

Dwarfism and feeding behaviours in Oligo–Miocene crocodiles from Riversleigh, northwestern Queensland, Australia

Michael Stein, Michael Archer, and Suzanne J. Hand

Acta Palaeontologica Polonica 61 (1), 2016: 135–142 doi:<http://dx.doi.org/10.4202/app.00134.2014>

Instances of dwarfism in the fossil record are of interest to palaeontologists because they often provide insight into aspects of palaeoecology. Fossil species of Australian-Pacific mekosuchine genus *Mekosuchus* have been described as dwarf, primarily terrestrial crocodiles, in contrast with the nearly ubiquitous semi-aquatic habitus of extant crocodilians (Willis 1997). This hypothesis has been difficult to test because of limited knowledge of the cranial and postcranial skeleton of extinct taxa and the continuous nature of crocodilian growth. New crocodilian vertebral material from Riversleigh, northwestern Queensland, tentatively referred to *Mekosuchus whitehunterensis* Willis, 1997, displays morphological maturity indicative of adult snout-vent length little over a half-meter, proportionally smaller than extant dwarf taxa. Further, this material displays morphology that indicates a relatively large epaxial neck musculature for its body-size. These attributes suggest this dwarf mekosuchine employed unusual feeding behaviours. The ability to perform normal death-roll, de-fleshing behaviours would be limited in a mekosuchine of such small size. Given the powerful neck muscles and other anatomical features, it is more likely that this mekosuchine killed and/or dismembered its prey using a relatively forceful lifting and shaking of the head.

Key words: Crocodilia, Mekosuchinae, dwarfism, neural central suture, epaxial musculature, Oligo-Miocene, Australia, Riversleigh.

Michael Stein [michael.stein@student.unsw.edu.au], Michael Archer [m.archer@unsw.edu.au], and Suzanne J. Hand [s.hand@unsw.edu.au], School of Biological, Earth and Environmental Sciences, University of New South Wales, Sydney, New South Wales 2052, 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 \(414.9 kB\)](#)