



## A new species of *Dexoris* (Coleoptera: Lycidae) and parallel evolution of brachyptery in the soft-bodied elateroid beetles

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### Abstract

*Dexoris chome* sp. nov. is described from South Pare mountains, Tanzania, based on a male specimen. This is the only *Dexoris* with shortened elytra, rudimentary hind wings and large, larviform abdomen. Unlike males of other species in the genus, *D. chome* sp. nov. has a modified number of palpomeres and remarkably short, robust legs and antennae. Such modifications are similar to those in the neotenic female of *Omalisus fontisbellaquei* Fourcroy, 1785 (Omalisidae), suggesting analogous morphological changes in unrelated lineages supposedly caused by similar modifications of their metamorphosis. The distribution of all 11 known species of African *Dexoris* closely overlap with the location of the hypothesized centres for evolution of new species in the Afrotropical region.

**Key words:** Net-winged beetles, neoteny, metamorphosis, Afrotropical region, distribution, new species

### Introduction

*Dexoris* Waterhouse, 1878 is a peculiar net-winged beetle genus with 10 known species from humid regions of Sub-Saharan Africa (Kleine 1942, Bocak & Bocakova 1988, Kazantsev 2000). Here we describe the unique case of fore-wing brachelytry and hind-wing microptery among net-winged beetle males. Although cases of brachelytry have been described in *Alyculus* Kazantsev, 1999 (Palata & Bocak 2012, Lyropaeinae: Alyculini) and *Cautires* Waterhouse, 1879 (Bocak *et al.*, in press, Lycinae: Metriorrhynchini), the hind wings were either fully developed or absent in these taxa. The insect wings are considered a key innovation responsible for evolutionary success, but many insects have given up their ability to fly in order to save energy for propagation (Guerra 2011) or to avoid being blown away from their preferred habitat (Medeiros & Gillespie 2011). The loss of flight in soft-bodied Elateriformia beetles, however, might have different biological connotations. The lycid flightless neotenic species have limited distributions, are species-poor and their flightlessness cannot be correlated with any evolutionary adaptation. Probably it is merely not penalized in stable environments (Bocak *et al.* 2008). When conditions fluctuate, such flightless and humidity-dependent species are endangered. The knowledge of neotenic beetle species is limited mainly due to their poor representation in collections. Up to now, only three neotenic genera, *Platerodrilus* Pic, 1921 *Macrolibnetis* Pic, 1938 and *Lyropaeus* Waterhouse, 1878, are known in both sexes (Wong 1996, Levkanicova & Bocak 2009, Masek *et al.* in press). Several other genera, *e.g.* *Scarelus* Waterhouse, 1879 and *Leptolycus* Leng et Mutchler, 1922, are known from a large number of winged males, while the neotenic development of their still unknown females is only hypothesized. Unlike closely related Lampyridae, the known neotenic lycid females remain completely larviform, and brachelytry is seldom observed in males.