

DEMOGRAPHIC HISTORY AND GENETIC DIFFERENTIATION IN CHIMPANZEES FROM THE GULF OF GUINEA REGION

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Studies of intraspecific variation among chimpanzees (*Pan troglodytes*) have revealed that the partitioning of genetic diversity in chimpanzees varies across Africa. Four species of chimpanzees are currently recognized. The Gulf of Guinea region encompasses portions of Cameroon and Nigeria and is home to two chimpanzee subspecies (*P.t.elliotti* and *P.t.troglodytes*). The ranges of these subspecies converge at the Sanaga River in central Cameroon, but little is known about the paleodemographic history of chimpanzees across the region. Here we present multilocus genetic data from 46 captive rescued chimpanzees housed at the Limbe Wildlife Center (LWC) in Cameroon. We sequenced multiple intergenic autosomal regions totaling ~22,000 base pairs. These regions were analyzed together with orthologous loci of western (*P.t.verus*), eastern (*P.t.schweinfurthii*) chimpanzees and *P.t.troglodytes* from areas outside southern Cameroon. We used a variety of Bayesian approximation methods to analyze these data. The patterning of genetic diversity among chimpanzees in Nigeria and Cameroon was consistent with the expectations of an isolation-with-migration model. In particular, despite an ancient population split, gene flow continues to occur, albeit very infrequently, between these subspecies. We show that diversity levels based on DNA sequences from multiple nuclear noncoding regions reflect a more refined chimpanzee demographic history than previously appreciated, and we provide evidence that *P.t.elliotti* represents a fourth subspecies, particularly if the distinction between *P.t.troglodytes* and *P.t.schweinfurthii* is maintained. We conclude that the Sanaga River is a significant but incomplete boundary delimiting the chimpanzee subspecies inhabiting Nigeria and Cameroon.

Keywords: *Pan troglodytes*, subspecies, intergenic autosomal loci, river boundary