

# ASU researchers investigate subterranean fishes of China

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Caves are known for their bizarre fauna. Many of the subterranean creatures are blind and lack pigmentation and they show a number of other adaptations that have grabbed the attention of biologists for centuries.

In the last 20 years or so, a number of discoveries in the caves of China are generating a lot of interest for these creatures again.

While many cave creatures are blind and lack pigmentation, some cave fishes of China are being discovered with eyes larger than usual. On top of that, some show very strange features such as horns and humpbacks, never seen before among other subterranean fishes around the world.

There are about 28,000 species of fishes in the world and more than 4,600 species have been reported living in China. Of those, 294 have been found to be subterranean, living in caves and springs near underground sources of water.

Because the majority of the literature on cave fishes in China has been published in Chinese and in Chinese journals of limited availability in western libraries, few westerners have had an opportunity to learn about these new species.



Y. Zhao/Special to The Sun

The crossed-fork back golden-line barbell, one of the newly found species of Chinese cave fishes with horns is shown in this photo.

Because of that, Dr. Yahui Zhao of the Academy of Sciences of China and I decided to publish a book on the fishes of China containing not only updated information about the subterranean fishes of that part of the world but also new chapters written in English by specialists mostly from China.

That book is expected to be published in September by Kluwer Publishers, the

world's second largest publisher of academic books.

Among the things we have discovered by conducting research of the fishes of China is that not all of them show the typical adaptations of many other cave creatures such as reduction or disappearance of eyes and pigmentation. Some lack pigmentation to such an extent that they are totally transparent and you can

see their internal organs through their skin.

Some Chinese cave fishes also show behaviors not known previously such as entering the caves for hibernation during winter.

The 87 species of cave fishes described in the chapter on subterranean fishes of China also show a great variety of other morphological features that are still hard to explain. One

of them is the presence of horns right behind the head of these animals. In other cases, they show a very strong muscular bulk above their backs forming a sort of humpback.

Scientists are still puzzled about what might be the function of such features since these characteristics have never been recorded previously among cave fishes anywhere in the world.

The Chinese have known of cave fishes for a long time. In fact, the first written record of a cave fish was produced in China.

In a travel report written in 1540 by Yi Jing Xie, a local government official, he wrote about the "hyaline fish," named that way because it was transparent. Curiously, that fish from the Alu caves, from the Yunnan Province, was not collected for scientific purposes until 1991 and was not scientifically described until 1994.

This new study will shed light on the biology of these incredible creatures to people around the world.

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