

The Landana section (Cabinda, Angola): a unique Paleocene-Eocene biotic and sedimentary record in the Congo Basin

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Abstract

The Landana section (Cabinda, Angola) has been a known fossil locality since the late 19th century. During the first part of the 20th century, Edmond Dartevelle, a Belgian palaeontologist and explorer made several visits to the coastal area of Central Africa, including Cabinda. At Landana, he collected numerous fossil vertebrate and invertebrate specimens as well as many rock samples. This material is now part of the collections of the Royal Museum for Central Africa (RMCA) in Tervuren. The Landana site is probably most renowned for its vertebrate fauna, which includes: the dyrosaurid crocodyliform *Congosaurus bequaerti*, the bothremydid turtle *Taphrosphys congolensis*, the oldest scombrid fishes and ample amounts of elasmobranch species. The invertebrate fauna on the other hand is dominated by cephalopods and bivalves. Several evolutionary phases ranging from the Danian to the Lutetian can be recognized in this tropical shallow marine faunal assemblage. The overall faunal composition is similar to that of assemblages recovered from the Moroccan phosphate basins, except for the abundance of torpediniformes (electric rays) and the composition of Paleocene actinopterygians. Samples from the Dartevelle Landana collection were analysed as part of a multidisciplinary research project (PalEurAfrica, Belgian Science Policy), focussed on vertebrate evolution (RBINS), dinoflagellate associations (UGent), stable isotope composition (UNamur), and sediment properties (RMCA). $\delta^{13}\text{C}_{\text{org}}$ variations and dinoflagellate cyst occurrences were subsequently calibrated against revised data on foraminifer assemblages. Preliminary results suggest that the Landana section can be divided into two main parts. A lower part, consisting of foraminiferal limestone of Danian (layer 1-10), Danian-Selandian (layer 10-15), Thanetian (layer 15-21), Ypresian (layer 24-28) and Lutetian? (layer 29-32) age. A shallowing-upward sequence, a silicified hardground level and pervasive dolomitization, mark the transition to the upper part of the sequence (layer 33-42), which consists of feldspar-bearing sandstone, of likely Miocene age. Quantitative and qualitative analysis of dinoflagellate cyst occurrences also provides constraints for deducing local palaeoenvironmental changes and it contributes to the reconstruction of the Cenozoic depositional history of coastal marine Central Africa, at or near the estuary of the huge Congo Basin. As evidence of contemporaneous continental sediments deposited within the Congo Basin is lacking at present, the Landana section provides what appears to be a unique faunal and sedimentological record for the early Paleogene (Paleocene-Eocene) in Central Africa.