



# Press Release

**Oliver Häußler**  
Provisional Director

**Janna Eberhardt**  
Research reporter

Phone +49 7071 29-77853  
janna.eberhardt[at]uni-tuebingen.de

presse[at]uni-tuebingen.de  
www.uni-tuebingen.de/aktuell

## Earliest evidence of cave lions in southern Europe

**International research team with University of Tübingen member identifies over 600,000-year-old big cat bone from Notarchirico in south Italy**

Tübingen, 24.06.2024

Cave lions lived in what is now Italy around 660,000 to 610,000 years ago. This is confirmed by a metatarsal bone from the Notarchirico site near Venosa in the Basilicata region, which was discovered during a re-examination of earlier finds. It is the oldest evidence to date of the now extinct big cat in southern Europe. It was identified and published by an international research team with Dr. Alessio Iannucci from Terrestrial Palaeoclimatology at the University of Tübingen as the main author. The study has been published in the *Journal of Quaternary Science*.

The archaeological site of Notarchirico provided the oldest human fossil in Italy, probably an adolescent *Homo heidelbergensis*. The site is also well-known because it yielded one of the earliest evidence of the Acheulean culture in Europe and documents recurrent human settlement in the period between 695,000 and 610,000 years ago. The Acheulean culture, which appeared around a million years earlier in Africa, was characterized by the production of hand axes (worked on both sides) and other new stone tools.

### Climate and environmental change

"Appearing more than 600,000 years ago in Europe, the Acheulean culture quickly spread to the northern and southern regions," Alessio Iannucci says. Around the same time, during the transition between the Early and Middle Pleistocene, lions and several other large mammals also spread across Europe. "During this period, the rhythm of the cycles of glacial and interglacial periods changed. The cycles became longer, extending from around 40,000 years to 100,000 years. This was accompanied by strong and recurring climate and environmental changes," says Iannucci. This would have placed great demands on the ecological and behavioral adaptation of both humans and other species at the time.

"We are interested in the factors that played a role in the spread of the Acheulean. We are also using the large mammals as a source of information," says Iannucci. Around 900,000 to 700,000 years ago, giant hyenas became extinct in Europe, while other large mammals such as the European forest elephant, red deer and wild boar arrived from Asia and Africa. "Our discovery of an over 600,000-year-old *Panthera spelaea*, as the cave lion is scientifically known, reinforces the idea that this species was part of this major faunal renewal".



Alessio Iannucci, University of Tübingen, taking photos and notes on the morphology of the lion specimen from Notarchirico (Venosa, Italy). Photos: JQS, DOI 10.1002/jqs.3639



Building housing the musealized excavation area from Notarchirico (Venosa, Italy; left) and an overview of the musealized archaeosurface from the site. Photos: JQS, DOI 10.1002/jqs.3639



The cave lion specimen on the archaeosurface excavated from Notarchirico (Venosa, Italy). Photo: JQS, DOI 10.1002/jqs.3639



The newly identified metatarsal of the extinct cave lion *Panthera spelaea* from Notarchirico (Venosa, Italy). The preserved portion of the specimen measures approximately 14 cm. Photos: JQS, DOI 10.1002/jqs.3639

**Publication:**

Alessio Iannucci, Beniamino Mecozzi, Antonio Pineda, Raffaele Sardella, Marco Carpentieri, Rivka Rabinovich, Marie-Hélène Moncel: Early occurrence of lion (*Panthera spelaea*) at the Middle Pleistocene Acheulean site of Notarchirico (MIS 16, Italy). *Journal of Quaternary Science*, <https://doi.org/10.1002/jqs.3639>

**Contact:**

Dr. Alessio Iannucci  
University of Tübingen  
Geosciences – Terrestrial Palaeoclimatology  
Phone +49 7071 29-74674  
alessio.iannucci[at]mnf.uni-tuebingen.de