

*Press Release*  
**EMBARGO UNTIL PUBLICATION IN PNAS**

**Discovery of ~7 million year old fossil monkeys in Abu Dhabi provides evidence of “Out of Africa” monkey dispersal and the only evidence of guenons outside of Africa**

An international team of scientists from Hunter College-CUNY, the Museum für Naturkunde-Berlin, Yale University, and the Abu Dhabi Tourism and Culture Authority announced the discovery of an important 6.5 to 8 million year old fossil monkey specimen from Abu Dhabi in the current issue of *Proceedings of the National Academy of Sciences, USA*.

<http://www.pnas.org/content/early/2014/06/25/1323888111.abstract>

Old World monkeys, a diverse and widespread group including familiar animals such as African and Asian macaques, baboons, mangabeys, leaf monkeys, and langurs, are the most successful group of living non-human primates. Although these animals are found throughout Africa and Asia today, when and how they dispersed out of Africa and into Eurasia has never been fully understood. The fossil monkeys from Abu Dhabi seem to provide important clues to address these questions.

“In addition to the ‘Out of Africa’ events associated with human evolution, we know that Old World monkeys also originated and migrated out of Africa millions of years ago, but until now, it has been unclear as to exactly when and how,” says Dr. Chris Gilbert, lead author of the study. “Relative to later events in human evolution, this is sort of like ‘Out of Africa: the Prequel’”.

Previously, it has been hypothesized that at least some of these monkeys, particularly macaques, may have dispersed into Eurasia over the Mediterranean Basin or Straits of Gibraltar around 6 million years ago, during a time period known as the Messinian Crisis. At this time, the Mediterranean Sea dried up, allowing animals to cross between North Africa and Europe.

“These fossils indicate that, instead, Old World monkey dispersal could have taken place through the Arabian Peninsula even before the Messinian Crisis,” Dr. Gilbert said.

The new fossil, a very small lower molar, was discovered on Abu Dhabi’s Shuwaihat Island in 2009. The team determined that this tooth belonged to the earliest known guenon (e.g., vervets, red-tailed monkeys, De Brazza’s monkeys, Diana monkeys), some of the most brightly colored and distinctive monkeys in modern African forests. Although they are found only on the African continent today, the new fossil suggests that, at one time, guenons extended their range outside of Africa.

“When we found it, we were doing back-breaking sieving work searching for remains of tiny fossil rodents,” said Dr. Faysal Bibi of Berlin’s Museum für Naturkunde, a co-author and the discoverer of the little molar. “We spent many days over consecutive years sieving through tons of sand at this one site. It paid off.”

“Previously, the oldest known guenon fossil was approximately 4 million years old. Our specimen pushes back the first appearance of the group by at least 2.5 million years, and most probably more,” said Prof. Andrew Hill of Yale University, another co-author on the study.

“It takes years of work to make such discoveries and study them,” said Dr. Mark Beech of the Abu Dhabi Tourism and Culture Authority and a study co-author. “The discovery of a tree-dwelling guenon monkey in the Abu Dhabi desert really highlights the vast ecological changes that have taken place in the Arabian Peninsula.”

“The preservation of the Late Miocene fossil sites in Abu Dhabi emirate is of paramount importance,” said Mohammed Amer Al-Neyadi, Head of the Historic Environment Department at the Abu Dhabi Tourism and Culture Authority. “It is essential that these sites be protected for furthering our understanding of the ancient fossil record.”

The team stresses that future work in Abu Dhabi and the Arabian Peninsula will be critical in further illuminating the evolutionary history of monkeys and other mammalian groups. Previous work in the region has also highlighted interesting aspects of elephant evolution, for example.

“We still know relatively little about ancient life in the Arabian Peninsula,” said Dr. Bibi, “A rare find like this is a new first record for the entire region.”

**For more information, please contact:**

Dr. Christopher C. Gilbert, Hunter College [cgilbert@hunter.cuny.edu](mailto:cgilbert@hunter.cuny.edu) +1 212 396-6578

Dr. Faysal Bibi, Museum für Naturkunde [faysal.bibi@mf-n-berlin.de](mailto:faysal.bibi@mf-n-berlin.de) +49 30 2093 8546

Prof. Andrew Hill, Yale University [andrew.hill@yale.edu](mailto:andrew.hill@yale.edu) +1 203 432-3813

Dr. Mark Beech, Abu Dhabi Tourism and Culture Authority [mark.beech@tcaabudhabi.ae](mailto:mark.beech@tcaabudhabi.ae) +971 2 657 6221



Photo Credit: Andrea Baden

A modern guenon, the vervet monkey, *Chlorocebus pygerythrus*. Photo: Andrea Baden.



Photo Credit: Andrew Hill

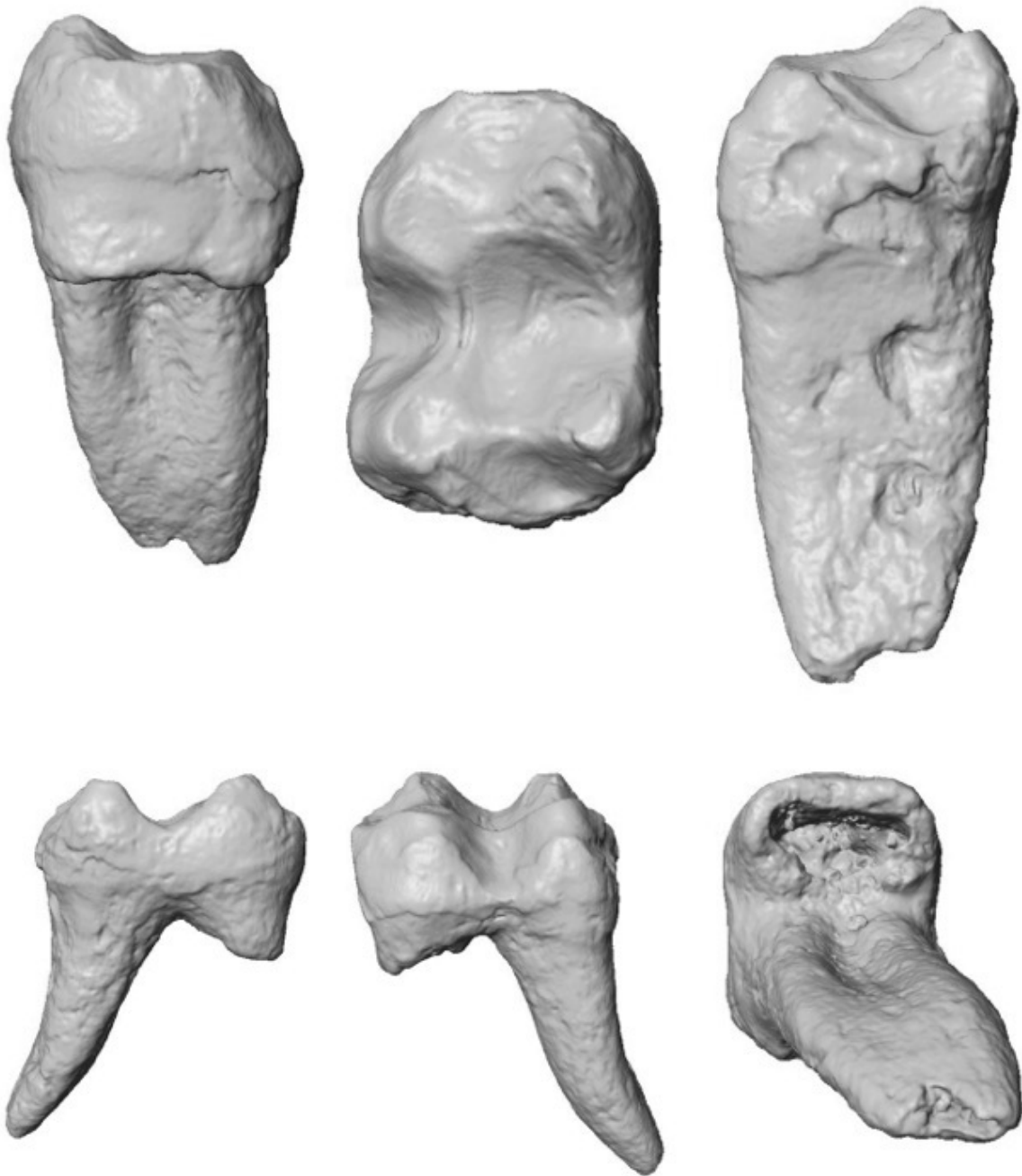
A modern guenon, the vervet monkey, *Chlorocebus pygerythrus*. Photo: Andrew Hill.



The team searching for tiny fossils at the monkey discovery site on Shuwaihat Island, United Arab Emirates. January 2nd, 2009. Photo: Mark Beech.



The fossil monkey tooth just moments after discovery. January 2nd, 2009. Photo: Brian Kraatz.



CT scans of the fossil monkey tooth. The tooth is just over half a centimeter long. Photo: Christopher Gilbert