

## SQUAMATES...

## LIZARDS, SNAKES, AMPHISBAENIANS...

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FR-TAF MNHN in Paris has hosted Arnau Bolet for his project «*Durophagy through the lizard fossil record: inferring dietary behaviour in amblyodont forms, and assessing its importance for the reconstruction of past vertebrate communities*», from November 29 till December 11 2015, in collaboration with his host Pr. Jean-Claude Rage, at the Paleontology Dpt.

Squamates are an extremely diverse group of reptiles including lizards, snakes, and amphisbaenians (worm lizards). My research focuses on the evolutionary history of squamates, mainly lizards and amphisbaenians, through the description of interesting fossil material from different geological ages (ranging between 120 million years ago and some thousand years ago). In my PhD thesis I studied the evolutionary history of lizards and amphisbaenians from Cretaceous, Eocene and Miocene ages in the Iberian Peninsula, providing a general view of the changes in composition of assemblages through time. I have also worked on material from other regions, such as the Eocene of France, the Quaternary of Argentina, and also on the worldwide distribution of fossil chameleons. My works have a strong component of classical morphological description (as it is necessary for the description of inedit material), but also includes modern approaches, such as the use of programs to analyse the phylogenetic relationships of taxa as well as obtaining 3D models through high resolution Computed Tomography Scanners, among others, and cover diverse aspects such as taxonomy, morphology, paleoenvironment, paleoecology and paleobiogeography.



3D model of a CT-Scan of the fossil amphisbaenian squamate *Blanus mendezi* Bolet et al., 2014 from the Miocene of Catalonia.

This has resulted in the description of several new genera and species, the identification of groups previously unknown for given temporal or geographic ranges, changes in the classification of some forms, etc. Besides other collaborations mainly focused on Permo-Triassic vertebrates, my main research works include: the description of *Pedrerasaurus latifrontalis* and *Jucaraseps grandipes* both representing new genera and species from the Early Cretaceous of the Iberian Peninsula; the description of the second known

specimen of *Scandensia ciervensis* from the Early Cretaceous of Las Hoyas; the description of the new genus and species *Pyrenasaurus evansae* from the late Eocene from France and Catalonia; the description of an extremely diverse assemblage from the late Eocene of Catalonia, with at least 18 taxa, many of them only recorded in the Eocene; the synonymization of the varanid *Iberosaurus* to *Varanus* based on material from the Miocene of Catalonia; the description of a new species in the Miocene of the Iberian Peninsula, *Blanus mendezi* of the only European amphisbaenian genus; the description of a new genus of scincid (*Gekkomimus*) and a new species of gecko (*Cadurcogekko verus*) for the paleontological quimera *Cadurcogekko rugosus* from the Eocene of France; and the description of lizard material from the Late Cretaceous of the Iberian Peninsula. My ongoing research includes the description of new disarticulated material from the Eocene and Miocene of Catalonia and Spain, as well as exceptional new articulated material from the Quaternary of the Canary Islands. For the present SYNTHESYS grant project I proposed to build a database of squamate forms presenting a specific type of dentition through the fossil record.

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The idea is to study if the occurrence of forms presenting a dentition adapted to the consumption of hard items (known as amblyodont dentition) is linked to specific environmental conditions. Examples of this could be isolation of some geographic areas (e.g. islands) or specific climatic conditions (e.g. periods of global rises of temperature, aridification). For this a survey on the comprehensive fossil lizard and amphisbaenian collections of the MNHN will be pursued.



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