

## New basal synapsid supports Laurasian origin for therapsids

Jun Liu, Bruce Rubidge, and Jinling Li

*Acta Palaeontologica Polonica* 54 (3), 2009: 393-400 doi: <http://dx.doi.org/10.4202/app.2008.0071>

The distant evolutionary ancestry of mammals is documented by a rich therapsid fossil record. While sphenacodontid synapsids are considered the sister-group of therapsids, the place of origin of therapsids is an enigma, largely because of a long standing morphological and temporal gap (Olson's Gap) in their fossil record. We describe a new large predatory synapsid, *Raranimus dashankouensis* gen. et sp. nov., from the Middle Permian of Dashankou in China which has a unique combination of therapsid and sphenacodontid features. This specimen is of great significance as it is a basal therapsid which is the sister taxon to all other therapsids. The fact that it was found in association with Early Permian tetrapods (*Anakamacops* and *Belebey*) suggests that it is the oldest therapsid and provides the first evidence of therapsid-bearing rocks which cover Olson's Gap. It further supports that therapsids may have had a Laurasian rather than Gondwanan origin.

**Key words:** Therapsida, Dashankou, Permian, Laurasia, China.

Jun Liu [[liujun@ivpp.ac.cn](mailto:liujun@ivpp.ac.cn)] and Jinling Li [[li.jinling@ivpp.ac.cn](mailto:li.jinling@ivpp.ac.cn)], Key Laboratory of Evolutionary Systematics of Vertebrates, Institute of Vertebrate Paleontology and Paleoanthropology, Chinese Academy of Sciences, Beijing 100044, China Bruce Rubidge [[bruce.rubidge@wits.ac.za](mailto:bruce.rubidge@wits.ac.za)], Bernard Price Institute for Palaeontological Research, University of the Witwatersrand, Private Bag 3, WITS, Johannesburg, 2050, South Africa

This is an open-access article distributed under the terms of the Creative Commons Attribution License (for details please see [creativecommons.org](http://creativecommons.org)), which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

[Full text \(403.0 kB\)](#)

