

Cranial morphology of the Plio-Pleistocene giant madtsoiid snake *Wonambi naracoortensis*

John D. Scanlon

Acta Palaeontologica Polonica 50 (1), 2005: 139-180

New material and additional morphological details of a rare and phylogenetically significant large fossil snake, *Wonambi naracoortensis* Smith, 1976, are described from Pleistocene and Pliocene cave deposits in southern South Australia. The new data refute some previous interpretations of the morphology of this species, and have implications for the phylogenetic position of *Wonambi* relative to extant snakes and other fossils, including other Madtsoiidae. The nature of contacts among palatal, braincase, snout, and mandibular elements imply similar functional attributes to those of extant anilioid snakes: maxillae from multiple individuals show corrugated contact surfaces for the prefrontal, implying a tight suture; structures on the anterior and medial surfaces of the palatine choanal process are interpreted as forming extensive contacts with the vomer and parasphenoid; and the distinctly bounded facets on the basipterygoid processes and pterygoid imply little or no capacity for anteroposterior sliding of the palatopterygoid arch, hence absence of the macrostomatan 'pterygoid walk'. On the frontal, interolfactory pillars were either absent or very slender, and a deep, sculptured contact surface for the nasal implies a prokinetic joint was also absent. Margins of the frontal and parietal indicate broad entry of the sphenoid into the orbital fenestra, as in *Dinilysia*. Similarity of elements and features of the braincase (trigeminal foramen, ear region, and basipterygoid processes) with both lizards and extant snakes show that differences between snakes and other squamates have sometimes been overstated. The case for macrostomatan affinities of *Wonambi* is not supported by new evidence.

Key words: Ophidia, *Wonambi*, anatomy, braincase, palate, mandible, Plio–Pleistocene, Australia.

John D. Scanlon [riversleigh@outbackatisa.com.au], Department of Environmental Biology, The University of Adelaide; and Department of Palaeontology, South Australian Museum, North Terrace, Adelaide, SA 5000. Present address: Riversleigh Fossil Centre, Outback at Isa, PO Box 1094, Mount Isa, QLD 4825, Australia.

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

 [Full text \(2,013.8 kB\)](#)