn later so their offspring are provided with more protection. (note; the tadpole does not have the protection from the bad taste that the adult toads does.)

The toad tadpoles transform usually within six to eight weeks. For this reason the ideal breeding spot is a vernal pool where water stays long enough to be exploited but not permanently so it will have fish predators. I have seen opportunistic toads select and lay their eggs in the tractor tire ruts of farm fields. This is ample if the spring is wet enough to keep it water filled. The continued existence of toads though, is directly linked to the preservation of the unfortunately vanishing breeding spots. To be successful the female who lays hundreds of eggs annually for the duration of her life needs to only produce two to reach adulthood. Their high reproductive rate indicates that survival rates are very low. Lot of things go wrong along the way as this gill breathing, aquatic, plant eater changes into a air breathing, animal eating, terrestrial organism.