

Nile crocodile is actually two different species

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Nile crocodile (Crocodylus niloticus). Image: Wikipedia.

(PhysOrg.com) -- Researchers from the Fordham University in New York have uncovered evidence that what the world has looked to as the iconic Nile crocodile is actually two different species of crocodile that are only distantly related. The new research is published in *Molecular Ecology*.

The researchers, led by Evon Hekka, began this study when a colleague of hers, Michael Klemens from the Wildlife Conservation Society, sent her a DNA sample of some crocodiles that he had been in close contact with in an oasis in Ennedi Plateau, Chad. The travel guide he had been

with suggested that they jump in the water and swim with these crocodiles as they were known for their docile behavior. Because of the odd nature of the behavior, Klemens had taken a tissue sample from a dead crocodile located nearby and sent it to Hekka.

Hekka had been working on Nile crocodile samples when she received this one from Klemens and when the results came back from the DNA sequencing, she repeated the test because she was convinced that she had done something wrong.

Hekka and her team began collecting various different Nile crocodile samples, including museum samples of some 2,000-year-old mummified crocodiles for a total of 180 different samples. It was determined that there was indeed two different [species](#) of crocodiles known as *Crocodylus niloticus* and *Crocodylus suchus*.

All of the mummified crocodile remains were of the *C. suchus* and indicate that [ancient Egyptians](#) recognized a difference in species. The Greek historian Herodotus wrote that Egyptians were selective when choosing crocodiles for their ceremonies and generally chose the tamer and more docile crocodiles.

The distinction between the two species will have implications when it comes to conservation. The current range of the *C. suchus* is shrinking and their numbers are declining. While both species used to overlap in areas, the more aggressive *C. niloticus* has taken control of the region and pushed the docile *C. suchus* to more interior regions. The range of the *C. suchus* is under threat from oil industries and oil extraction and the [crocodiles](#) have seen a decline in numbers due to unregulated trading of skin and bush meat.

This new evidence shows that *C. suchus* is much rarer than what was previously known simply as the Nile crocodile. While some areas in

West Africa were hoping to be able to increase their trade in skins to increase revenue, this new study is likely to stop that from happening and may even reduce the amount they are allowed to trade.

More information: An ancient icon reveals new mysteries: mummy DNA resurrects a cryptic species within the Nile crocodile, *Molecular Ecology*, DOI: 10.1111/j.1365-294X.2011.05245.x

Abstract

The Nile crocodile (*Crocodylus niloticus*) is an ancient icon of both cultural and scientific interest. The species is emblematic of the great civilizations of the Nile River valley and serves as a model for international wildlife conservation. Despite its familiarity, a centuries-long dispute over the taxonomic status of the Nile crocodile remains unresolved. This dispute not only confounds our understanding of the origins and biogeography of the ‘true crocodiles’ of the crown genus *Crocodylus*, but also complicates conservation and management of this commercially valuable species. We have taken a total evidence approach involving phylogenetic analysis of mitochondrial and nuclear markers, as well as karyotype analysis of chromosome number and structure, to assess the monophyletic status of the Nile crocodile. Samples were collected from throughout Africa, covering all major bioregions. We also utilized specimens from museum collections, including mummified crocodiles from the ancient Egyptian temples at Thebes and the Grottes de Samoun, to reconstruct the genetic profiles of extirpated populations. Our analyses reveal a cryptic evolutionary lineage within the Nile crocodile that elucidates the biogeographic history of the genus and clarifies long-standing arguments over the species’ taxonomic identity and conservation status. An examination of crocodile mummy haplotypes indicates that the cryptic lineage corresponds to an earlier description of *C. suchus* and suggests that both African *Crocodylus* lineages historically inhabited the Nile River. Recent survey efforts indicate that *C. suchus* is declining or extirpated throughout much of its

distribution. Without proper recognition of this cryptic species, current sustainable use-based management policies for the Nile crocodile may do more harm than good.

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