

Arizona and Sonoran Desert Toads

Finding and photographing Arizona and Sonoran desert toads and frogs.

Article and photos by Bruce Taubert

Even in four-wheel drive I had trouble keeping my truck on the rain-slicked dirt road. I fought to cross the normally dry desert washes now filled with thick, brown water. Monsoon rains pummeled the ground and forced most wildlife to seek cover.

Only a rare opportunity — such as seeing seven species of desert frogs and toads fighting to procreate in this harsh environment — could take me from the comfort of my house out into a dark and dangerous Sonoran Desert night.

Several unique amphibians call Arizona's Sonoran Desert home. Casque-headed frogs, Sonoran green toads and Sonoran Desert toads are more commonly found in Mexico. Others, such as narrowmouth toads and Great Plains toads, are associated with semitropical or temperate habitats in the United States and Canada. Like all frogs and toads, they developed during the Pleistocene when marsh habitats grown over with huge tropical ferns dominated the landscape. In Arizona this type of environment is mimicked only during the brief summer monsoons.

This group of amorous Sonoran Desert toads (*Bufo alvarius*) represent the largest toads native to the United States. They can weigh more than 2 pounds and reach 8-inch lengths.

Life-Giving Rains

Arizona's monsoons come fast and hard and only last a few weeks. With the sudden rains comes a complete metamorphosis of the desert. Dry washes turn into rivers; concrete-hard, sun-baked soils soften and ephemeral ponds fill with water. Temperatures drop and humidity increases from less than 15 percent in June to 80 percent in the heat of the afternoon during July and early August. And creosote flats turn into lakes.

Wildlife hidden for 10 months or more suddenly appears, including Arizona's Sonoran Desert frogs and toads. This is also the time of the year when I turn from being a diurnal administrator at the Arizona Game and Fish Department to also being a nocturnal photographer and naturalist.

As soon as strong monsoon thunderstorms begin approaching the southern edges of Maricopa County, I break out the night lights, macro lens and camera, disposable tennis shoes and collecting jars. On the chance that the storms hit my favorite desert amphibian sites, I leave my home at 7:30 p.m. and tell my wife Anne not to wait up for me. After driving almost two hours to my favorite amphibian site, I get there just after dark and in time for what hopefully would be a rewarding night.

The "Desert Seven"

My quest this year was to find and photograph all seven desert toads and frogs known to breed in this small part of the Sonoran Desert — the only place in the United States where these critters are all found together. I tried, off and on, for the last 15 years, but I never seemed to be there at exactly the right time and place. I'd found all seven, but not in the same year, and I did not have photographs of all of them.

The cactus-studded landscape of Arizona's Sonoran Desert comes alive during brief summer monsoons. This is when several desert frog and toad species emerge from underground burrows to procreate.

I reached the first set of ponds on the northern edge of my search area. I stopped the truck, turned off the engine and listened. Dead silence! I couldn't believe the frogs hadn't arrived. I got out and searched the pond edges for movement. Nothing! I got in the truck and went down the road to look for more possible breeding ponds.

Ancient mesquite trees grew in the high burm surrounding the cattle tank at the next location. The tank, only a puddle a few days earlier, was more than 100 feet across from the rainwater flowing into it. In order to access the tank, I walked several yards from the cattle enclosure and through a thicket of skin-cutting mesquite. While I crawled under a large tree I spotted my first quarry: a Sonoran Desert toad.

Bufo alvarius

The Sonoran Desert toad (*Bufo alvarius*) weighs in at little more than 2 pounds and is 8 inches long. It is the largest toad native to the United States. I most often find these huge toads lumbering around looking for mates or food. I can imagine that to other frogs and toads in and around the ponds *Bufo alvarius* (aka the Colorado River toad) must look like a T-rex.

These toads are voracious eaters and consume almost anything they can get into their mouths, including other toads, tarantulas, snakes, scorpions, mice and insects. With six other morsel-sized amphibians in the vicinity, monsoon season must seem like a virtual smorgasbord to a Sonoran Desert toad.

Great Plains toads (*Bufo cognatus*) have the largest geographical distribution of all the desert toads.

Although I have known Sonoran Desert toads to breed in permanent ponds before the monsoon rains start, they are most active after the first rains in July. They call from the banks of small ponds and grab females as they happen by. When these toads are in full-breeding swing I have seen 10 or more pairs in amplexus and several females carrying bulky males on their backs while looking for water. Compared to other serenading amphibians, Sonoran Desert toads have quiet voices for their size, probably limited by their small vocal sacs.

These toads have huge paratoid glands just behind their eyes and small white “warts” near the corners of their mouths. Their paratoid glands ooze large amounts of white poison when they are disturbed too much. A friend of mine believes that one of his Labrador retrievers died as a result of swallowing one of these toxic critters. Rumor has it that Sonoran Desert toad poison has been used as a strong hallucinogen, so wash your hands after handling one.

Bufo cognatus

At the same pond, I found another early arrival, the Great Plains toad (*B. cognatus*). This toad is big, brown and not very attractive. Great Plains toads are the second largest amphibian at the ponds (the largest females are 4 inches). They are insectivores and not dangerous to other pond anurans.

The unmistakable, high-pitched eeeeeee of these toads can be heard for considerable distances, and a single call may last up to one minute or more. Great Plains toads have the largest geographical distribution of all the desert toads. Quite remarkably, they have evolved to live in Alberta, Canada, where the winter temperatures can drop to minus 50 degrees Fahrenheit, and in the water-poor, creosote-bush-dominated desert of Arizona, where temperatures seldom drop below freezing. In the desert ponds, the Great Plains and Sonoran Desert toads are the first in and last out. Both can be found breeding before the first rainfall in June and well into September.

Western narrowmouth toads (*Gastrophryne olivacea*) don't display the typical warty skin of most toads, but they still pack a toxic wallop if an unwary predator were to attempt to eat them.

Gastrophryne olivacea

Somewhere in the darkness, I heard the faint call of the western narrowmouth toad (*Gastrophryne olivacea*). I decided to go look for it, and on the way I almost stepped on a Mojave rattlesnake (*Crotalus scutulatus*). These rattlesnakes are very venomous and well camouflaged. I promised myself not to come out here alone again! Twenty minutes later, I came upon a pond that I'd never been to before, and low and behold, I found some western narrowmouths.

Western narrowmouth toads normally appear the first or second night after the first hard rain. These little toads are barely 1 1/2 inches long and are thought to be limited to eating ants.

Because of their small size and secretive nature, I always have difficulty finding them. To photograph them calling and/or breeding, I slipped into the nasty waters of the ponds (most have copious amounts of cattle feces and urine in them) and waded toward their buzzing calls. By the time I found the calling males, I was waist-deep in a witches' brew and covered in blood emanating from my many mesquite-spine-inflicted wounds. Unfortunately, I've never found narrowmouths in amplexus, and I haven't been able to photograph them calling, either.

Unlike most toads, the skin of western narrowmouths appears to be moist with no obvious warts. Even though they lack the obvious “equipment” to produce toxins, they are extremely toxic if eaten. Both narrowmouths and spadefoots cause me to react strongly when I handle them. I sneeze and my eyes water. If you don't wash your hands after picking up this toad, you're in trouble!

Upon exiting the pond, I removed my tennis shoes, draining them of water and mud. I was frustrated at only having seen three of the seven amphibian species. I ate a granola bar, took a drink of water and started for where I thought I left my truck.

Sonoran green toads (*Bufo retiformis*, this is a female) are some of the prettiest herps found in the Sonoran Desert.

Bufo retiformis

On my way, I saw several Sonoran Desert toads near a large wash, so I decided to walk along it for a while. Several yards from where I saw the Sonoran Desert toads, I spotted my first Sonoran green toad. On the very first night of the monsoon rains, I found male and female Sonoran green toads as far as 100 yards from standing water.

The Sonoran green toad (*Bufo retiformis*) is my favorite. These 2 1/2-inch-long toads occur only in Arizona and Mexico. Within Arizona, the majority of their distribution is on the Tohono O'Odham Indian Reservation, where they are restricted to the lowest elevations, a landscape dominated by creosote and ironwood. The hotter and drier the better for these Arizona endemics.

This little "jewel of the night" seems out of place in drab desert surroundings. Its incredible white, yellow and bright green colors make it the most beautiful animal, other than some birds, that I've ever seen. Their call is very similar to that of the narrowmouth toad, a series of short buzzing notes. Like narrowmouth toads, they have small mouths, and I've only seen them eat ants (both winged and wingless).

Not frequent breeders at permanent waters, Sonoran green toads appear to prefer ephemeral ponds. Calling from the open or nestled in loose cover near the edges of ponds, males work to attract females. Although this behavior appears to be normal, I have also found males calling from floating debris in ponds. When a responsive female finds a crooning male, he grabs her in amplexus. Next, the normally larger female hops (or drags) the clutching male to the water, where she spends the next few hours depositing eggs while the male fertilizes them.

So ended the first night of my search for the "desert seven." As I drove toward the highway, I saw more sidewinders, toads, millipedes and several banded geckos.

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