# An ancestor of the rabbit connects Europe and Asia

January 26 2016

*Ampliagus tomidai*. Credit: José Antonio Peñas (Sinc)

The species *Amphilagus tomidai* was recently discovered—an ancestor of the rabbit which lived in present-day Siberia during the Miocene, about 14 million years ago. The discovery of this mammal, belonging to a family which was thought to only exist in Europe, reveals that the two

continents were connected free of natural barriers due to the disappearance of the ancient Paratethys Sea.

A study led by the Institute of Geology of the Russian Academy of Sciences presents a new species, the *Amphilagus tomidai*, found in south-eastern Siberia (Russia) and dating back to the Middle Miocene, about 14 million years ago. The discovery of this mammal, an ancestor of the present-day rabbit, represents an important biogeographic link that confirms the widespread distribution of this group as well as the relationship between Asia and Europe during this period.

"*Amphilagus* is a genus that was traditionally thought to only exist in Europe, but remains of this mammal were recently located in Asia. The discovery of this mammal on the continent of Asia indicates that there were some paleogeographic and environmental conditions that favoured the expansion of this species towards the east," explains Chiara Angelone, a researcher at the Catalan Institute of Palaeontology Miquel Crusafont and co-author of the study published in the journal *Historical Biology*.

According to the study, the Miocene—which began 23 million years ago and ended 5.3 million years ago—gave rise to the barrier-free linking of Europe and Asia which would have allowed for the spread of this animal.

## An ancestor of the present-day rabbit

The Paratethys Sea—which was located to the south of Europe and spanned from the northern Alps to the Aral Sea in western Asia—had disappeared, and a lack of high mountains here meant that there were no barriers to hinder this animal's expansion. This situation favoured the spread of the mammal among open landscapes, aided by a cool, dry climate.

"These ancient animals help us to better understand the climatic and paleogeographic conditions of that period in time. Some discoveries add new insight into what we already know. Others, such as this one, uncover remarkable stories," explains Angelone.

The mammal that was unearthed is the northern-most Eurasian specimen of the *Amphilagus* genus a large lagomorph with primitive features. Its teeth have roots and do not continuously grow as do the teeth of present-day lagomorphs, an animal order that includes the families of rabbits, hares and pikas.

This newly discovered animal also possesses a simple, lower third premolar and a hypoconulid—an additional cusp at the back of the mouth—among the lower molariform teeth.

The *Amphilagus* genus, which appeared in Europe during the Upper Oligocene, is not free from controversy. According to the authors of the study, all European lagomorphs whose teeth had roots are considered part of the *Amphilagus* genus, thus making it necessary to re-evaluate this genus.

**More information:** Margarita Erbajeva et al. A new species of the genus (Lagomorpha, Mammalia) from the Middle Miocene of south-eastern Siberia , *Historical Biology* (2015). DOI: 10.1080/08912963.2015.1034119

Provided by Spanish Foundation for Science and Technology (FECYT)