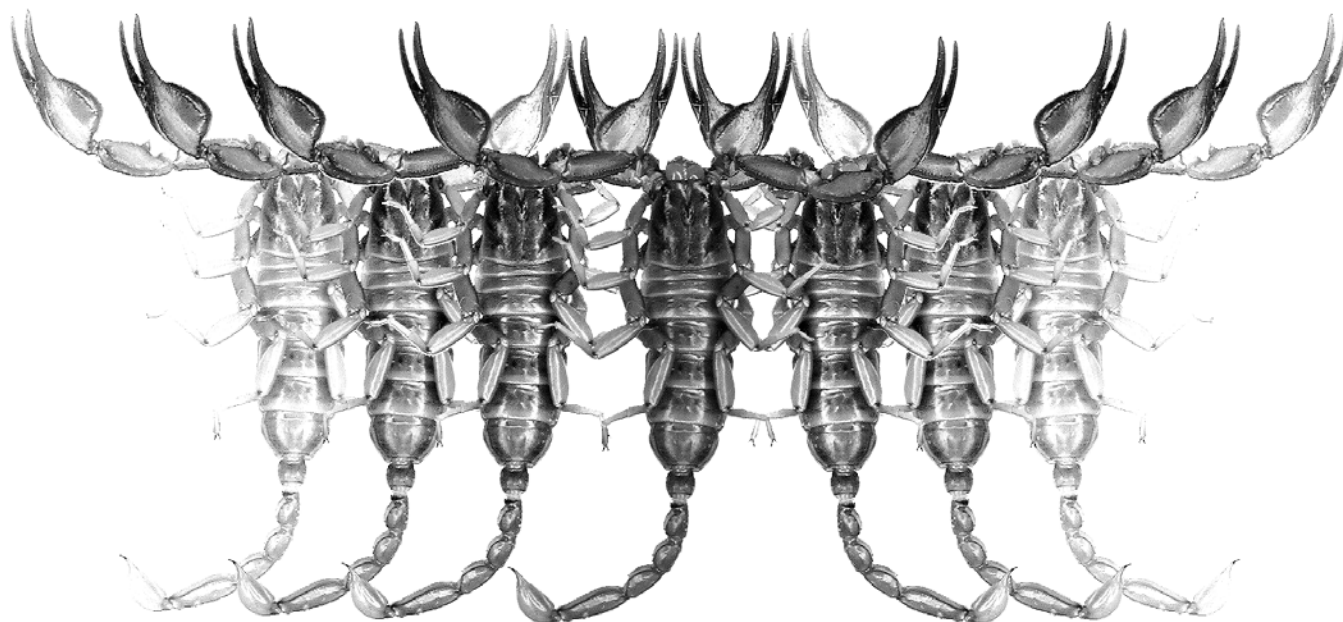


Euscorpius

Occasional Publications in Scorpiology



**Further Considerations on Scorpions Found in Baltic Amber,
with a Description of a New Species (Scorpiones: Buthidae)**

Wilson R. Lourenço

October 2012 – No. 146

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Occasional Publications in Scorpiology

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- **ZISP**, Zoological Institute, Russian Academy of Sciences, St. Petersburg, Russia
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Publication date: 1 October 2012

Further considerations on scorpions found in Baltic amber, with a description of a new species (Scorpiones: Buthidae)

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Summary

A new species of Baltic fossil scorpion, *Palaeolychas weitschati* sp. n. is described based on a specimen found in amber from the Samland Peninsula in Baltic coast. The new species is the second one described for the genus *Palaeolychas* Lourenço et Weitschat, and thus belongs to the same lineage as the majority of other scorpions known from Baltic amber, which is clearly associated with the extant scorpion fauna of tropical regions in America, Asia and Africa. This new find attests, however, to a considerable degree of diversity in the Baltic amber-producing forests.

Introduction

Although scorpions can be considered rare among the arthropods fossilized in amber, many specimens were located in recent years. For Baltic amber only, a total of nine specimens have been described since 1996 which is far from being negligible (Lourenço & Weitschat, 1996, 2009; Lourenço, 2009). In fact, recent findings can be considered as rather significant, since only two specimens were reported in the period between 1800 and 1990 (Lourenço & Weitschat, 1996).

As already summarized by Lourenço & Weitschat (1996, 2005, 2009), the history of the scorpions found in Baltic amber is rather complex. Baltic amber scorpions discovered in the last two decades have been studied and described as new genera or at least new species of Buthidae (Lourenço, 2009). It was concluded, however, that with one exception (Lourenço et al., 2005), all these distinct genera and species represent a single phylogenetic lineage.

In this publication, one more new species belonging to the genus *Palaeolychas* Lourenço et Weitschat, 1996 is described, representing an additional element of the most common lineage, which now counts for nine of the twelve scorpion species known from Baltic amber. This new find attests, however, to a considerable degree of diversity in the Baltic amber-producing forests.

Check-list of the fossil scorpions described from Baltic amber

Scorpio schweiggeri Holl, 1829

Tityus eogenus Menge, 1869

Note: The types of these two species are lost and their generic affiliation is obviously incorrect. It can only be pointed out, based on the original descriptions, that both species are associated with the family Buthidae.

Palaeolychas balticus Lourenço et Weitschat, 1996

Palaeotityobuthus longiaculeus Lourenço et Weitschat, 2000

Palaeoprotobuthus pusillus Lourenço et Weitschat, 2000

Palaeoakentrobuthus knodeli Lourenço et Weitschat, 2000

Palaeoanateris ribnitiadamgartensis Lourenço et Weitschat, 2001

Palaeoanateris wunderlichi Lourenço, 2004

Palaeospinobuthus cenozoicus Lourenço, Henderickx et Weitschat, 2005

Palaeoisometrus elegans Lourenço et Weitschat, 2005

Palaeoanateris ukrainensis Lourenço et Weitschat, 2009

Palaeolychas weitschati sp. n.

Note: With the exception of *Palaeospinobuthus cenozoicus*, all the other species can, to a given extent, be associated with the extant species of the “*Anateris* group”, largely distributed in tropical zones of Asia, Africa and America. In contrast, *P. cenozoicus* shows morphological affinities with extant buthid species distributed in arid zones of the Middle East.

Material and Methods

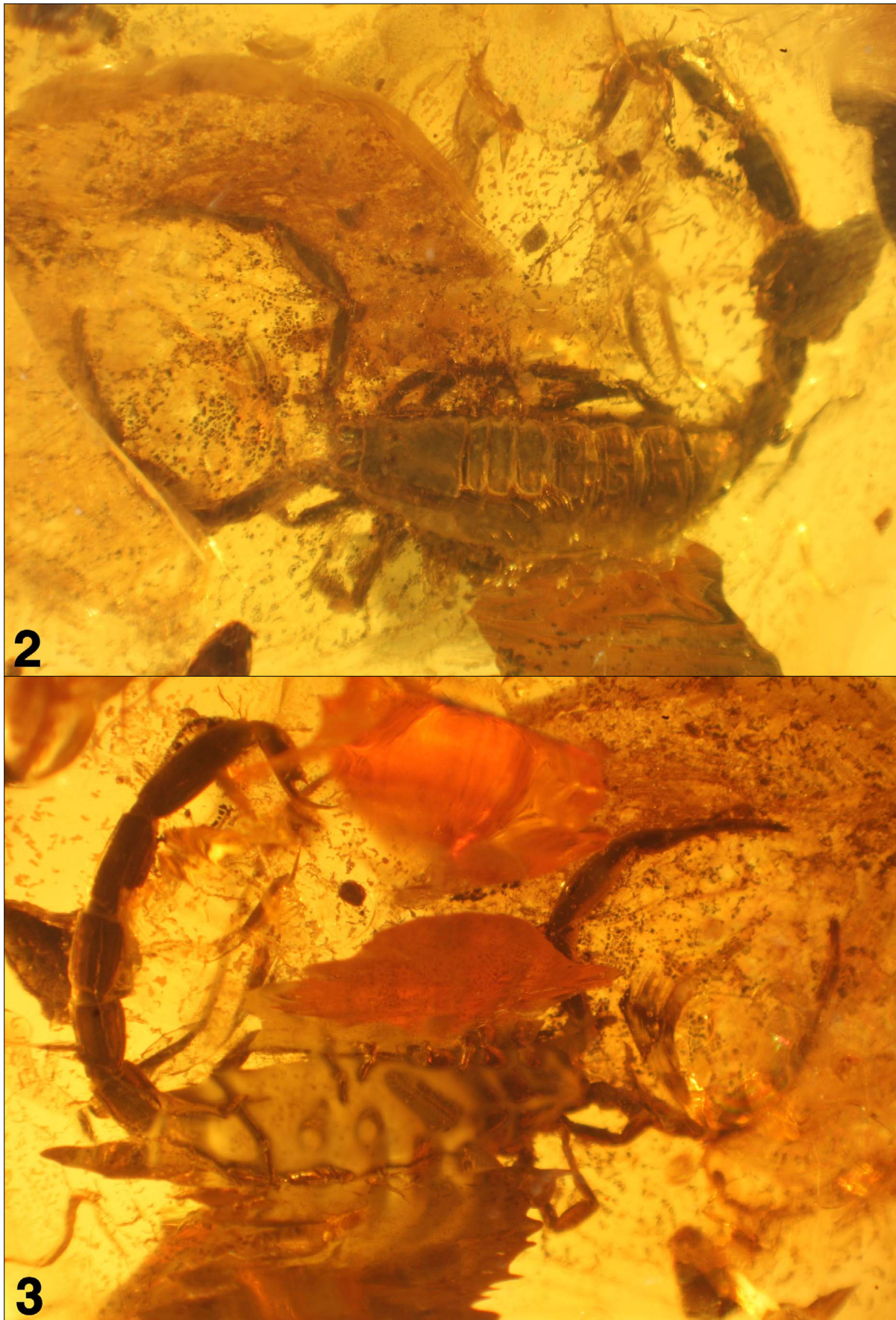
The specimen investigated was obtained by Mr. Jonas Damzen, Vilnius, Lithuania. It is trapped in a clear, oval to rounded piece of reddish-yellow amber



Figure 1: A general view of the oval to rounded piece of reddish-yellow amber (about 6 x 3 x 1.2 cm in size) with the included scorpion (photo by J. Damzen).

(about 6x3x1.2 cm in size). The amber shows a typical layered structure, characteristic of Baltic amber. It is possible to see how individual layers have been formed as a result of several resin flows with regular intervals. Only the dorsal side of the scorpion is clearly visible.

The ventral side is more difficult to study because of the presence of a 'milky' substance which is typical of a great number of Baltic amber inclusions. This milk-like substance is due to an emulsion of microscopic bubbles which covers one side of an inclusion making any clear



Figures 2–3: *Palaeolychas weitschati* sp. n., male holotype. General view, dorsal and ventral aspects (photos by J. Damzen).

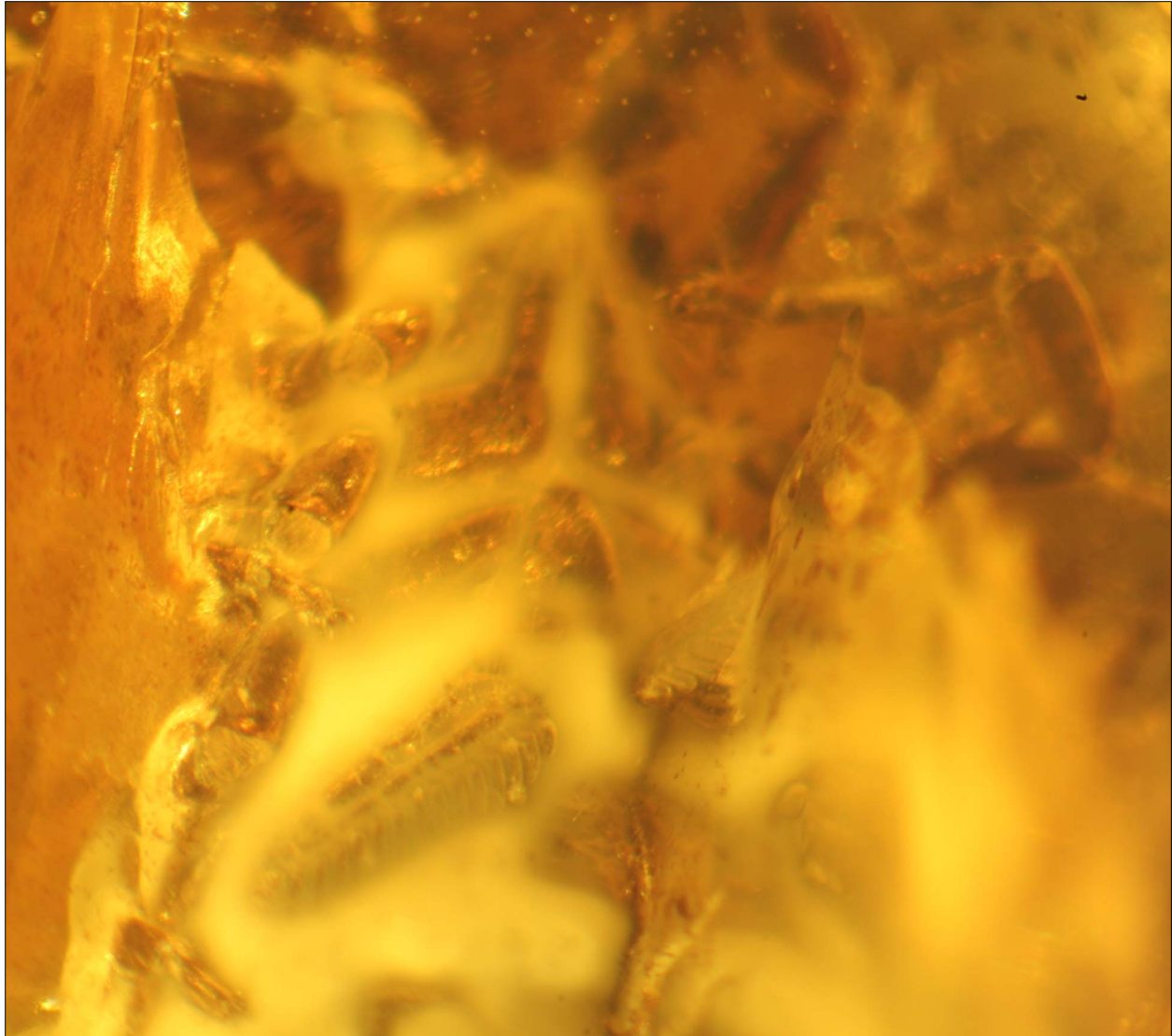


Figure 4: *Palaeolychas weitschati* sp. n., male holotype. Detail of the ventral aspect, showing the presence of a ‘milky’ substance. Coxapophysis, sternum, genital operculum and pectines can, however, be partially observed (photo by J. Damzen).

observation almost impossible. It is probably caused by excreta, or by the fact that the surface of the animal was damp when it was originally trapped. Naturally, this prevents more detailed investigation of certain structures. The schematic drawings were made with the aid of a Wild M5 stereomicroscope with a drawing tube (camera lucida); these are partially an interpretation of what was observable. Measurements were made with the help of an ocular micrometer. Measurements follow Stahnke (1970) and are given in mm. Trichobothrial notations follow Vachon (1974) and morphological terminology mostly follows Hjelle (1990). Trichobothria were definitely recorded only when their bothria (areoles) could be observed.

Taxonomy

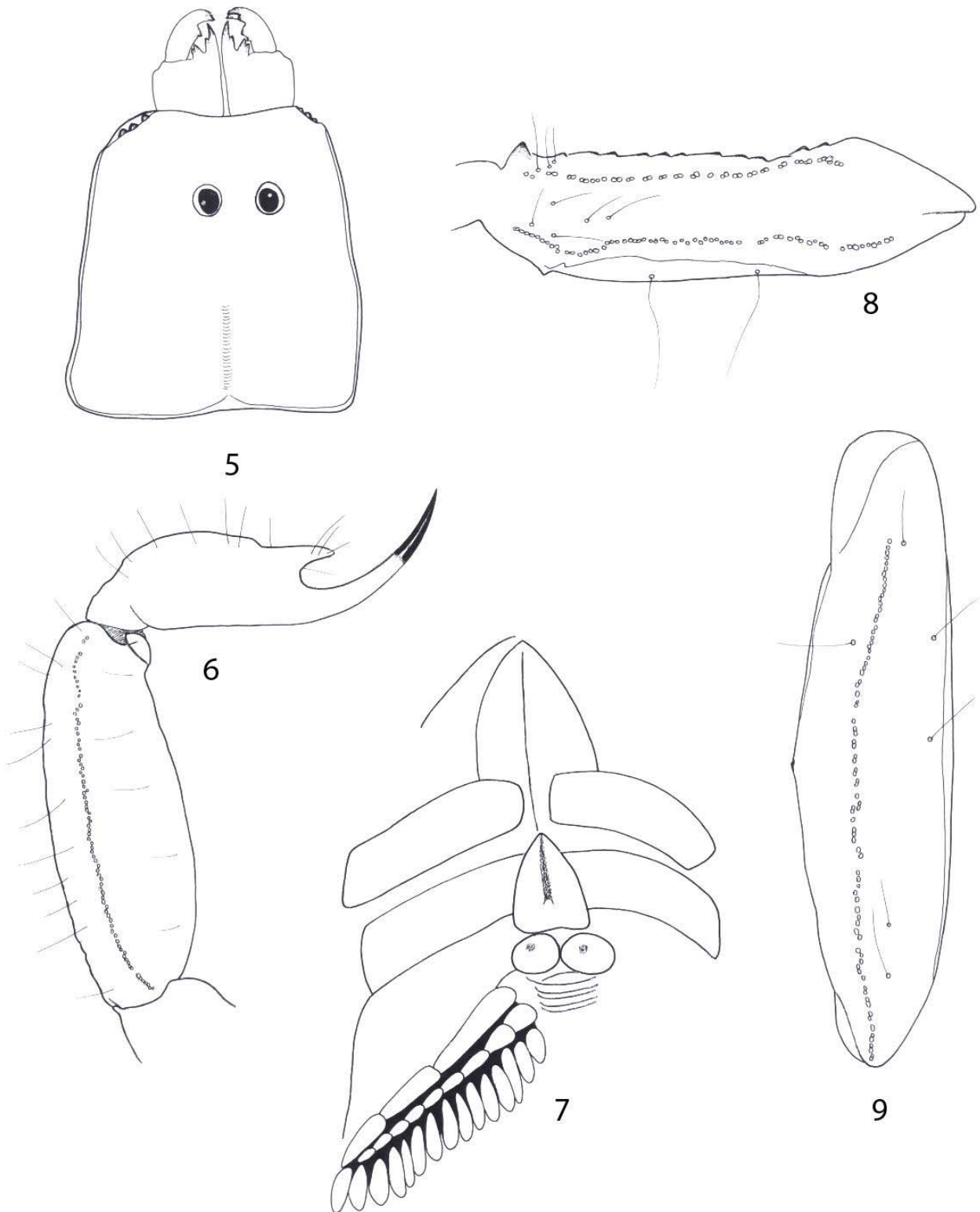
Family Buthidae C. L. Koch, 1837

Genus *Palaeolychas* Lourenço et Weitschat, 1996

Palaeolychas weitschati Lourenço, sp. n. (Figs. 1–9)

Holotype: A possible adult male. Considering the slender pedipalps, the morphology of the mesosoma, the size and structure of the pectines and the global size, it is unquestionable a male.

Type locality and horizon: Samland Peninsula, Baltic coast. Eocene.



Figures 5–9: *Palaeolychas weitschati* sp. n., male holotype. **5.** Carapace and chelicerae, dorsal aspect. **6.** Metasomal segment V and telson, lateral aspect. **7.** Ventral aspect showing coxapophysis, sternum, genital operculum and one pecten. **8–9.** Trichobothrial pattern. **8.** Femur, dorsal aspect. **9.** Patella, dorsal aspect.

Total length (including telson)	14.87
Carapace:	
- length	1.67
- anterior width	1.13
- posterior width	1.47
Mesosoma length	4.60
Metasomal segment I:	
- length	0.93
- width	0.73
Metasomal segment II:	
- length	1.13
- depth	0.80
Metasomal segment III:	
- length	1.20
- depth	0.80
Metasomal segment IV:	
- length	1.47
- depth	0.73
Metasomal segment V:	
- length	2.07
- depth	0.67
Telson length	1.80
Vesicle depth	0.47
Pedipalp:	
- Femur length	1.20
- Femur width	0.40
- Patella length	1.73
- Patella width	0.47
- Chela length	2.40
- Chela width	0.40
Movable finger:	
- length	1.80

Table 1: Morphometric values (in mm) of the male holotype of *Palaeolychas weitschati* sp. n.

Depository: The specimen is currently in the private collection of Jonas Damzen, Vilnius, Lithuania.

Diagnosis: Total length 14.87 mm. Morphology somewhat similar to that of the other species of *Palaeolychas*. The new species is characterized by the combination of several particular characters: Sternum subpentagonal. Trichobothrial pattern A- β (beta). Anterior margin of carapace with a weak concavity. Telson with a long aculeus and a very strong subaculear tubercle. Pectines not rounded distally and with 15–15 teeth; fulcra absent. Genital operculum plates with a semi-oval shape, disposed horizontally. Tibial spurs present on legs III and IV but moderately marked. Metasoma with 10-8-8-8-5 carinae; dorsal carinae on segments I to IV without spinoid granules.

Derivatio nominis: Patronym is in honour of my colleague and friend, Dr. Wolfgang Weitschat, Hamburg,

who introduced me to the study of Baltic amber scorpions.

Description:

Coloration: the general colour of the amber is yellowish, but the scorpion is reddish-brown to dark brown, including pedipalps and legs. The ventral aspect of the specimen is paler, more to yellowish.

Morphology. Carapace weakly granular to smooth; anterior margin with a weak median concavity. Anterior median superciliary carinae vestigial; posterior median carinae absent; other carinae vestigial or absent. All furrows weak. Median ocular tubercle distinctly anterior to centre of carapace. Median eyes moderate in size and separated by more than one ocular diameter. Three pairs of lateral eyes. Sternum subpentagonal. Mesosomal tergites weakly granular; tergites I to VI with one longitudinal carina, weakly marked; tergite VII pentacarinated. Venter not well observed. Pectines can be observed, with 15–15 teeth; fulcra absent. Sternites not well observed; spiracles semi-oval. Metasomal segment I with ten carinae; segments II to IV with eight carinae; segment V with five carinae; dorsal carinae of segments I to IV without spinoid granules. Vesicle elongated and smooth; aculeus long but shorter than vesicle, with a strong and spinoid subaculear tubercle. Cheliceral dentition partially observed; similar to the buthid type (Vachon, 1963). Pedipalp femur pentacarinated; external and internal face without larger granules; patella with two dorsal and one internal carinae; internal face without spinoid granules; chela with vestigial carinae; all faces weakly granular, almost smooth. Dentate margins of fixed and movable fingers closed and not observed. Trichobothriotaxy of type A- β (beta) (Vachon, 1974, 1975), possibly orthobothriotaxic; trichobothria e_1 of femur distad of d_5 . Leg tarsi with thin ventral setae. Tibial spurs present but moderately marked on legs III and IV.

Acknowledgments

I am most grateful to Mr. Jonas Damzen, Vilnius, Lithuania, who facilitated the study of the amber specimen, to Elise-Anne Leguin, Muséum national d'Histoire naturelle, Paris, for the preparation of the plates, and to Victor Fet and Michael Soleglad for their useful comments to the manuscript.

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