Arizona and Sonoran Desert Toads

Finding and photographing Sonoran desert toads and frogs.

Article and photos by Bruce Taubert

Back to Page 1>>

Second Act
Two nights later, I convinced Randy Babb and Dr. Tom Jones to go afield with me. It really didn't take much convincing, as both are avid herpers, field biologists and photographers.
This male Sonoran green toad is calling for a female. These toads will spend as much as 10 months underground while they wait for the summer monsoon rains to arrive.

The drive to the ponds was noticeably different this time. It had rained significantly over the previous two days, and the road was horrible. Every rut contained standing water, and the washes were thick with gooey mud. Every time we stopped and listened for calls we heard at least two species: mostly Great Plains toads and Sonoran green toads.

Millipedes were all over the road, making it difficult to keep from running them over. Snakes were also unusually abundant, and I added glossy snakes, California kingsnakes, a diamondback rattlesnake and a gopher snake to the list of snakes from my first night out. We also saw screech owls, one badger, black-tailed and antelope jackrabbits and the odd kangaroo rat. We knew it was going to be a great night when we saw Sonoran Desert and Great Plains toads breeding in the water-filled tire ruts!

Pternohyla fodiens
The first amphibian we heard at our favorite pond (the same one that had nothing going on the first night) was the northern casque-headed frog (Pternohyla fodiens). For me, northern casque-headed frogs are the most difficult of the seven to find. Found only in a small area in Arizona, these 21/2-inch frogs are more closely related to the hylid treefrogs found in the Midwest than any of the other desert-pond inhabitants. Males have loud calls and relatively large bilobed vocal sacs. Their heads are somewhat flattened and presumed to be adapted to burrowing (hence the old name of burrowing treefrog).
Male northern casque-headed frogs (Pternohyla fodiens) have loud calls and relatively large bilobed vocal sacs.

Casque-headed males take up a calling station either right at water's edge, in bushes close to a pond or on floating material in the pond itself. Unfortunately, we were not able to observe these frogs breeding. Both Randy and Tom have spent a lot more time in the field than I have and rarely find casque-headed frogs in amplexus. After an hour of rolling around in the mud taking photographs of the calling males, we decided to look for what should have been the easiest toad to find: the Couch's spadefoot toad (Scaphiopus couchii).

Back in the truck, we drove, or should I say slid, to the pond I visited two nights earlier. Upon arrival I set off looking for my last two toad species while Randy and Tom began photographing tiger beetles and giant hairy scorpions. I had a love-hate relationship with this pond. The experience of finding lots of frogs and toads was somewhat dulled by the smell of cattle excrement and the huge mesquite tree thorns. I was not sure how or if I missed them the first night, but as soon as I reached the pond this time I saw Couch's spadefoot toads everywhere.

Scaphiopus couchii
Although common, Couch's spadefoot toads are no less unique than any of the other desert frogs and toads. They are amazingly adapted to the Sonoran Desert and the brief monsoon seasons. Apparently, these toads can hear the first rains as they beat against the dry desert ground. This awakens them, and they start to dig to the surface and immediately look for water in which to breed.
Couch's spadefoot toads (Scaphiopus couchii) can go from egg to a toadlet capable of living on land in as little as nine days.

After fertilization, spadefoot eggs take just 15 hours to hatch. Tadpoles can develop into toads and are capable of leaving the ponds after an average of 12 days (sometimes as soon as nine days). No other frog or toad in the Sonoran Desert develops as fast, clearly giving spadefoots an adaptive advantage. Their color varies from a drab, olive-green to an attractive light yellow or bright green. I find the eyes of spadefoot toads especially intriguing. They are large and colorful, and the irises seem to be crisscrossed with fissures.

Bufo punctatus
From the other side of the pond I heard, “Hey, Taubert! Get over here and see this stinking red-spotted toad.” Randy always did have a way with words. The 3-inch-long red-spotted toad (Bufo punctatus) is not a common or a regular visitor to these creosote desert ponds, but are more often found in desert riparian areas where rocks and crevices provide places for them to hide from predators.

The red spots covering their bodies and the rounded paratoid glands behind each eye help distinguish them from other toads.

Red-spotted toads also stand out, because they are the only toads found in Arizona that lay single or short strands of eggs. In contrast to the speed with which Couch’s spadefoot eggs develop, it takes red-spotted eggs up to eight weeks to hatch and become toadlets. This is probably why they are less common in this part of the desert, as rainwater is seldom available for as long as eight weeks.
Red-spotted toads (Bufo punctatus) are not common at ephemeral desert ponds, but rather choose to reside in desert riparian areas where water is more readily available.

I was done. I found the desert seven!

The three of us wandered around the desert for another hour or two, taking photos of whatever other nocturnal Sonoran Desert creatures crossed our path. We wondered at the diversity of this place and pledged to come back in a couple of weeks, when the little frogs and toads would begin to emerge from these desert ponds.

Future Generations
For Sonoran Desert frogs and toads the monsoon season is one of organized chaos. Because these anurans must breed, feed and grow before the monsoon season ends, gluttony becomes the order of the day immediately after surfacing. Although unusual, I have seen as many as six of the “desert seven” at a single pond in one evening. This order of business repeats itself, on and off during the monsoon season, until either breeding subsides or the ponds become dry.
Desert frogs and toads may skip a breeding year if it is an especially dry one, and remain underground until conditions become more favorable. Pictured is a pair of Sonoran Desert toads (Bufo alvarius) in amplexus.

Ponds often dry up before eggs can hatch or tadpoles develop into frogs capable of surviving on land, so the eggs or tadpoles simply die. If the monsoon season is short or not very wet, it is likely that there are few successful breedings and the species must wait until the next monsoon to replenish their numbers.

In wet years, these K-selective species (those characterized by slow growth, low fecundity and lengthy lives with multiple reproductive events throughout their lives) produce thousands of toadlets at each pond, many more than are needed to sustain the population. In dry years, many of these species never surface and must wait another year until the next monsoon season for the chance to leave their underground existence.

Depending on the duration of the monsoon season, the “free time” that these frogs and toads of the desert have above ground can last from days to, in a wet year, two months. However, by the end of September all of them are safely tucked away in their underground sanctuaries, waiting for the next monsoon rains before they emerge again to start another cycle of life.

The frogs and toads of the Sonoran Desert are truly as much a part of the monsoon as the rain itself.

Back to Page 1>>