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Paraneseuthia Franz in the Indian Himalayan Region and Western Palaearctic (Coleoptera, Staphylinidae, Scydmaeninae)

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Abstract

Paraneseuthia loebli **sp. n.** (northern India) and *P. meybohmi* **sp. n.** (central-southern Turkey) are described. This is the first record of *Paraneseuthia* west of Sundaland, with the Turkish species occurring over seven thousand kilometers westward from the hitherto known westernmost range of this genus. Moreover, for the first time *Paraneseuthia* is reported to occur in the Mediterranean zone of moderate climate. Previously proposed phylogeographic hypotheses concerning the evolution of *Paraneseuthia* are discussed and the currently known distribution of this genus is summarized.

Key words: Eutheiini, new species, Oriental, Palaearctic, India, Himalayas, Turkey, Mediterranean

Introduction

Morphological structures of the eutheiine genus *Paraneseuthia* Franz, 1986 are relatively well studied and even the phylogeny of this taxon was a subject of formal analyses (Jałoszyński 2010, 2011, 2014a). However, species of *Paraneseuthia* are very rare and their distribution is certainly inadequately known. Also details of their biology are largely restricted to collecting circumstances. Twenty species have been described so far, distributed in the Russian Far East and Japan (5 spp.), Southeast Asia (8 spp.), Australia (5 spp.) and Fiji (2 spp.) (Franz 1986; Jałoszyński 2006, 2008, 2009, 2010, 2011, 2013, 2014b; Jałoszyński & Hoshina 2004; Kurbatov 1990, 1991). Several undescribed species were also seen from various islands of the historical Sundaland area (Jałoszyński 2011). The placement of *Paraneseuthia* in Eutheiini was corroborated by Jałoszyński & Hoshina (2004) and Jałoszyński (2014a). Detailed morphological study of this genus was carried out by Jałoszyński (2010), who found only minor differences between species inhabiting subtropical Oriental areas and East Palaearctic zone of temperate climate. A preliminary phylogenetic analysis (Jałoszyński 2011) suggested the placement of *Paraneseuthia* as a sister group to Holarctic *Euthiconus* Reitter, 1882, and this conclusion was further supported in a comprehensive analysis of all genera of the supertribe Cephenniitae, to which tribes Cephenniini, Eutheiini and Marcepaniini belong (Jałoszyński 2014b). Discovery of *Paraneseuthia* in Australia prompted Jałoszyński (2011) to analyze known distribution of this genus on a biogeographic background. As a result, it was concluded that the Australian and Melanesian species are more closely related to their East Palaearctic congeners than to most of the Sunda-Papuan species. A Sundaland origin of this genus was suggested, with three major historical dispersal routes originating from a center located in present-day Sumatra: north-eastern colonization of the Palearctic Far East via a continental or island-arc route; south-eastern dispersal to Australia; and eastern dispersal to Melanesia, possibly via the Quaternary Outer-Melanesian Arc. The important role of dispersal in the evolution of *Paraneseuthia* was demonstrated by finding this genus on isolated volcanic islands, such as the southern Moluccas and Fiji, which were never connected to larger land masses (Jałoszyński 2011).

This preliminary hypothesis appeared incomplete when in 2011 Heinrich Meybohm sent me a series of intriguing scydmaenine specimens collected in south-central Turkey. The specimens without doubt belonged in *Paraneseuthia*. The distance between this new locality where *Paraneseuthia* occurs and the hitherto known westernmost site (in Aceh, Sumatra) was over seven thousand kilometers northwest. Attempts to obtain new phylogenetic hypotheses by cladistic analyses (Jałoszyński, unpublished data) gave inconclusive results, and the

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demonstrate also a greater than previously known ecological flexibility of this genus, which occurs in several climate zones—tropical wet (Southeast Asia), tropical wet and dry (northern Australia), tropical marine (Fiji), moderate humid subtropical (eastern Australia, central-western Japan), humid continental (Russian Far East, central-eastern Japan) and moderate Mediterranean (central-southern Turkey).

Efforts were made to incorporate all new species of *Paraneseuthia* described since the phylogenetic results of Jałoszyński (2011) into the existing data set, in order to propose new phylogeographical hypotheses based on results of cladistic analyses. However, several different attempts (e.g., equal weights vs. implied weighting with various concavity values; external morphological characters + male genital characters vs. only genital characters) resulted in poorly resolved topologies. Only the Far Eastern and Australian lineages were moderately well supported as monophyletic clades. For this reason the results are not presented and not discussed in detail here, as it is clear that at the current state of knowledge new species of *Paraneseuthia* are likely to be discovered and they may significantly change tree topologies. However, one finding is worth mentioning—in most analyses (and all that were weighted against homoplasy) *P. meybohmi* was placed as a sister group of a clade *P. loebli* + all remaining species. Although a hypothesis of an early splitting event that separated western continental lineage from Australo-Oriental clade was weakly supported in formal phylogenetic analyses, but it seems most intellectually stimulating as a starting point for further studies.

Paraneseuthia meybohmi shows a character state not known in any other species of *Paraneseuthia*—the subapical placement of the ventral diaphragm, and the surface of the diaphragm is perpendicular to the long axis of the aedeagus, while in all other congeners the sub-basal diaphragm is parallel to the axis. Such a structure involves also a difference in the orientation of internal aedeagal muscles, as the muscle M.17 (numbering of aedeagal muscles in Scydmaeninae was proposed by Jałoszyński, Matsumura & Beutel (2015)) is attached to the diaphragm. The structure of the aedeagus of *P. meybohmi* is surprisingly similar to that of many Cephenniini, in which the median lobe shows a variously expressed asymmetry, with extreme cases drop-shaped in ventral view, with the apex shifted to the left, and a group of dorsal apical projections to the right (e.g., Jałoszyński 2007a, b). The aedeagus of *P. meybohmi* may reflect a similar evolutionary tendency or an early stage of asymmetrization.

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