

Molecular Evidence for Three Species of Giraffa

Authors : Alice Petzold, Alexandre Hassanin

Abstract : The number of giraffe species has been in focus of interest since the exploration of sub-Saharan Africa by European naturalists during the 18th and 19th centuries, as previous taxonomists, like Geoffroy Saint-Hilaire, Richard Owen or William Edward de Winton, recognized two or three species of Giraffa. For the last decades, giraffes were commonly considered as a single species subdivided into nine subspecies. In this study, we have re-examined available nuclear and mitochondrial data. Our genetic admixture analyses of seven introns support three species: *G. camelopardalis* (i.e., northern giraffes including reticulated giraffes), *G. giraffa* (southern giraffe) and *G. tippelskirchi* (Masai giraffe). However, the nuclear alignments show small variation and our phylogenetic analyses provide high support only for the monophyly of *G. camelopardalis*. Comparisons with the mitochondrial tree revealed a robust conflict for the position and monophyly of *G. giraffa* and *G. tippelskirchi*, which is explained firstly by a mitochondrial introgression from Masai giraffe to southeastern giraffe, and secondly, by gene flow mediated by male dispersal between southern populations (subspecies *angolensis* and *giraffa*). We conclude that current data gives only moderate support for three giraffe species and point out that additional nuclear data need to be studied to revise giraffe taxonomy.

Keywords : autosomal markers, Giraffidae, mitochondrial introgression, taxonomy

Conference Title : ICSEB 2018 : International Conference on Systematic and Evolutionary Biology

Conference Location : Paris, France

Conference Dates : August 27-28, 2018