

Blue-bellied fish is a surprise catch

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The blue-bellied night wanderer is a new fish species and genus from one of the best explored parts of the Amazon. It is miniature, being 17mm long.

It is only 7mm longer than the world's smallest fish, and seems to only appear at night, but the bright blue belly of a tiny Amazonian fish caught the eye of a team of scientists who spotted it was a new species and genus.

The blue-bellied night wanderer species name is Cyanogaster noctivaga, Cyanogaster meaning blue belly and noctivaga meaning night wanderer. It is 17mm long, and in addition to its bright blue belly, it has large eyes, and unusual-looking snout, mouth and teeth.

'It is a strange little animal, completely transparent with an otherwise unique <u>colour pattern</u>,' says <u>Natural History Museum fish</u> expert (ichthyologist) Ralf Britz.



Britz worked with expedition leader Monica Toledo-Piza, George Mattox and Manoela Marinho from the University of Sao Paulo (USP), Brazil, on the scientific expedition in Oct 2011.

The blue-bellied fish was discovered in the Rio Negro, the largest tributary of the <u>Amazon River</u>. This area of the <u>Amazon basin</u> is probably one of the best explored, so finding not only a new species but a new genus too, was quite a surprise.

The team found the blue-bellied fish in only one locality in an Amazonian tributary, (red dot on map) and photo (bottom). More <u>museum specimens</u> were later discovered from 2 other locations (yellow dots).

Hard to capture

The team could only find the blue-bellied fish in one place on the Rio Negro, and it could only be found at night. 'The fish appeared as a fast swimming blue streak in the net,' says Britz.



Live (bottom) blue-bellied night wanderer fish with its full colour on show. Once dead and preserved, the colour is lost (top).



Not only was the fish hard to find, but as soon as it was lifted out of the net it died. In order to get a photo of the live fish to show its unique colouration, Britz had to improvise.

'I set up a photo tank right at the shoreline with the camera and flashes ready to shoot. Then my colleague George and I went into the water and pulled the net towards the shoreline. I then used a large spoon to scoop them out of the net and transfer them into the photo tank without lifting them out of the water.'

World's smallest fish similarities

The blue-bellied night wanderer is tiny, but how does it compare to the world's smallest fish, which Britz helped analyse in 2006?



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'The largest Cyanogaster individual we collected was 17.4mm long, which is about 7mm longer than the largest Paedocypris progenetica.'

The fish skeleton is stained to make it easier to study its tiny structure, which is only 7mm longer than the world's smallest fish.

The two little fish seem to prefer similar habitats too. Britz explains, 'The Rio Negro in Brazil, like the Asian peat swamp forests, has acidic blackwaters and like the peat swamps, it harbours a large number of miniature species.

'Small size seems to be favoured in mineral-poor water and Cyanogaster is another example of this rule.'

Strange teeth

The number and shape of teeth, or dentition, is very useful for naming and classifying fish and especially those of the order Characiformes, the group the blue-bellied night wanderer belongs to.



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The blue belly has 2 rows of teeth in the upper jaw, an inner and outer. There are only 4 teeth with several cusps (cusps are the tips) in the inner row and 1 conical tooth (only one cusp) in the outer row.

The blue-bellied fish has a unique dentition, number and shape of the teeth in the upper jaw - a single conical tooth in the outer row (marked with a dotted line) and 4 teeth in the inner row.

'All other members of the subfamily Stevardiinae and actually most members of the family Characidae have a different number and arrangement of teeth. So this helps to demonstrate that our little "bluebelly" is something quite different, a new genus,' says Britz.



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More specimens found

And there was a final surprise. While the scientific description of the new fish was being prepared, more specimens of the fish were discovered.



Britz explains, 'My Brazilian colleagues found a few specimens in the museum collection in Sao Paulo, (Museu de Zoologia, Universidade de São Paulo), which were collected as early as 1980, but had remained unidentified'.

Britz concludes, 'This demonstrates again the importance of maintaining museum collections, in which previously unknown diversity can still be discovered'.

More information: PDF of Blue-bellied night wanderer fish paper in journal <u>Ichthyological Exploration of Freshwaters</u>

Provided by Natural History Museum

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