



Communication and Marketing Department
Isebe loThungelwano neNtengiso
Kommunikasie en Bemerkingsdepartement

Private Bag X3, Rondebosch 7701, South Africa
Welgelegen House, Chapel Road Extension, Rosebank, Cape Town
Tel: +27 (0) 21 650 5427/5428/5674 Fax: +27 (0) 21 650 5628

www.uct.ac.za

17 May 2023

UCT study finds that Cradle of Humankind site is much younger than thought

New evidence shows that South Africa's Cradle of Humankind site, pegged at four million years old, is much younger than was previously thought. This brings the narrative of its antiquity into question. The finding follows multidisciplinary investigations at Bolt's Cave at this World Heritage Site, which has been dated to 2.27-1.70 million years old, almost two million years younger than previous research had assumed.

This is according to a [paper](#) recently published by Dr Tara Edwards, a Human Evolution Research Institute (HERI) postdoctoral research fellow from the Department of Geological Sciences at the University of Cape Town (UCT). The paper's title is "Challenging the antiquity of the Cradle of Humankind, South Africa: Geochronological evidence restricts the age of *Eurotomys bolti* and *Parapapio* to less than 2.3 Ma at Waypoint 160, Bolt's Farm".

The Cradle of Humankind is a paleoanthropological site some 50km north-west of Johannesburg. It was declared a World Heritage Site by UNESCO in 1999. The site is home to the largest concentration of human ancestral remains anywhere in the world.

The multi-disciplinary findings have important implications for human evolution research in the area, which is home to over 40% of the world's known hominin fossils.

Lead author Dr Edwards said: "As it stands, all of our work using multi-disciplinary sources over the last few years show no evidence for any sites in the Cradle older than 3.20 million years." Specifically, this debunks assumptions that sites like Sterkfontein Caves, renowned for its *Australopithecus* fossils, preserve deposits and fossils older than this.

Dating cave deposits

The work, published in the prestigious *Journal of Human Evolution*, uses a multi-disciplinary approach of sediment analysis, palaeomagnetism and uranium-lead dating to age the cave deposits between 2.27 and 1.70 million years old, correcting previous work which overestimated the age by around two million years.

"Our research applies multiple lines of evidence to reliably dispel the long-held assumption that Bolt's Farm is a site of great antiquity," said Edwards. "This finding helps us more

accurately assess the ages of sites within the Cradle, including fossils that directly impact our understanding of human origins.”

Bolt’s Farm is a cave system found in the Cradle of Humankind site. It is an important source of fossils, with various species of Plio-Pleistocene fauna, including primates and big cats. It is also home to a novel species of rat, *Eurytomys bolti* (*E. bolti*), found nowhere else.

Early research had dated the small cave called Waypoint 160 at Bolt’s Farm at about 4.5 million years, making it far older than other Cradle sites. That work, however, relied on the fossilised remains of the novel *E. bolti* species and comparing it to other fossil sites in South Africa.

In this new study, Edwards and her team present an analysis of sedimentary rock deposits from within the cave, including uranium-lead dating of flowstones, palaeomagnetic analysis, and facies analysis. “No previous study uses multiple lines of evidence to date Bolt’s Farm, so this research really highlights the importance of multidisciplinary work for painting a holistic and cohesive picture of the past,” Edwards noted.

Important clues

The findings not only give a more robust date for Bolt’s Farm but make it possible for the first time to compare it with other fossil-bearing deposits within the region. They also redefine the suggested age of the *E. bolti* species, dating it almost two million years younger than previously assumed.

Indeed, the fossil-bearing caves in the Cradle are the richest early hominin sites in the world. They are home to nearly 40% of all known human ancestor fossils, including the famous *Australopithecus africanus* skull nicknamed “Mrs Ples”.

“We know the Cradle holds important clues about our human evolution and researchers should be invigorated to explore the region more,” said Edwards. “But as it stands, all of our work using multidisciplinary sources over the last few years show no evidence for any sites in the Cradle older than 3.20 million years ago.”

According to HERI co-director, Dr Robyn Pickering, a co-author on the study, this is significant because it debunks assumptions that sites like Sterkfontein Caves, where numerous early hominin remains have been found, preserve deposits and fossils older than this. “It is becoming increasingly unlikely that Sterkfontein is as old as claimed, and this new study is yet another compelling piece of evidence against the presence of very old caves and fossils in the Cradle,” Pickering said.

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Issued by: UCT Communication and Marketing Department

Thami Nkwanyane

Media Liaison and Monitoring Officer
Communication and Marketing Department
University of Cape Town
Rondebosch
Tel: (021) 650 5672

Cell: 063 366 3993 / 072 563 9500
Email: thami.nkwanyane@uct.ac.za
Website: www.uct.ac.za