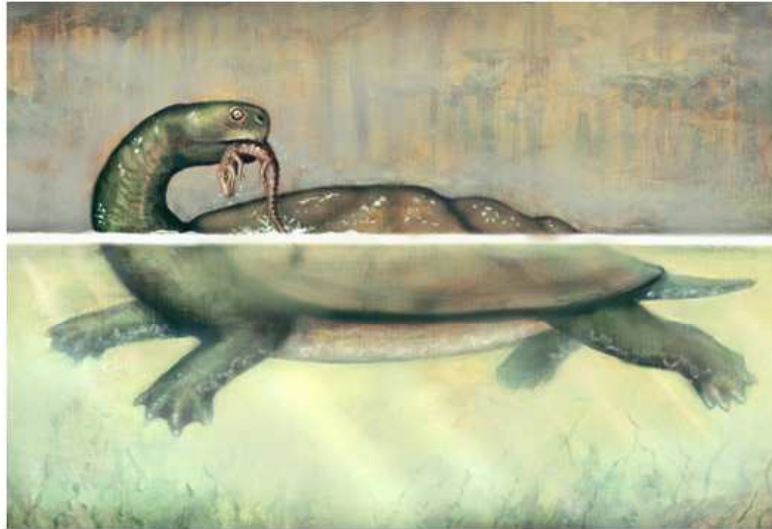


SCIENCE & TECHNOLOGY - Posted by Danielle Torrent-Florida on Wednesday, May 30, 2012 14:37 - 0 Comments ★★★★★ (NO RATINGS YET)

Extinct giant turtle found near monster snake

U. FLORIDA (US) — Researchers have named and described a new extinct giant turtle species from the same Colombian mine where they discovered Titanoboa, the world's largest snake.



This artist's reconstruction shows a newly described extinct giant turtle species, *Carbonemys cofrinii*, preying upon a small ancient crocodile. (Credit: Liz Bradford)

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Published online in the *Journal of Systematic Palaeontology*, the description of one of the largest known freshwater turtles is based on a nearly complete skull and shell.

Brought to life as a critical part of the ecosystem in the recent Smithsonian Channel documentary *Titanoboa: Monster Snake*, the 60-million-year-old reptile is the largest turtle from the Paleocene Epoch, reaching about 8 feet in length.

"At that size, I would imagine that it was swimming around without too much fear," says study co-author Jonathan Bloch, associate curator of vertebrate paleontology at the Florida Museum of Natural History at the **University of Florida**. "The only animals it probably would've had to worry about were the dyrosaurids (ancient crocodile relatives)—we have turtle shells from the same place with bite marks on them."



Edwin Cadena assembles fossilized shell pieces of a new species of 60-million-year-old extinct giant turtle he discovered in the Cerrejon coal mine in northern Colombia. (Credit: Jeff Gage/Florida Museum of Natural History)

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"The tropics are a very biodiverse region on the planet today, so we're very interested in terms of conservation and our own survival," says lead author Edwin Cadena, who conducted the research while earning his master's at the University of Florida and is now a doctoral candidate at North Carolina State University.



"Tropical ecosystems are very important, and if you want to understand the region, you have to understand its history, especially in terms of climate change."

Named *Carbonemys cofrinii* for the coal mine in which it was discovered and David Cofrin, whose contributions made the paleontological excavations possible, the species is a primitive relative of modern turtles living in the tropics.

Specimens, including an exceptionally well-preserved three-dimensional skull, were prepared at the Florida Museum. Using phylogenetic analyses of morphological and molecular data, researchers determined the species belongs in the order Pleurodira, which bend their necks sideways into their shells, rather than Cryptodira, which pull their heads straight back into their shells.

"In tropical South America today you find many pleurodires on the banks and in the water of the rivers, so they are still a critical part of the ecosystem," Bloch says.

Two additional distinct turtle species are discussed in the study but remain unnamed without identifiable skulls. Other animals found in the Paleocene environment in South America include several species of crocodiles, snakes and large fish.

"This discovery is showing us that after the extinction of the dinosaurs, the tropics were a place where animals can actually succeed and get really big," Cadena says. "They had a lot of space and a lot of food sources so they didn't have to worry about competition with other big animals. We're seeing that the tropics 60 million years ago had so much diversity and it keeps that diversity for a long, long time."

Phylogenetic analysis shows the newly described turtle is most closely related to living species in Venezuela and Madagascar, supporting the theory the continents were once connected in northern South America, rather than southern South America through Antarctica.

The wet conditions in the tropics make fossil evidence of ancient flora and fauna rare, so much of the study's value is the in the animals' Colombian origin, says Walter Joyce, a researcher at the University of Tübingen.

"We don't know much about the tropics at all," Joyce says. "So everything the Florida group has been getting the last 10 years has been pretty interesting because it's basically new – it's a new part of the world we know nothing about."

Home to the oldest known rainforest ecosystem, the potential for fossils from the tropics to offer insights about animal biogeography and responses to climate change should not be underestimated, Cadena says. Yet, human impacts make the area's future prosperity uncertain.

"Some of the modern living species in the tropics related to these fossils that we found in the mine are in danger of extinction now," Cadena adds. "Changes that occurred over millions of years in the past are happening in just a few thousand years—it's kind of sad to see."

Researchers from the Smithsonian Tropical Research Institute contributed to the study.

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