

ABSTRACT

Phylogenetic relationships of a sample comprising 248 bats belonging to 19 species and four families (Hipposideridae, Rhinolophidae, Molossidae and Vespertilionidae) from Senegal (Western Africa) were investigated with the use of multi-locus sequence data and non-differentially stained chromosomes.

The karyotypes of *Hipposideros ruber*, *H. tephros*, *H. jonesi* and *H. cyclops* were described for the first time. The standard *Hipposideros* formula was recorded in *H. tephros*, *H. jonesi* and *H. ruber* ($2n = 32$, $FNa = 60$, $FN = 64$). The karyotypes of *H. cyclops* ($2n = 36$, $FN = 66$) and *H. gigas* ($2n = 52$, $FN = 64$) substantially diverged from this typical chromosomal complement.

Rhinolophus landeri and *R. fumigatus* shared the same diploid number ($2n = 58$), but differed in the chromosome morphology (*R. fumigatus* – $FNa = 60$, $FN = 64$; *R. landeri* – $FNa = 64$, $FN = 68$). *Rhinolophus landeri* was found karyotypically distinct to other African populations, thus signalling a possible presence of cryptic forms within this species.

The karyotypes of *Chaerephon pumilus* and *Mops condylurus* had a $2n = 48$, $FN = 54$ and were similar to other previously studied species of this chromosomally conservative family.

Chromosomal, Bayesian, maximum likelihood and genetic distance analyses revealed an indication for the existence of cryptic forms among five out of ten examined species of the West African vespertilionid bats – *Pipistrellus hesperidus*, *Neoromicia nana*, *N. somalica*, *Scotoecus hirundo* and *Nycticeinops schlieffenii*. Additionally, based on the analyses of eight mitochondrial and nuclear genes and combination of the Senegalese bats and GenBank data, *Glischropus tylopus* was found basal to the clade of the East Asian pipistrelles and *Pipistrellus rueppellii* was basal to the whole *Pipistrellus/Nyctalus* clade, possibly deserving its own genus. *Eptesicus* was confirmed to be polyphyletic, with *E. nasutus* and *E. dimissus* being phylogenetically distinct to other representatives of *Eptesicus*. *Neoromicia* was confirmed to be diphyletic and Scotophilini appeared as the second most basal branch of all vespertilionids. The tribes Pipistrellini and Vespertilionini were defined differently than in recent discussions.

The detection of cryptic taxa, description of new karyotypes and proposals for new systematic arrangements demonstrate that our knowledge of (West-African) Chiroptera is still incomplete and that an investigation conducted on a small area can reveal new important findings, which can considerably contribute to our understanding of both biogeography and phylogeny.