

Study of the cytochrome b gene in the genus *Caiman* (Crocodylia, Alligatoridae) in Central and South America: phylogeographic analyses and phylogenetic inferences

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Abstract: The genus *Caiman* is one of the most taxonomically conflictive among crocodylians due to different views about the phylogenetic position of *Caiman crocodilus* within this genus. In Argentina, *Caiman latirostris* and *Caiman yacare* are present, and they are subject to sustainable use programs although they are scarcely studied at the genetic level. Our study had two aims: 1) genetic diversity, structure, and phylogeny of *C. yacare* and *C. latirostris* in Argentina and, 2) phylogenetic analysis of the genus *Caiman* throughout its entire distribution in America. The results show high haplotype diversity for both caiman species in Argentina but low nucleotide diversity for *C. latirostris* sequences. Phylogenetic analysis shows a clear separation between both species, but surprisingly, a well-differentiated clade belonging to the Chaco region is observed. The phylogenetic analysis that includes all *Caiman* species identified clades made up of the sequences of each species, but with some inconsistencies: in the clade of *Caiman crocodilus*, a sequence of *C. yacare* is included, and a clade is observed that combines sequences from *Caiman crocodilus fuscus* and *Caiman crocodilus chiapasus*. These data indicate the need to undertake interdisciplinary studies to clarify the taxonomic status of these crocodylian species and inform conservation management.

Keywords: Species concept; Conservation genetics studies; Crocodylian systematics

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