

CAPUCHIN PHYLOGENETICS AND STATISTICAL PHYLOGEOGRAPHY: IMPLICATIONS FOR BEHAVIORAL EVOLUTION

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This study aims to resolve phylogenetic relationships within the genus *Cebus* and to provide some insight into the evolutionary history of the clade. We use molecular data to infer a phylogeny for *Cebus* while concurrently estimating divergence times using calibration points from the fossil record. The resulting phylogeny is used to examine the patterns and timing of *Cebus*' dispersal and historical biogeography. Our findings concur with the morphological hypothesis of two distinct capuchin forms, with a late Miocene divergence between the robust and gracile radiations. We use genetic and geographic data from capuchin samples collected from over 80 localities throughout South and Central America to test for the strength of phylogeographic association and for the timing and directionality of historical migration patterns within the genus. The biogeographic results suggest that the present-day radiation of robust capuchins evolved first in the Atlantic Forest and only recently invaded the Amazon, where they are now sympatric with gracile capuchins across a large proportion of their range. They also suggest a reclassification of the species within the gracile group, including the need for splitting the currently-recognized forms of *Cebus albifrons* into more than one species. We suggest that *Cebus* should be split into two distinct genera, the gracile non-tufted *Cebus* clade and the robust tufted *Sapajus* clade, because they are distinct monophyletic lineages with divergent patterns of behavior. We also demonstrate how the patterns of capuchin evolutionary history as determined through statistical phylogeographic methods can be used as a framework to help understand present behavioral diversity across the two radiations of capuchin monkeys.

Keywords: *Cebus*, *Sapajus*, biogeography, genetics