An enigmatic new genus and species of phorid fly from Baltic amber

[Eine rätselhafte neue Gattung und Art der Phoridae aus dem Baltischen Bernstein]

by
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Abstract A new genus and a new species of Phoridae, ***Jealia pulcherrima* gen. et spec. nov.**, is described from Eocene/Oligocene Baltic amber. It is highly unusual in having a medial acrostichal row of setae in combination with modern phorid wing venation. With its combination of primitive and derived characters, its phylogenetic relationships are unknown.

Key words Phoridae, fossil, Baltic amber, new genus, new species

Zusammenfassung Eine neue Gattung und eine neue Art, ***Jealia pulcherrima* gen. et spec. nov.**, der Phoridae wird aus dem Baltischen Bernstein (Eozän/Oligozän) beschrieben. Sie ist dadurch so ungewöhnlich, weil sie eine mediale Reihe von Acrostichalborsten besitzt und gleichzeitig das moderne Flügelgeäder der Phoriden aufweist. Aufgrund dieser Kombination von ursprünglichen und abgeleiteten Merkmalen bleibt ihre phylogenetische Verwandtschaft im Unklaren.

Stichwörter Phoridae, fossil, Baltischer Bernstein, neue Gattung, neue Art

Introduction

The phorid fauna of Baltic amber is highly diverse but little studied. It was summarized by Brues (1939), and then neglected for 60 years until the current author began his ongoing studies on fossil flies (e. g., Brown 1999, 2002, 2003, 2005, 2007). The Baltic fauna contains a mixture of modern genera, stem-group taxa of modern genera, and a number of species for which relationships with the modern fauna cannot be hypothesized at this time. Below is an example of the last category, embodied by an extremely unusual species that was fortunately well preserved for study.

Jealia gen. nov.

Type species: *Jealia pulcherrima* spec. nov.

Diagnosis. Supra-antennal setae absent, instead with scattered medioventral setae on frons (Fig. 1); scutum with row of median acrostichal setae, row of more lateral dorsocentral setae, and numerous larger, more scattered anterolateral setae (Fig. 2); anepisternum without furrows; legs without enlarged setae; hind tarsomere 1 with longitudinal setal palisades; wing with typical phorid venation.

Derivation of genus name. This genus is named for David Jeal at the request of Diane Naegele, a supporter of the LACM Entomology Section. The name is considered feminine for nomenclatural purposes.

Phylogenetic classification. This genus cannot be classified in any of the currently recognized subfamilies. Furthermore, the phylogenetic relationships of phorids are currently under

intense scrutiny using molecular characters (Brown & Smith in preparation) and revisions to the traditional classification [used by Disney (1994), for instance] and the revised classification of Brown (1992) are expected. The lack of anepisternal furrows, however, excludes *Jealia* from Metopininae, and synapomorphic characters for traditional Phorinae have not yet been proposed. This genus does not belong in any of the other higher groupings that have been proposed (Hypocerinae, Phorinae, Aenigmatiinae sensu Brown (1992); Termitoxeniinae, Thaumatoxeninae, Sciadocerinae).

Brown (2007) reviewed some fossil species and proposed a new group, Euphorida, that includes all modern phorids except the Sciadocerinae. The new genus *Jealia* has most of the characters proposed by Brown (2007) for Euphorida, but has a different scutal setation: in Euphorida the dorsum of the scutum has dense random setulae not organized into acrostichal and dorsocentral rows, and with large setae restricted to the periphery. In *Jealia*, there is a mixture of relatively random (although enlarged) anterolateral setae and smaller acrostichal and dorsocentral rows. This genus could be classified as the sister-group to all Euphorida; alternately, the scutal setation might represent a reversal to a more primitive state. Given the apparent plasticity of scutal setation (Brown 2007), either possibility seems likely. A further male specimen with a clearer view of the phylogenetically important terminalia might better support one or other of these possibilities.

The frontal setation of this species is also highly aberrant, and is likely to be a result of the displacement of the usual large frontal setae (and loss of supra-antennal setae), by the increased development of the male flagellomere 1, as is common in other phorids. Discovery of a female specimen, which might have a more normal frontal setation, and phylogenetically informative supra-antennal setae, would be extremely helpful.

Until there is a better understanding of the higher classification of phorid genera, however, and we have well-supported groups based on structural characters, it is unlikely we will be able to definitively place this unusual genus.

Jealia pulcherrima spec. nov.

(Figs. 1, 2)

Material. Holotype male, Baltic amber, LACM ENT 268414. Purchased from Jens von Holt; deposited in the Natural History Museum of Los Angeles County.

Derivation of specific epithet. The name is Latin for "most beautiful" referring to the wonderfully preserved specimen, but also as a tribute of Mr. Jeal to his wife, Kathy.

Description. Male (female unknown). Body length approximately 2 mm. Head with four large setae along eye margin, one pair dorsal interfrontal setae, one pair postocellar setae, and several scattered smaller setae above antennae (Fig. 1). Frontal furrow present. Flagellomere 1 elongate triangular; arista slightly subapical, short, about as long as flagellomere 1. Palpus small, setulae not visible. Thorax arched, rounded. Scutum dorsally (Fig. 2) with row of median acrostichal setae, row of more lateral dorsocentral setae, and numerous larger, more scattered anterolateral setae; periphery of scutum with posterior dorsocentral, intra-alar, and supra-alar setae; one enlarged supra-alar seta present near anterior margin of scutum, and one enlarged seta on left side only at level of anterior notopleural seta. Scutellum with two pairs of large setae. Notopleuron with two setae. Proepisternum with two enlarged setae. Anepisternum bare, without furrows. Legs with femora slender; tibiae without large setae, ctenidia, or setal palisades; tarsomeres unmodified. Empodia looked for but apex of legs not visible. Wing with costa short,

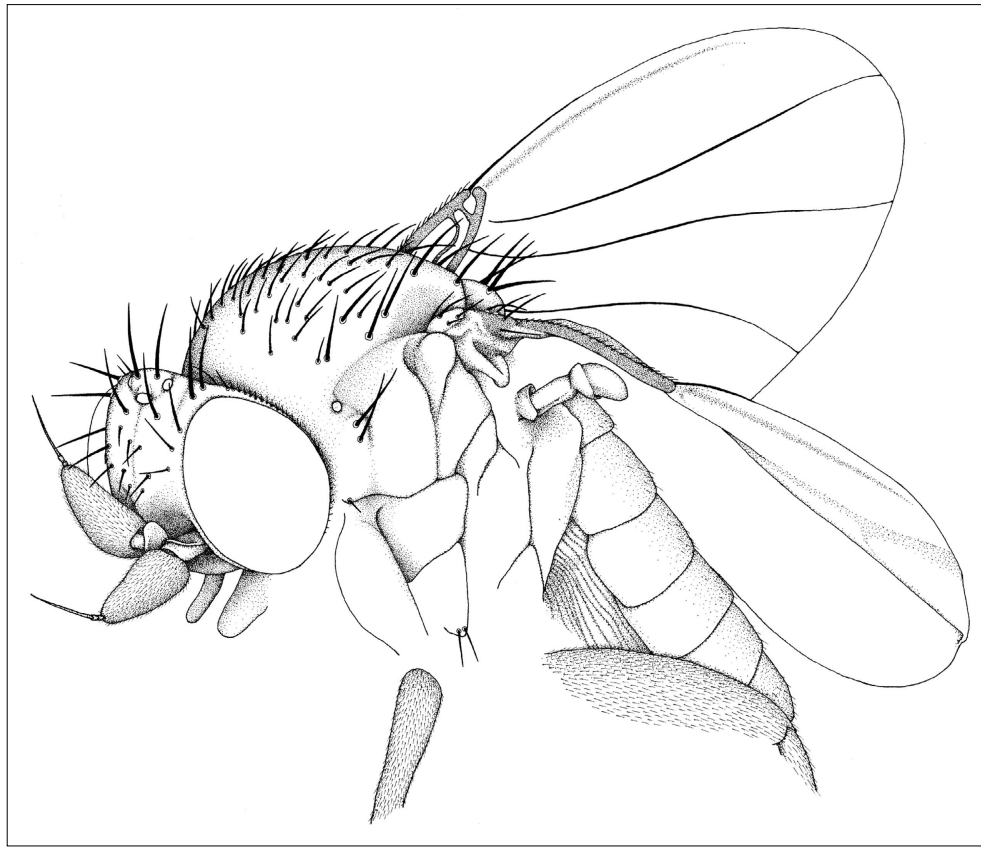

Fig. 1: *Jealia pulcherrima* gen. et spec. nov., anterolateral.

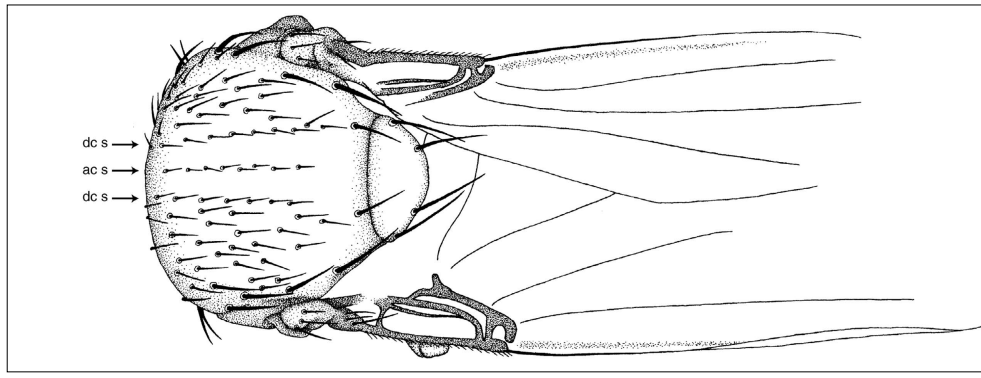

Fig. 2: *Jealia pulcherrima* gen. et spec. nov., dorsal (head omitted). Abbreviations: ac s = acrostichal setal row; dc s = dorsocentral setal row.

approximately 0.28 wing length; costal setulae short; Sc ends in vein R_1; vein R_1 curved strongly dorsally; vein R_{2+3} present. Wing veins without setulae. Abdominal tergites without large setae. Male terminalia mostly covered by hind legs, but without large surstyli.

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