



Universiteit
Leiden
The Netherlands

Demise and rise : the biogeography and taxonomy of the Odonata of tropical Africa

Dijkstra, K.D.B.

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STELLINGEN

Behorende bij het proefschrift "Demise and rise: the biogeography and taxonomy of the Odonata of tropical Africa". K.-D.B. Dijkstra, 16 mei 2007.

1. The demise of an 'old' Odonata fauna and the rise of a 'new' one in tropical Africa were largely shaped by climatic change and dispersal. *This thesis*.
2. Dispersal over vast expanses of ocean partly determines the geographic distribution of winged animals like Odonata, also of continental faunas. However, its recent contribution on the mainland is small because species that originate from islands are restricted to peripheral low-competition habitats. *This thesis*.
3. Africa has an adaptable fauna that easily straddles environmental and dispersal barriers, which has led to marked radiations as habitat became available. Much focus in biogeography has been on vicariance and dispersal events. Chances for the establishment and rapid radiation of newcomers, for instance in expanding forests with reduced competition after an arid phase, better explain differences in regional faunas. *This thesis*.
4. Speciation occurs in heterogeneous landscapes, especially close to where species are conserved. The mosaic of forest, swamp and savanna in the varied relief on the Congo-Zambezi watershed is rich in species and endemics and is a modern model for Afrotropical speciation centres. Historic equivalents in the Congo Basin are now 'drowned' in forest, or 'dried up' and 'cooled down' along the Rift Valley. *This thesis*.
5. Progress in the taxonomy of Odonata has been impeded by the traditional overvaluation of wing venation at the genus level, and an underappreciation of variation in size and melanisation at the species level.
6. Human disturbance of watersheds leads to world-wide loss of soil and water-sources. As attractive and sensitive insects of freshwater, Odonata are a logical focal taxon and flagship in conservation strategies of freshwater habitats. Collection-based research is crucial if Odonata are to fulfil this role.
7. 'Gondwana break-up' and 'Pleistocene forest refugia' were the mantras of tropical biogeography. With the advent of molecular phylogenetic analysis, the timing of many patterns thought to be 'Gondwanan' is now believed to be later and that of 'Pleistocene' patterns earlier, provoking new thought rather than confirming classic theories and resolving old disputes.
8. To understand selection across ecological gradients as a mechanism of speciation, studies are especially needed of invertebrates, the role of sexual selection, and recent species-rich lineages (Moritz *et al.* 2000. *Annual Review of Ecology and Systematics* 31: 533-563): Afrotropical Odonata are particularly suitable.
9. Although knowing and naming species is a human interest, the popularity and budget of taxonomy are perpetually low, while humanity rapidly erodes biodiversity. If the disinterest and demise persist, research should concentrate on taxonomic groups where a reasonable global overview can be obtained within fifty years.
10. The International Commission on Zoological Nomenclature must make a single language valid for descriptions of new taxa and place limitations on their publication to ensure review by authoritative peers.
11. Given the overwhelming complexity of self, society and science, every human being is ignorant and incompetent. For pleasant collaboration and personal peace of mind, it is better to accept and circumvent incapacity than to constantly engage and criticise it.
12. De stelligheid van stellingen stelt minder voor dan het voorstelt.