Fossil—thought for over a century to be the only trace of a prehistoric primate—is actually that of a fish

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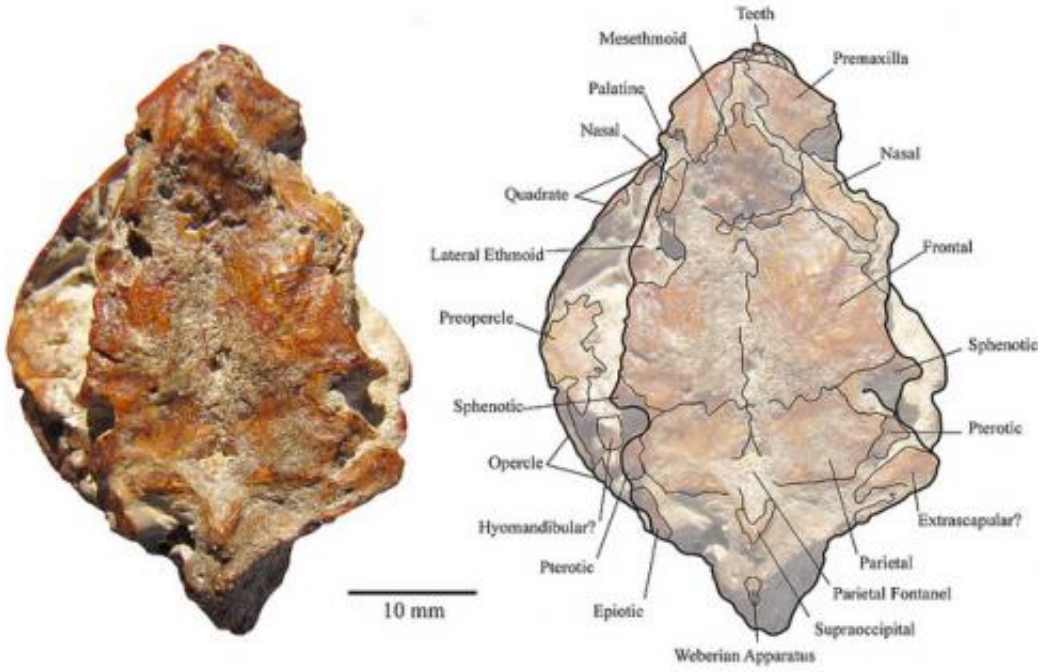

This is the lone fossil of a species known as Arrhinolemur scalabrinii - or "Scalabrini's lemur without a nose." The only problem is that scientists have discovered this "lemur" is actually a fish. Credit: Brian Sidlauskas, Oregon State University

(Phys.org)—A seven million-year-old South American fossil from a

species known as Arrhinolemur scalabrinii – which translates literally to "Scalabrini's lemur without a nose" – has long been a curiosity because there is only one specimen in existence and it is unlike most other primates.

There is a reason for that, scientists have discovered. The lemur without a nose is actually a fish.

Classified as a mammal since it was first described in 1898, Arrhinolemur scalabrinii will at last take its rightful place among its piscatorial brethren following a detailed analysis by scientists from Argentina, Oregon State University and the Smithsonian Institution. Results of their analysis have just been published in the professional journal, Neotropical Ichthyology.

"The name given to the fossil back in 1898 should have given a clue that something was wrong," said Brian Sidlauskas, a fisheries expert in the Department of Fisheries and Wildlife at Oregon State University and co-author of the study. "It isn't unusual to see a species reassigned to a different genus, but you don't often see one moved to an entirely different class."

Here is the unusual tale of *Arrhinolemur scalabrinii*, or the lemur without a nose…

In 1898, a fossil collector named Pedro Scalabrini provided a small fossil encased in rock to Florentino Ameghino. In a cursory examination of the fossil, Ameghino assigned it to the primate family Lemuridae, and wrote of its differences compared to other mammals. He proposed that it be recognized in Arrhinolemuroidea – a new order of bizarre fossil mammals.

And thus the lone example of Arrhinolemur scalabrinii was on record.

About a half-century later, a scientist named George Gaylord Simpson briefly reviewed the entry and proposed that the specimen was not actually a mammal, but an unidentified species of fish. In 1986, Alvaro Mones took the suggestion a step further and offered that Arrhinolemur scalabrinii could be related to Characidae, a family of freshwater tropical and subtropical fish.

Finally, two years ago Argentinian scientists Sergio Bogan of the Maimónides University, Natural History Foundation Félix de Azara, and Federico Agnolin, Argentinian Museum of Natural Sciences Bernadino Rivadavia, decided to put the issue to rest. They hooked up with Sidlauskas, who had written a monograph on South American fishes as part of his doctoral work at the University of Chicago, and Richard Vari, an ichthyologist at the Smithsonian. Together, they examined photos and drawings, and made a complete analysis – from the teeth and jaws to the parietal bones of the skull.

Their conclusion: The lemur without a nose is a fish of the genus *Leporinus*, family Anostomidae (Characiformes).

"It is the head of a small fish, only a couple of inches long, but it's difficult to tell what it may have grown to," Sidlauskas said. "Fish in that family can be two inches long or two feet long, and there are 150 to 200 species in the family – all indigenous to South America."

So why does it matter that *Arrhinolemur scalabrinii* has found its rightful place among other fish?

"Clarifying the fossil record helps scientists to calibrate trees of life and better understand the biodiversity of the planet in the past and compare it to biodiversity today," said Sidlauskas, who curates the Oregon State Ichthyology Collection.

"It also helps us analyze evolutionary transitions – we can look at in the past and compare them to similar fish today to see what features have changed over time and try to understand why."

After 114 years, *Arrhinolemur scalabrinii* can at last take its rightful place among the fishes.

Provided by Oregon State University