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Re-evaluation of the affinities of the ?*Dryopithecus wuduensis* mandible

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A mandible of a catarrhine primate was discovered in the Late Miocene deposits of Wudu County, Gansu Province, China in 1948 and was published several decades later as the holotype of *Dryopithecus wuduensis*. The specimen's attribution to *Dryopithecus* was based on similarities to European apes in premolar proportions, enamel thickness, and size, which are also features that serve to distinguish it from Asian fossil apes, such as *Sivapithecus*. More recently, similarities to pliopithecoids have been noted, but the affinities of the Wudu mandible to other catarrhines have yet to be examined quantitatively. This study analyzes the morphology of the Wudu mandible in the context of a broad catarrhine sample using linear indices of dental and mandibular proportions and 3D geometric morphometrics of the corpus. Results do not suggest clear affinities to any one non-cercopithecoid catarrhine taxon, but confirm that the short third premolar and elongate fourth premolar of the Wudu mandible differentiate it from most European apes, as well as from Asian fossil apes and extant great apes. An elongated third molar and narrow incisor row further distinguish it from European apes, as well as hylobatids. In many of the described features, the Wudu mandible is most similar to sampled stem hominoids (and, to a lesser degree, pliopithecoids). Thus, these results support the distinctiveness of *D. wuduensis* from Asian and some European apes, though an expanded fossil sample is necessary to better contextualize the phenetic affinities of this mandible and further explore its intriguing potential similarities to stem hominoids.

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African Land Mammal Ages: Definition and inclusion of primate range data

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We recognize and define 16 pan-continental African land mammal ages, or AFLMAs, spanning the Cenozoic Era and the Afro-arabian continent, the planet's second largest land mass. Almost 800 fossil genera from over 350 site units have been identified in coastal deposits, karst caves, and in the Neogene rift valleys. Given the well-developed geochronologic framework and continuing revision to the fossil record – both stimulated in large part by interest in the story of human evolution in Africa – and also to compensate for the variation of ecosystems across such great distances, the AFLMAs are biochronological units defined by basal reference localities, not biozones identified by selected genera. Africa is the highest of all continents, but almost every Paleogene locality was formed at sea level; the fossil record of its rainforest ecosystem remains virtually unknown, as does that of the great interior plateau; and the Paleogene fauna is highly endemic, whereas the Neogene begins with open exchange with Laurasia following the Tauride collision, with a simultaneous (and probably tectonically related) opening of the East African rift valleys in which the newly revolutionized fauna is abundantly preserved. Some transitions between AFLMAs are marked by major faunal turnovers, while others reveal little change. The primate record includes 100 genera, present in all 16 AFLMAs, including several recognized in 2019. The AFLMAs document the continent-wide response to increased seasonality during the Neogene and the unusually rapid transformation of the hominin lineage under the novel conditions of the expanding open-country ecosystem.

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