



THE EARLIEST CYNODONT THERAPSID FROM THE LATE PERMIAN OF THE KAROO BASIN, SOUTH AFRICA

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Non-mammaliaform cynodonts were a widespread and successful group of advanced therapsids that arose in the early late Permian. The oldest described species are *Charassognathus gracilis* and *Abdalodon diastematicus*, both of which are known from single specimens from the *Endothiodon* Assemblage Zone (*Tropidostoma*-*Gorgonops* Subzone) of the Beaufort Group of the Main Karoo Basin, South Africa. Here we present two undescribed cynodont specimens from the same subzone, which comprise a second specimen of *A. diastematicus* and a new species of a small-bodied cynodont, housed at the palaeontological collections of the Council for Geosciences, Pretoria, South Africa and the Evolutionary Studies Institute, University of the Witwatersrand, Johannesburg, South Africa, respectively. Three of these four early cynodont specimens, excluding *Charassognathus*, were CT scanned using a Nikon Metrology XTH 225/320 LC dual source industrial CT system at the Evolutionary Studies Institute at the University of the Witwatersrand (Johannesburg, South Africa), enhancing the assessment of their craniodental morphology. Remarkable features of the new species include: the presence of a platform on the dentary, lateral to the lower postcanines; the absence of a masseteric fossa; two forms of sectorial postcanine teeth, whereby the anterior postcanines possess a posterior accessory cusp and the posterior postcanines have an additional anterior accessory cusp; and the presence of two small, canine-like postcanines in the dentary immediately distal to the canines. X-ray images of the new material of *A. diastematicus* suggest alternating dental replacement of the complex upper postcanines, which also seems to be the case for the lower incisors. A preliminary phylogeny retrieves *Abdalodon* as closely related to a monophyletic clade formed by the cosmopolitan *Procynosuchus* and the Russian *Dvinia*, whereas the new taxon and *Charassognathus* are successive sister species of remaining cynodonts.

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ON THE AUDITORY REGION OF *NEOBRACHYTHERIUM INTERMEDIUM* (PROTHEROTHERIIDAE, LITOPTERNA, MAMMALIA) FROM NORTHWESTERN ARGENTINA

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Litopterna are among the best known South American native ungulates and, after Notoungulata, this group has the most extended record in Cenozoic outcrops of the continent (Paleocene to late Pleistocene). They include mostly brachyodont forms, with derived representatives grouped in the families Macraucheniiidae and Protherotheriidae. The latter includes cursorial herbivores with reduced lateral digits, displaying small to medium body size (in average similar to small cervids, such as *Mazama americana*). In late Miocene deposits of northwestern Argentina, Protherotheriidae is only represented by the genus *Neobrachytherium* with two species: *N. intermedium* and *N. morenoi*. Although well-preserved litoptern skulls are known for different Neogene localities, morphological studies focused on these materials are relatively scarce. The finding of a skull and partial skeleton of *N. intermedium* (PVL E-A-4, provisory field number, Colección de Paleontología de Vertebrados Lillo) in the Andalhuala Formation (Miocene-Pliocene) at Encalilla (Tucumán Province) allowed us to analyze specific parts of the specimen, such as the petrosal. The skull was scanned using computed tomography, leading to the