

A tiny new fish discovered in a secluded stream in the Western Ghats

by Manupriya on 14 August 2018

- *Scientists have discovered a new species of fish from a secluded stream draining into the Kabini river. The stream is located between Periya and Boys Town villages in Wayanad district of Kerala.*
- *About an inch long, the fish has distinct blue rims in its median and pelvic fins and belongs to the Badidae family of fishes. Until recently, members of this family*

were thought to be restricted to the northern Indian rivers.

- *In the last few years, however, scientists have started observing members of this family of fishes in the Western Ghats. Including the latest discovery, at least four members of this family have been spotted in the biodiversity-rich Western Ghats.*

The Kabini river originates in the Western Ghats of northern Kerala. Cutting through the Ghats, it flows eastwards to join the Cauvery river in the neighbouring state of Karnataka. During this more than 200-kilometre-long journey, several tributaries and streams flowing through the verdant valleys of the Western Ghats drain into the Kabini. It was from one such stream, headed towards the Kabini, that V.K. Anoop and Liju Thomas went to collect fish samples one day in June of 2016.

Anoop, a PhD student at the Kerala University of Fisheries and Ocean Studies (<http://www.kufos.ac.in>) (KUFOS), was studying the fish fauna of the Western Ghats. Once he got the fish samples to the lab, Anoop and his colleagues began the process of figuring out the accurate identity of the fish.

Morphological features weren't enough to determine this, so they sought help from Neelesh Dahanukar of Indian Institute of Science Education and Research (<http://www.iiserpune.ac.in>), Pune to analyse the DNA of these fishes. The DNA analysis revealed that one of the fishes, about an inch long and with a blue iridescence along its dorsal and ventral fin, was a hitherto unidentified species.

More discussions with Ralf Britz of The Natural History Museum (<http://www.nhm.ac.uk>), London, followed. Both Dahanukar and Britz study fish fauna in India and have been involved in research on the Badidae family of fishes in India. Drawing from their previous experience and looking at the results of DNA analysis, the team was able to confirm that the fish in question was a unique species from the Badidae family. They named it *Dario neela*. The name "neela", which means "blue" in Hindi and some other Indian languages, was chosen to account for the blue colouration around the fish's fins. The researchers have now published their findings (<http://www.mapress.com/j/zt/article/view/zootaxa.4429.1.6>) in the journal Zootaxa.



Dario neela. Photo from Ralf Britz et al. paper.

The Badidae family of fishes have been known to occur in the Himalayan rivers of India, Pakistan and further east upto the Mekong river. However, they are not widely found in southern India. Way back in 1865, Francis Day, a pioneer in ichthyofauna of the Western Ghats had collected samples of this family of fishes from the region. But their identity as an independent species was not established then. More than a century later, there are four new species from this family that have been described in the Western Ghats so far. Three

of these, *Dario neela*, *Dario urops* and *Dario huli* are from the same *Dario* genus and one, *Badis britzi* belongs to the *Badis* genus. Both genus are from the same family of fishes, the Badidae.

The southern Indian *Darios* are quite different from their cousins in the north. "They've been separated for millennia – plenty of time to evolve differences. It is also possible the Western Ghats *Dario* represents a separate lineage and a different genus," said A.

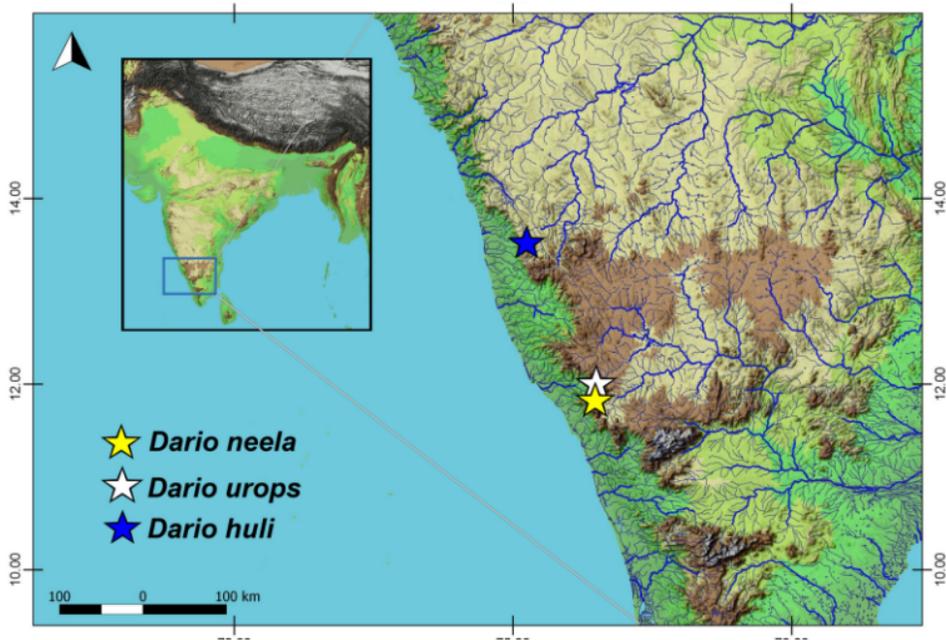
Gopalakrishnan, Director, Central Marine Fisheries Research Institute-ICAR (<http://www.cmfri.org.in>), Kochi.

The Western Ghats *Darios* however, are also quite similar to each other. For example *Dario neela*, the recently discovered species, differs from *Dario urops* by only a small amount.

"They are distinguished mainly in the color pattern. Particularly, *Dario neela* males show wide rims of iridescent blue in all median fins and the pelvic fin. Also, *D. neela* does not have horizontal suborbital stripe, which is present in *D. urops*," said Dahanukar.

Some scientists like Gopalakrishnan believe that further research with a larger sample size of both species may even show that the two species are the same.

Dahanukar and his colleagues are now trying to study this family of Western Ghat fishes in its entirety. They are working on a paper that looks at the evolutionary relationships amongst the Western Ghats Badidae fishes and also into their relationship with their north Indian relatives.



Map of locations where fishes from the Dario genus have been found. Map from Ralf Britz et al. paper.

Dario neela was discovered in a stream that is pretty much untouched by human activity. It was a stream with clean water, high canopy cover and away from human settlements. Who is to say how much more we can learn about the Western Ghats and its inhabitants with more forays into such untouched zones. To quote Gopalakrishnan, when it comes to the Western Ghats, "many more species are awaiting discovery. It is therefore imperative that we take steps to protect habitats and limit human activity in areas that have had little previous exposure to modern man."

Banner image: The location in the Western Ghats from where *Dario neela* was discovered. Photo from Ralf Britz paper.