

UNDER EMBARGO until 30th November 2012, 00:01 GMT

Blind, scaleless cave fish species discovered in Vietnam

Could there be more biological treasures awaiting discovery in Asia's limestone cave systems?

Ha Long Bay in the Gulf of Tonkin, Vietnam, was inscribed as a World Heritage Site¹ in 1995 and provides a spectacular seascape of some 2,000 islets and other islands. The bay is famous for its geology and scenery, especially its towering limestone pillars, magnificent arches and its vast and beautiful caves. As a result, it is visited by hundreds of thousands of tourists annually.

The largest area of coastal limestone towers in the world, Ha Long Bay's natural beauty is complemented by its great biological diversity. Probably few visitors are aware that Ha Long Bay is home to 14 endemic plants and 60 endemic animals. Even fewer will be aware of the fascinating and unique creatures that exist there, confined to a system of subterranean caves.

In 2002, at the request of the Site's Management Authority, Fauna & Flora International (FFI) began an extensive survey of Ha Long Bay's biodiversity. Experts in karst limestone ecology from Slovenia joined local experts in 2003, and it was during these surveys that the new loach was discovered by University of Ljubljana biologists Boris Sket and Peter Trontelj on the tiny (1 km²) and contorted Van Gio Island². The fish has just been described in *Revue suisse de Zoologie*³ by the world-renowned Swiss ichthyologist, Maurice Kottelat, not just as a new species but as a new genus to be known as *Draconectes narinus*.

This inch-long fish is notable for having no eyes, no markings and no scales – all common adaptations for animals that have evolved in the total darkness of deep limestone caves.

Its relatives most typically inhabit fast-flowing rivers where they live under stones and rocks. A number of loaches are already known from caves in the region and more await description.

The name of this new fish derives from the Greek for dragon (*drakon*) and swimmer (*nectes*) – a reference to Halong which means 'descending dragon' (so-called because it is believed that the landscape was created by a dragon). The Latin '*narinus*' means 'who has large nostrils'.

Also found in the cave was a new species of amphipod crustacean, *Seborgia vietnamica*, which is likely to be a major component of this fish's diet.

The fish belongs to a family that is strictly limited to freshwater and so cannot cross seawater. This means that it is very likely to be endemic to Van Gio Island. Scientists are yet to discover whether there are other related species on nearby islands, or whether this is the only surviving species in its genus.

It is remarkable that this species has managed to evolve and survive on such a small island. The new fish appears to be restricted to the island, which has long, narrow arms with a maximum width of just 400 m. The cave's freshwater lake (where the fish was found) is barely 200 m from the sea and at about sea level. It is therefore extremely sensitive to rainfall and climate change, as well as human activities.

FFI is a leading NGO for the conservation of limestone karst and cave conservation, and has run a variety of projects in karst landscapes throughout the Asia-Pacific region. FFI now also works with cement companies to help their quarry management take full account of the biodiversity values in areas where they operate, particularly the 'hidden' cave animals such as this fish and the remarkable, highly adapted invertebrates found in these environments.

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Notes to editors:

1. To find out more about Ha Long Bay World Heritage Site, visit: <http://whc.unesco.org/en/list/672/>
2. To view Van Gio Island on Google Earth, enter the coordinates 20°50.34'N 107°16.77'E.
3. The scientific paper is available on request. Suggested citation: Kottelat, M. 2012. *Draconectes narinosus*, a new genus and species of cave fish from an island of Halong Bay, Vietnam (Teleostei: Nemacheilidae). *Revue suisse de Zoologie* 119 (3): 341-349; septembre 2012.
4. Two other new genera were described from the researchers' material from this area, both of which are tiny bathynellacean crustaceans:
 - *Paraeobathynella vietnamensis* (Camacho, A. E. 2005)
 - *Sketinella trontelji* (Camacho, A.E. 2005)

For more information about these, see: Camacho, A. E. 2005. Disentangling an Asian puzzle: Two new bathynellid (Crustacea, Syncarida, Parabathynellidae) genera from Vietnam. *Journal of Natural History*, 39 (31): 2861–2886. 2005.

5. In addition, an equally tiny crustacean was discovered in another national park visited at around the same time: *Hadodiaptomus dumonti Brancelj* (Brancelj, A., 2005). This was published in *Hydrobiologia* (534: 57-70).

About Fauna & Flora International (FFI) (www.fauna-flora.org)

FFI protects threatened species and ecosystems worldwide, choosing solutions that are sustainable, based on sound science and take account of human needs. Operating in more than 40 countries worldwide – mainly in the developing world – FFI saves species from extinction and habitats from destruction, while improving the livelihoods of local people. Founded in 1903, FFI is the world's longest established international conservation body and a registered charity.

About Boris Sket

Boris Sket is a professor of Zoology and Speleobiology at the Univerza v Ljubljani, Slovenia. His research activity focuses on all aspects of subterranean biodiversity (caves, interstitial), in the south European Dinaric karst as well as around the world. He studies taxonomy (mainly of crustaceans), biogeography, evolution of subterranean biota, as well as the related nature-conservation aspects.

About Maurice Kottelat

Dr Maurice Kottelat has worked for 33 years on fish systematics in Asia and Europe. He is a specialist on fish diversity of Asia, and has conducted fish explorations in most countries of Southeast Asia, leading to the discovery of more than 400 species of fish, crabs, prawns and amphibians, including *Paedocypris progenetica*, the smallest vertebrate in the world. He first recorded more than half of the fish fauna of Laos (480 species), of which about 110 were new to science. He is the author or co-author of 320 scientific publications, including the books *Fishes of Laos*, *Freshwater fishes of Western Indonesia and Sulawesi*, *Fishes of Mongolia*, *Freshwater fishes of northern Vietnam* and *Handbook of European freshwater fishes*. He is a freelance researcher based in Switzerland and Honorary Research Associate at the Raffles Museum of Biodiversity Research (National University of Singapore) and Corresponding Member (Museum of Natural History of Geneva).