First images of 4 new spiny eels

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The first images of live individuals of 4 new spiny eels from Myanmar and India identified by Museum scientist Dr Ralf Britz. From the top they are Macrognathus pavo, M. dorsiocellatus, M. obscurus and M. lineatomaculatus. © Photo of M. obscurus courtesy of Ye Hein Htet

(PhysOrg.com) -- The first images of live individuals of 4 new spiny eels are revealed by a Natural History Museum scientist today.

The spiny eels from Myanmar and India are species new to science and were identified by Natural History Museum ichthyologist (fish expert) Dr Ralf Britz last month.

Three of the new spiny eel species are from Myanmar (formerly Burma), and they are named *Macrognathus pavo* (featured in the Museum's Species of the day today), *M. dorsiocellatus*, and *M. obscurus*. And 1 new

species is from India, named *M. lineatomaculatus*. *M. pavo* is the most unusual as it has the lowest number of fin spines of any species in the spiny eel group.

Images of the live fishes, shown above, are important as they add to the information recently published about the new species. The photos were not available at the time Britz was preparing his scientific descriptions for the new spiny eels, which scientists have to do before the new species is officially accepted.

In the case of M. pavo, photos of live individuals show that its colour pattern is very different from that of preserved museum specimens.

The results of this new research mean the number of spiny eel species scientifically described for Myanmar has risen to 12, making it the most diverse country for this group of fishes.

'The discovery of the unusual *Macrognathus pavo*, which can almost be called a smooth spiny eel, highlights again our incomplete knowledge of the fish fauna of Myanmar,' says Dr Britz. 'This country never ceases to amaze me with unexpected fish discoveries from its remote and under-explored areas.'

Spiny eels

Spiny eels, from the family Mastacembelidae, are eel-shaped fish that, unlike true eels, have a series of isolated, small, but strong fin spines on their back. When caught, these fish can wriggle sideways and backwards and drive the spines into their attacker, which causes painful wounds.

Another striking feature of this group of fishes is the long, pointed, highly mobile snout, which resembles an elephant’s trunk and is used to probe around on the bottom of the stream and grasp prey.

Spiny-eels are important food fishes in Asia and the smaller species are popular aquarium fishes. There are 82 spiny eel species worldwide.

Identifying 4 new species

To distinguish the different species Britz counted the number of dorsal fin spines, vertebrae and tooth plates. He also analysed and compared their colour patterns, resulting in 4 new spiny eel species being uncovered.

Britz found that Macrognathus pavo has between 4 and 6 dorsal spines, the lowest number of spines in the whole spiny eel group. It has a smaller number of tooth plates than its close relatives and it has black spots on its fins and body, reflected in its name ‘pavo’, which means peafowl.

Britz gave *Macrognathus obscurus* its 'obscurus' name because of the fish's inconspicuous colouration. It is so far only known from 2 specimens.

M. pavo and *M. obscurus* have only been found in a single stream in the Rakhine Yoma mountain range and in the Hpa Lap stream near Myitkina in Myanmar, respectively.

Britz showed that *Macrognathus dorsiocellatus* was previously confused with the Indian *M. aral*, but actually has a different colour pattern, especially the number and appearance of eye spots (ocelli) along its dorsal fin.

And *Macrognathus lineatomaculatus*' distinguishing colour pattern was its large black blotches along its dorsal fin. It has been recorded from 2 river systems in India and Nepal, and has recently been found in the aquarium trade.

Both *M. dorsiocellatus* and *M. lineatomaculatus* are more widespread than the other 2 new discoveries.

Myanmar freshwater fish diversity

As with the spiny eels, the diversity of other freshwater fish species in Myanmar is huge. More than 300 freshwater fish species have been scientifically described from Myanmar compared to around 40 in the UK.

With Myanmar's many unexplored regions, it is likely that more new fish will be discovered. In fact the expedition last November yielded another three new species.

These new spiny eels may be vulnerable to, for example, any future construction of dams or the introduction of non-native invasive fish.

Provided by American Museum of Natural History

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