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The riffle beetles (Coleoptera: Elmidae) of the Eocene Baltic amber: *Heterelmis groehni* sp. nov. and *Heterlimnius samlandicus* (Bollow, 1940) comb. nov.

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Abstract

The Eocene elmid beetles known from Baltic amber so far are reviewed, and their natural environment is discussed. *Palaeoriohelmis samlandica* Bollow, 1940 is re-described based on examination of the holotype. The genus *Palaeoriohelmis* Bollow, 1940 is synonymized with *Heterlimnius* Hinton, 1935, and *Palaeoriohelmis samlandica* is transferred to *Heterlimnius* (*H. samlandicus* **comb. nov.**). *Heterelmis groehni* **sp. nov.** is described and illustrated. *Elmadulescens rugosus* Peris, Maier & Sánchez-García, 2015 from Cretaceous Spanish amber is removed from Elmidae.

Key words: Elmidae, *Heterelmis*, *Heterlimnius*, *Palaeoriohelmis samlandica*, new species, new combination, Tertiary, fossil resin, Coleoptera, Baltic Amber

Introduction

Elmidae or riffle beetles represent a moderately large cosmopolitan family with 151 genera and almost 1500 described extant species (Jäch *et al*. in press). The current classification of two subfamilies, Elminae and Larainae, could not be confirmed by recent molecular studies. Elmidae usually inhabit streams and rivers. They are often used in ecological running water monitoring programs (e.g. Moog & Jäch 2003). The morphology of Elmidae was described in detail by Kodada & Jäch (2005).

Baltic amber is found mainly at the southern coasts of the Baltic Sea and usually dated as the Upper Eocene. Although most estimates of the age of Baltic amber have placed it as deriving from the early Middle Eocene (Lutetian) (48.6–40.4 mya), based largely on K-Ar dating (Ritzkowski 1997), palynological biostratigraphy of the specific region, where the sample originated suggests a younger, Priabonian age (37.2–33.9 mya) (Aleksandrova & Zaporozhets 2008). A detailed discussion of the stratigraphic basis for the age of Baltic amber deposits can be found in Perkovsky *et al*. (2007). According to Turkin (1997), Baltic amber was produced by *Pinus succinifera* (Conw.) Schub., which, together with the fagacean *Formanodendron*-like trees (Alexeev & Alexeev 2014) in the Eocene dominated the humid mixed forests of northern and Central Europe. More recent work on the chemical composition of Baltic amber has suggested that also trees of the family Araucariaceae or Sciadopityaceae might have been candidates for the production of this amber deposit (Langenheim 2003; Wolfe *et al*. 2009; Lambert *et al.* 2014).

Only one specimen of Elmidae (*Palaeoriohelmis samlandica* Bollow, 1940) has been found in Baltic amber so far (Alekseev 2013). This species is re-described, and the genus *Palaeoriohelmis* is synonymized. In the University of Hamburg, Germany (GPIH), collection of Mr. Carsten Gröhn (Glinde, Germany), we recently discovered a second specimen of Elmidae from Baltic amber, which is described below.

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