A new species of *Diochus* from Baltic amber (Coleoptera, Staphylinidae, Diochini)

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Academic editor: Volker Assing  |  Received 10 August 2011  |  Accepted 16 September 2011  |  Published 19 October 2011

Citation: Chatzimanolis S, Engel MS (2011) A new species of *Diochus* from Baltic amber (Coleoptera, Staphylinidae, Diochini). ZooKeys 138: 65–73. doi: 10.3897/zookeys.138.1896

Abstract

The first fossil of the staphylinine tribe Diochini Casey is described and figured from an inclusion in mid-Eocene (Lutetian) Baltic amber. *Diochus electrus* sp. n. is distinguished from its congeners and the diversity of rove beetles (Staphylinidae s.l.) is summarized briefly.

Keywords

Tertiary, Eocene, Lutetian, fossil, Staphylininae, Diochini, taxonomy

Introduction

More so than any other amber deposit in the world, the fossiliferous resin from the blae Erde of northern Europe has garnered the attention of researchers, artists, and amateurs. For literally millennia Baltic amber has been the focus, if not obsession, of innumerable individuals and as such its included flora and fauna is one of the most
completely understood paleoecosystems. Despite this fascination and intense activity, there remains huge swaths of the fauna to revise and newly document. Among those groups requiring significant attention are the beetles of the family Staphylinidae (sensu Bouchard et al. 2011). Most species, largely of the subfamilies Scydmaeninae and Pselaphinae, were described more than a century ago by Schaufuss (1888, 1890a, 1890b, 1890c, 1892, 1896) and are in need of revision and figuring, should new material eventually be located (vide Appendix). Fortunately, several new works during the last 35 years, particularly the last decade, have added significantly to this fauna and provided a more modern perspective on staphylinid diversity in Baltic amber (vide Appendix). Unfortunately, the diverse subfamily Staphylininae has not been recorded formally since Schaufuss (1888) described *Bembicidiodes inaequicollis*, a species more recently considered of uncertain subfamilial affinity (Herman 2001).

In this paper we describe the first fossil species of *Diochus* Erichson from middle Eocene Baltic amber and as the first, definitive fossil staphylinine. The tribe Diochini Casey includes the genera *Antarctothius* Coiffait and Saiz, *Coomania* Cameron, and *Diochus*. The tribe has not received much taxonomic attention and the boundaries between these genera are not clear. Newton (1985) suggested that *Antartoctothius* might be co-generic with *Diochus*, which is the genus with the highest number of species (40) in the tribe. *Diochus* has a worldwide distribution but the majority of species are found in the New and Old World tropics. There are ten species of *Diochus* in the Palearctic region (Smetana 2004; western Palearctic species revised by Assing 2003) and only one in the Nearctic (Smetana 1982). Smetana (1982) noted that *Diochus* is in dire need of systematic revision and that it is extremely hard to differentiate between species.

**Material and methods**

Measurements were made using an ocular micrometer on an Olympus SZX-12 stereomicroscope and all measurements refer to maximum width or length of a particular structure. Total length is measured from the anterior margin of the clypeus to the posterior margin of abdominal segment VIII. Due to the placement of the fossil in amber, not all typical measurements were possible. Photomicrographs where prepared with a Nikon D1x digital camera attached to an Infinity K-2 long-distance microscope lens.

The age, origin, and biotic diversity of Baltic amber has recently been summarized by Weitschat and Wichard (2010). Material discussed herein is deposited in the Fossil Insect Collection of the Division of Entomology, University of Kansas Natural History Museum, Lawrence, Kansas, USA.

**Systematic placement**

The fossil is placed in the tribe Diochini (and the genus *Diochus*) based on the following characters (from Smetana 1982): antennae not geniculate; maxillary palpus (P₂
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and P₃) finely pubescent; neck narrow, only about a forth as wide as head and frons between antennal insertions truncate. The direct comparison of the fossil described here with Coomania was not possible due to the lack of Coomania specimens, however, in the published description of Coomania (Cameron 1939) the neck is much narrower than in Diochus, only a fifth as broad as the head.

**Systematic paleontology**

**Family Staphylinidae Latreille, 1802**
**Subfamily Staphylininae Latreille, 1802**
**Tribe Diochini Casey, 1906**
**Genus Diochus Erichson, 1839**

*Diochus electrus* Chatzimanolis & Engel, sp. n.
urn:lsid:zoobank.org:act:C24A1C8A-B27B-48EC-8100-2FE43C4913E6
http://species-id.net/wiki/Diochus_electrus
Figs 1–3

**Holotype.** ♀; KU-NHM-ENT, B-244 (Fig. 1); with labels: “Amber: Baltic, middle Eocene (Lutetian), blae Erde, Northern Europe, KU-NHM-ENT-B244” // “HOLOTYPE Diochus electrus Chatzimanolis and Engel, des. Chatzimanolis and Engel 2011”. Deposited in Fossil Insect Collection, Division of Entomology, University of Kansas Natural History Museum, Lawrence.

**Diagnosis.** *Diochus electrus* can be distinguished from other western Palearctic species of the genus by the differences in the relative proportion of elytra to pronotum (elytra longer than pronotum in *D. electrus*; shorter than elytra in other species) and the proportions of the head (head much more elongate in the extant species than in *D. electrus*).

**Description.** Total length 3.5 mm; body coloration brown to black except antennae somewhat orange and abdominal segment VIII light brown. Head ovoid, length 0.56 mm, width 0.48 mm, slightly longer than wide (Fig. 2); compound eye length 0.18 mm, postoccular region convex, about twice as long as compound eyes; head with large macrosetae near posterior margin; head with transverse microsculpture and sparse small punctures. Antennomeres 1–5 longer than wide; antennomeres 6–10 subquadrate, antennomere 11 longer than wide; antennomere 1 as long as twice length of antennomere 2; antennomere 3 1.5 times longer than antennomere 2; antennomere 4 slightly shorter than antennomere 3; antennomere 5 slightly shorter than antennomere 4; antennomeres 6–9 subequal in length; antennomere 10 slightly longer than previous antennomeres but shorter than antennomere 11. Mouthparts not visible except right maxillary palp; maxillary palpomere I (P₁) not visible, P₂ longer than wide, club-like, about as long as P₃; P₄ becoming wider distally; P₄ extremely small, slender, conical, about seven times smaller than P₃. Pronotum subquadrate, wider than head; pronotal length 0.64 mm, width 0.49 mm; anterolateral corners curved ventrally and not vis-
ible from above; pronotum smooth with sparsely scattered small, shallow punctures.
Elytra longer than pronotum; elytra length 0.75 mm, elytra width 0.67 mm; elytra
with dense macrosetae, expanding posteriorly; elytra sculptured as on pronotum. Legs
(forelegs not visible) with slender tibiae covered in long spurs distally; tarsi elongate,
metatarsi almost as long as metatibia; metatarsomeres I and II greatly expanded. Abdo-
men with dense macrosetae (Figs. 1, 3); segment VI longer than preceding segments;
segment VII about twice as long as segment V; sternum VIII without any secondary
sexual structures.

Etymology. The specific epithet is an adjective derived from the Latin noun for
amber (electrum).

Figures 1–3. Photomicrographs of holotype female of Diochus electrus Chatzimanolis & Engel, sp. n.
(B-244). 1 Dorsal view 2 Details of head 3 Details of abdominal apex.
Acknowledgements

We thank two anonymous reviewers and the editor for comments that improved this manuscript. Financial support was provided by US National Science Foundation grant DEB-0741475 (to S.C. and M.S.E.).

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Appendix

Checklist of described Baltic (including Bitterfeld and Rovno) amber Staphylinidae—arranged by subfamily (sensu Bouchard et al. 2011); older records also exist for the subfamilies Euaesthetinae, Micropeplinae, Osoriinae, Oxytelinae, Phloecharinae, Proteininae, and Scaphidiinae but based on unidentified or undescribed material (e.g., Klebs 1910; Larsson 1978; Spahr 1981, Puthz 2006, 2008).

Subfamily Aleocharinae Fleming

Adinopsis groehni Zerche, 1999
Aleochara (Aleochara) baltica Paśnik & Kubisz, 2002
Atheta (Datomicra) jantarica Paśnik, 2005
Baltioligota electrica Paśnik, 2005
Dictyon antiquus Paśnik & Kubisz, 2002
Electrogymnusa baltica Wolf-Schwenniger, 2004
Leptusa (Proteleptusa) defuncta Semenov et al., 2001 [Rovno]
Phymatura electrica Paśnik & Kubisz, 2002

Subfamily Omaliinae MacLeay

Pseudolesteua insinuans Schaufuss, 1890b

Subfamily Oxyporinae Fleming

Oxyporus blumenbachi Gravenhorst, 1806

Subfamily Paederinae Fleming

Lathrobium ambricum Paśnik & Kubisz, 2002
Lathrobium balticum Paśnik & Kubisz, 2002
Lathrobium jantaricum Paśnik & Kubisz, 2002
Lathrobium succini Paśnik & Kubisz, 2002
Lathrobium (Palaeolobrathium) whitei Abdullah & Abdullah, 1968

Subfamily Pselaphinae Latreille

Barybryaxis lata Schaufuss, 1890a
Batrisus antiquus Schaufuss, 1890a
Batrisus pristinus Schaufuss, 1890a
Bythinus foveopunctatus Schaufuss, 1890a
Bythinus schaufussi Reitter, 1891 (nom. nov. proB. caviceps Schauffuss, 1890a)
Bythinus tenuipes Schauffuss, 1890a
Bythinus typicus Schauffuss, 1890a
Ctenistodes claviger Schauffuss, 1890a
Cymbalizon tyroides Schauffuss, 1890a
Dantiscanus costalis Schauffuss, 1890a
Deuterotyrus redivivus Schauffuss, 1890a
Euplectus lentiferus Schauffuss, 1890a
Euplectus mozarti Schauffuss, 1890a
Euplectus quadrifoveatus Schauffuss, 1890a
Euspinoides glabrellus Motschulsky, 1856
Farous porrectus Schauffuss, 1890a
Farous tritomicrus Schauffuss, 1890a
Greys conciliator Schauffuss, 1890a
Hagnometopias pater Schauffuss, 1890a
Hetereuplectus retrorsus Schauffuss, 1890a
Monyx spiculatus Schauffuss, 1890a
Nugaculus calcitrans Schauffuss, 1890a
Nugator stricticollis Schauffuss, 1890a
Pammiges spectrum Schauffuss, 1890a
Pantobatrisus cursor Schauffuss, 1890a
Ryxious glabrella (Schauffuss, 1890a)
Ryxious patris (Schauffuss, 1892)
Ryxious veterum (Schauffuss, 1890a)
Tmesiphoroides cariniger Motschulsky, 1856
Tychus avus Schauffuss, 1890a
Tychus radians Schauffuss, 1890a
Tyrous electricus Schauffuss, 1890a

Subfamily Scydmaeninae Leach
Aenictosoma doenitzi Schauffuss, 1892
Clidicus balticus Schauffuss, 1896
Cryptododon corticaroides Schauffuss, 1890c
Electroscydmaenus pterostichoides Schauffuss, 1890c
Euconnus fossilis Franz, 1976
Euconnus liedtkei Franz, 1976
Euconnus sucini Franz, 1976
Euconnus wunderlicher Franz, 1983
Heterothebia elegans Schauffuss, 1890c
Heuretus coriaceus Schauffuss, 1890c
Neuraphes fossilis Franz, 1983
Palaeomastigus helmi Schauffuss, 1890c
Palaeothia tenuitarsis Schauffuss, 1890c
Scydmaenoides nigrascens Motschulsky, 1856
Semnodioceras haulticaeforme Schaufuss, 1890c
Stenichnus (Cyrtoscydmus) capucinus (Schaufuss, 1890c)
Stenichnus (Cyrtoscydmus) carinulatus (Schaufuss, 1890c)
Stenichnus (Cyrtoscydmus) laticlavus (Schaufuss, 1890c)
Stenichnus (Cyrtoscydmus) titubans (Schaufuss, 1890c)

Subfamily Staphylininae Latreille

Bembicidiodes inaequicollis Schaufuss, 1888 (subfamily questioned: Herman 2001)

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Subfamily Steninae MacLeay

Stenus (Hemistenus) priscus Benick, 1943
Stenus abraham Puthz, 2010
Stenus archetypus Puthz, 2010
Stenus atavus Puthz, 2010
Stenus avus Puthz, 2010
Stenus groehni Puthz, 2010
Stenus ketura Puthz, 2010
Stenus methusalem Puthz, 2010
Stenus noach Puthz, 2010

Subfamily Tachyporinae MacLeay

Bolitobius groehni Schülke, 2000
Palaeosepedophilus succinicus Paśnik & Kubisz, 2002
Sepedophilus balticus Paśnik & Kubisz, 2002
Tachyporus bicoloratus Paśnik, 2005