

Kodayar by Night

When he chose to study amphibians he knew what he was letting himself in for... night after night tramping through forests! But nothing, K. S. Seshadri says, prepared him for his frog adventures in Tamil Nadu's Kodayar forest.



The Chalazodes bubble-nest frog *Raorchestes chalazodes* is a nocturnal, arboreal species found in moist evergreen forests. It had been lost to science for 136 years before it was rediscovered in the Kodayar forest in the Kalakad Mundanthurai Tiger Reserve (KMTR).

The Northeast monsoon had all but receded and the night was cold and windy, yet strangely humid. Headlamps affixed to our foreheads, my assistants John and Chian and I set out on one motorcycle in search of the amphibians we knew lay hidden under the cloak of darkness.

At well past 10 p.m. we were stopped in our tracks by the sight of a huge bull gaur at a point where the road curved ahead of us near a stream. After what seemed like an endless wait to allow it to finish browsing, I gunned the bike. Apart from an audacious look... nothing!

The gaur continued browsing, ignoring us. We still had another five kilometres to reach John's house, and so we decided to risk driving past it. Luckily we survived to tell the tale, though we passed mere inches from the gaur. He could just as easily have tossed us into the valley below. Interestingly, that night as we returned to our field station, the gaur was still there on the same path, this time towards the valley, which is probably why he bolted to safety as we passed him. Moments later we saw a Jerdon's Nightjar strutting like a chicken on the path in search of insects. We also saw three mouse deer crossing the road.

On some nights, the forest would be illuminated by moonlight but others were dark, cold and silent. Of course, the silence would not last long – it would be broken by the hoot of a distant Brown Fish Owl, the croak of a frog, or the call of a flying squirrel. Occasionally we would spook a troupe of langurs roosting on a tree, or brush past birds sleeping with their heads tucked underwing

looking for all purposes, like golf balls. One Racket-tailed Drongo, alarmed by our appearance took to flight but could not let go of the reed it was tightly clutching on to in its slumber.

Eavesdropping in the wild

The Upper Kodayar range lies in the Kalakad-Mundanthurai Tiger Reserve (KMTR), India's southern-most tiger reserve that extends across roughly 900 sq. km. and harbours amongst the largest contiguous patches of mid-elevation evergreen forest in the region. The study site gets soaked annually by 3,000 mm. of rain. Little wonder the forest is able to support such high amphibian diversity.

Home to the lion-tailed macaque, Nilgiri marten and tiger, the forest has been adversely affected by dams, a large tea plantation and other disturbances, nevertheless the undisturbed portions are still relatively pristine. I was based at ATREE's field station, and was working on my amphibian project under the guidance of Dr. T. Ganesh. We were monitoring amphibian calls, particularly species living in the canopy. Since the last study done a decade ago, over 100 species of frogs have been newly described from the Western Ghats. One of our goals was to re-assess this diversity in KMTR.

Our larger efforts were aimed to monitor amphibians for long-term population dynamics based on calls. Since frogs and toads respond to changes in atmospheric

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TOP The author spotted the adaptable Indian crested porcupine *Hystrix indica* on one of his nightly sojourns.

ABOVE Habitat loss is the key threat to this nocturnal, insectivorous, grey slender loris *Loris lydekkerianus*.

RIGHT Surprise close encounters with everything from gaur *Bos gaurus* to elephants *Elephas maximus* were just as exciting for the author as spotting the subjects of his amphibian survey.

moisture and temperature, an analysis of sound recordings, combined with readings from climate data loggers, could help improve understanding of the effect of climate change on amphibian populations. This was the second objective of the research project.

As the rains began to taper off, I worried that amphibian sightings might dwindle, but I was wrong. Within a few nights, I chanced upon the cryptic Beddomes toad *Duttaphrynus beddomii*, last spotted a decade ago and reported only from KMTR. Then came the sighting of the recently rediscovered (it had been lost to science for 136 years!) Chalazodes bubble nest frog *Raorchestes chalazodes* by the roadside. I could not have chosen a better time for my study. We succeeded in matching eight species of anurans to their mating calls, of



which two may be canopy dwellers. We also found the Calacad gliding frog *Rhacophorus calcadensis*, on trees, over 32 m. high in the canopy. This frog was also observed on the ground, where it deposited spawn in clumps of frothy foam on vegetation overhanging streams. On emerging, tadpoles simply dropped into the water. Another interesting find was the *Raorchestes bobingeri* or the Bob Ingers bush frog. We had heard its call for more than a year but had been unable to find it. One night, Chian climbed to the top of a tree and found the tiny frog, half the size of a human thumb.

My *modus operandi* involved riding a Yamaha at night along the main road to a point where I would have to leave the bike and walk into the forest, climb trees using modified mountaineering equipment and set up data loggers and sound devices to record amphibian calls on both the canopy and the forest floor. We collected data during the south-west as well as north-east monsoons. Additionally, I would search overnight for frogs in the canopy and also sample plots on the forest floor. This enabled us to monitor the occurrence over periods ranging from a few seasons to a few years. It was the first

effort of its kind that taught us a lot and led to a fairly comprehensive list of over 30 amphibian species.

Night hunts

The search for amphibians led me to explore remote parts of the Upper Kodayar forest, which often involved up to five kilometre walks using just the thin beam from our headlamps. Large-scaled pit vipers were encountered almost every night while sampling near streams and the thought of a bite always lurked in our minds. I once came upon (and photographed) a pit viper that was literally at eye level on a sapling. Later, as I went about my work, I absent-mindedly began searching for frogs under the very same sapling and was rewarded by being struck by the snake on my head. Fortunately, it missed my face and got the headlamp instead.

Despite the dangers of night forest walks, the adrenaline rush was incomparable. Two glowing eyes in the darkness could mean anything – from the liquid glance of a tiger to the glowing stare of an owl. On one of our nightly sojourns, the torch revealed a slender loris, possibly the first-ever report from the evergreen forests of KMTR. On

another occasion at eleven p.m. something ran across our path. I got down from the Jeep and shot off a few frames that revealed a full grown porcupine, my very first sighting. The same night, while heading from Nalmukh to Kodayar our volunteers noticed a movement in some tea bushes and that turned out to be a wild dog that bolted away. On further exploration, we spotted a pack of 15 dholes looking curiously back at us. Between us and the dholes flowed a stream in which we saw a sambar! Not wanting to disturb them any further, we left the animals to their fate.

We knew that sampling for amphibians in the thick evergreen forests of Kodayar was never going to be easy. The key worry was elephants, though we once did come

upon a leopard, spotted at close quarters in the powerful beam of a brand new LED torch. Discretion being the better part of valour, we measured and released the 20 frogs we already had in hand and moved upstream, away from the cat which stared unblinkingly at us all the while.

Frogs and climate science

Our aim had been to record and monitor frogs. But we gained so much

more for our time in KMTR! Our next step is to spread awareness among local youth by enrolling them in a citizen science initiative to monitor anurans in the agrarian landscape in the foothills of KMTR. Volunteers will be trained in the use of sound recording and climate data logging gadgets. The data gathered by them over the years will be analysed to predict the impact of climate change on anuran populations.

RIGHT An extremely rare species, cryptic Beddomes toad *Duttaphrynus beddomii* is believed to be endemic to the southern Western Ghats of India. The author found this toad, which had last been spotted from KMTR over a decade ago.

BOTTOM The author climbed trees using modified mountaineering equipment and set up data loggers and sound devices to record amphibian calls on both the canopy and the forest floor. This effort resulted in a fairly comprehensive list of over 30 amphibian species.

