



## First fossil Lamprosomatinae leaf beetles (Coleoptera: Chrysomelidae) with descriptions of new genera and species from Baltic amber

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### Abstract

In the current paper the first fossil representatives of leaf-beetles from the subfamily Lamprosomatinae (Coleoptera: Chrysomelidae) are described and illustrated from Upper Eocene Baltic amber: *Succinoomorphus warchalowskii* **gen. et sp. nov.**, *Archelamprosomius balticus* **gen. et sp. nov.**, and *Archelamprosomius kirejtshuki* **sp. nov.** A key to fossil Lamprosomatinae is provided.

**Key words:** Coleoptera, Chrysomelidae, Lamprosomatinae, new taxa, Baltic amber, Eocene, fossil

### Introduction

The leaf-beetles (Chrysomelidae) are a large group of phytophagous Coleoptera, which is relatively well represented in the fossil record (Rasnitsyn & Quicke 2002). Representatives of 12 subfamilies, 131 genera, and 357 species were recorded from the Cretaceous to the Quaternary (Santiago-Blay 1994; Ponomarenko. & Kirejtshuk 2014). The current classification of Chrysomelidae (Bouchard *et al.* 2011) corrects this estimate to nine subfamilies (Bruchinae, Cassidinae, Chrysomelinae, Criocerinae, Cryptocephalinae, Donaciinae, Eumolpinae, Galerucinae, Lamprosomatinae) known from fossil resins. Member of Zeugophorinae is known also from Baltic amber, but this subfamily belongs to Megalopodidae. Sagraeinae, Spilopyrinae, and Synetinae are not represented in fossil resins.

Amber inclusions are a good source of data about extant faunas and taxa. Recently, particular attention has been paid to the study of Chrysomelidae in fossil resins, demonstrated by a growth in interest and the publication of new descriptions (Nadein & Perkovsky 2010; Moseyko *et al.* 2010; Bukejs & Nadein 2013, 2014; Bukejs & Konstantinov 2013; Moseyko & Kirejtshuk, 2013; Poinar 2013; Bukejs 2014; Bukejs & Bezděk 2014).

Lamprosomatinae has been recorded from Eckfelder of Middle Eocene Maar (Wappler 2003) and Baltic amber (dubious record that may actually be copal; Hope 1836, Spahr 1981). The specimen (as Lamprosomatinae *gen. et sp.*) was only briefly described and illustrated by simple line drawings (Wappler 2003, Fig. 72, Plate 12, Fig. F). Unfortunately, no morphological evidence was provided supporting its placement in Lamprosomatinae. The illustrations show no more similarity to Lamprosomatinae than to representatives of Chrysomelinae or other beetle families. Therefore, the definitive presence of Lamprosomatinae in the fossil record is doubtful.

In the current paper, the first fossil representatives of Lamprosomatinae are described and illustrated from the Upper Eocene Baltic amber of Kaliningrad Region, Russia.

### Material and methods

The type material is currently housed in the private collection of Andris Bukejs (Daugavpils, Latvia), but will be

## Discussion

Lamprosomatinae comprises approximately 250 species classified into 14 genera and four tribes (Chamorro 2014). The Palaearctic fauna of the subfamily includes 3 genera and 29 species (Konstantinov 2010) and belongs to the tribe Lamprosomatini. It is extremely poorly represented in the recent European fauna (the only known extant species is *Oomorplus concolor* (Sturm, 1807)). The distribution of the subfamily is mostly restricted to subtropical and tropical regions. The Lamprosomatinae of Europe in the Eocene was more diverse, and included some elements more characteristic of tropical or subtropical areas. Further changes in climate and biota resulted in faunistic changes. Thus *O. concolor* could be regarded as a relict of that time.

The new taxa described here represent the first reliable identified members of the subfamily Lamprosomatinae in the fossil record. Nine of the 12 extant Chrysomelidae subfamilies have been recorded in amber inclusions with 52 genera described or reported (with 18 extinct genera). It is interesting to note the number of extinct and recent taxa described or recorded in fossil resins (Table 1). Twelve of 15 genera recorded during the last ten years are extinct. Recent studies have shown only six extinct genera versus 32 recent ones. A further revision of specimens formerly mentioned in fossils are necessary in order to get a proper interpretation of the composition of the palaeofauna.

**TABLE 1.** Number of records of recent and extinct genera of Chrysomelidae from fossil resins: E—extinct, R—recent.

Subfamily/ Fossil resin	Canadian amber		Oise amber		Rovno amber		Baltic amber		Chiapas amber		Dominican amber		Total	
	E	R	E	R	E	R	E	R	E	R	E	R	E	R
Bruchinae	1										1		1	1
Cassidinae							4	2			1		4	3
Chrysomelinae					1			2			1		2	2
Criocerinae							1	1					1	1
Cryptocephalinae								1			1			2
Donaciinae								1						1
Eumolpinae			2		1		1	6	1			4	5	10
Galerucinae			1		2	1	2	10		1		3	5	15
Lamprosomatinae							2						2	
Total	1		3		4	1	10	23	1	1	1	10	20	35

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