

A new genus and species of harvestman from Baltic amber

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Abstract

Two new fossil harvestmen (Arachnida: Opiliones: Phalangiidae) from the Palaeogene (Eocene) Baltic amber are described as *Stephanobunus mitovi* n. gen. n. sp. These remarkable specimens have a prominent and spiny ocular tubercle, as well as rows of spines on the dorsal surface of the opisthosoma and setose apophyses on the patella and tibia of the pedipalp. While the fossils thus show similarities to certain modern Eurasian and African harvestman genera – in particular *Megabunus* MEADE, 1855, *Odontobunus* ROEWER, 1910 and *Cristina* LOMAN, 1902 – the character combination preserved does not precisely match that of any known fossil or Recent genus. For this reason we propose a new genus for this material, whose general habitus seems to resemble most closely various phalangiid harvestmen from tropical Africa.

Key words: Eupnoi, Phalangiidae, Eocene, systematics.

Zusammenfassung

Zwei neue fossile Weberknechte (Arachnida: Opiliones: Phalangiidae) aus dem Paläogen (Eozän), welche in Baltischem Bernstein eingeschlossen sind, werden als *Stephanobunus mitovi* n. gen. n. sp. beschrieben. Diese ungewöhnlichen Exemplare haben einen sehr auffälligen und stacheligen Augenhügel sowie einige Reihen von Stacheln auf der Dorsalseite des Opisthosomas und behaarte Apophysen an der Patella und der Tibia des Pedipalpus. Obwohl die Fossilien somit Ähnlichkeiten mit einigen modernen eurasischen und afrikanischen Weberknechtgattungen, wie *Megabunus* MEADE, 1855, *Odontobunus* ROEWER, 1910 und *Cristina* LOMAN, 1902, aufweisen, passt die Merkmalskombination weder zu einer fossilen noch zu einer rezenten Gattung genau. Aufgrund dessen begründen wir unsere fossilen Weberknechte als eine neue Gattung, die einen sehr ähnlichen Habitus aufweist wie einige tropische Vertreter der Phalangiidae aus Afrika.

Contents

1. Introduction.....	23
2. Material and methods.....	28
3. Systematic palaeontology.....	29
4. References.....	32

1. Introduction

Fossil harvestmen (Arachnida: Opiliones) are fairly rare, although their fossil record extends back over 400 million years to the Early Devonian. In the most recent summary, DUNLOP (2007, tab. 5.1) recognised twenty-five valid fossil species. Five new taxa have been described since (POINAR 2008; HUANG et al. 2009; DUNLOP & MITOV 2009), plus one fossil tentatively assigned to an extant species. Most fossil harvestmen originate from Baltic and now also Bitterfeld amber (KOCH & BERENDT 1854; MENGE 1854; ROEWER 1939; STARĘGA 1976, 2002; DUNLOP & GIRIBET 2003; UBICK & DUNLOP 2005; DUNLOP 2006; DUNLOP & MITOV 2009). This Cenozoic amber record includes representatives of all four suborders of Opiliones. While most of the described species are assignable to modern genera, in some cases these European ambers yield taxa which are no longer found in Central Europe today (e. g. *Caddo* BANKS, 1892) or which belong to extinct genera (*Proholoscotolemon* UBICK & DUNLOP, 2005).

Here, we describe a new harvestman species for the Palaeogene (Eocene; ca. 45–50 Ma) Baltic amber fauna.

These remarkable specimens (Figs. 1–4) differ greatly from any previously described Baltic amber harvestman, having a highly conspicuous morphology dominated by a prominent and spiny ocular tubercle. Based on this, our initial suspicion was that the material could belong to *Megabunus* MEADE, 1855; and indeed comparable and probably conspecific material from a private collection was figured by WEITSCHAT & WICHARD (2002, pl. 12c) as *?Megabunus* sp. However, detailed examination of the new fossils revealed subtle differences compared to modern species of *Megabunus* (Fig. 5a), as well as further similarities to some modern African genera (Figs. 5b–c). The character combination recognised here suggests that the fossils actually belong to both a new species and genus, as described below.

Acknowledgements

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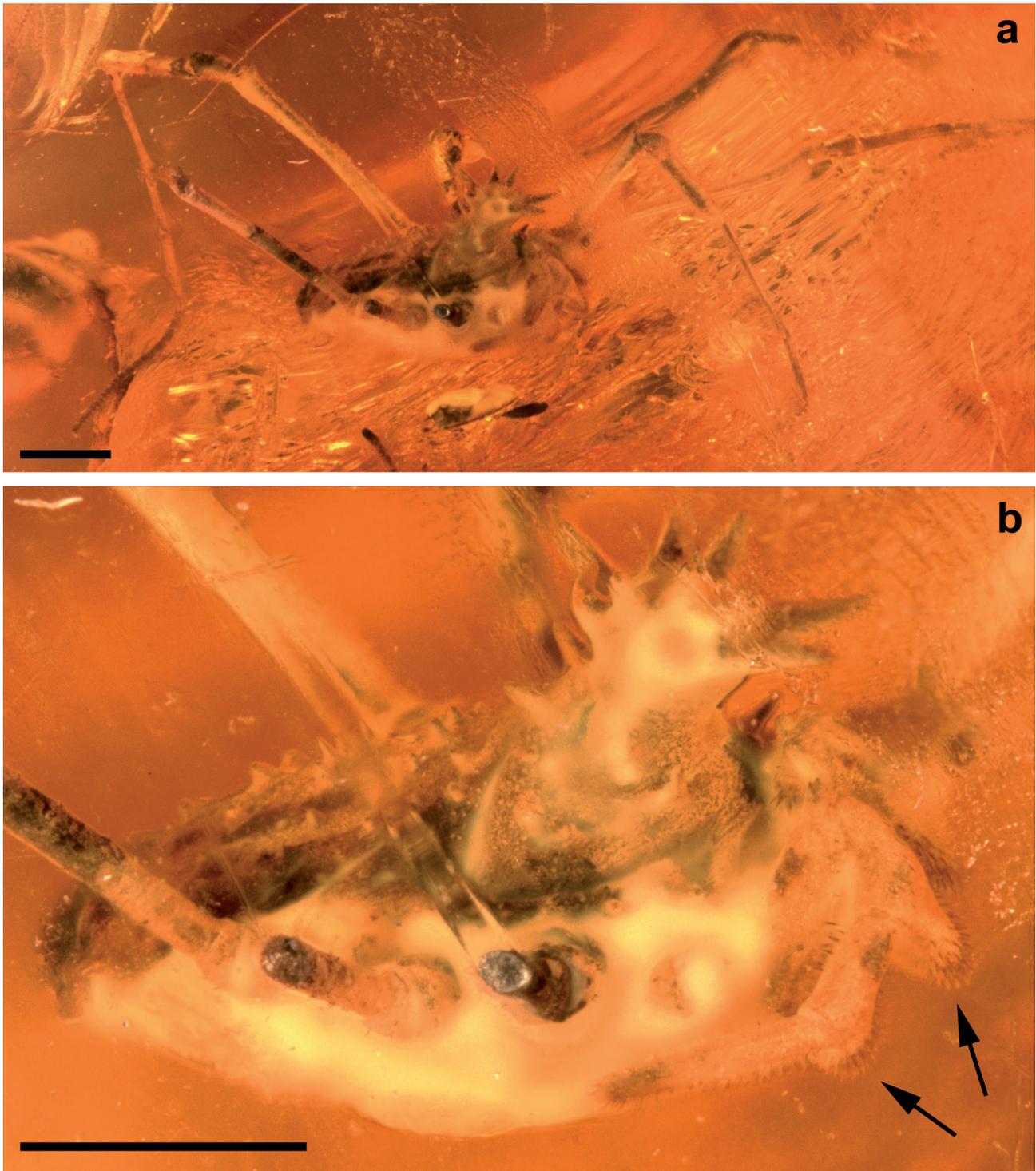


Fig. 1. *Stephanobunus mitovi* n. gen. n. sp., holotype; Palaeogene (Eocene) Baltic amber, AMNH Ba-JVe181, ex VELTEN collection. – **a.** Lateral overview. **b.** Details of the body in lateral view. Note particularly the raised and spinose ocular tubercle, the spines on the dorsal surface of the opisthosoma and the prominent setose apophyses on the patella and tibia of the pedipalp (arrowed). – Scale bars equal 1.0 mm.

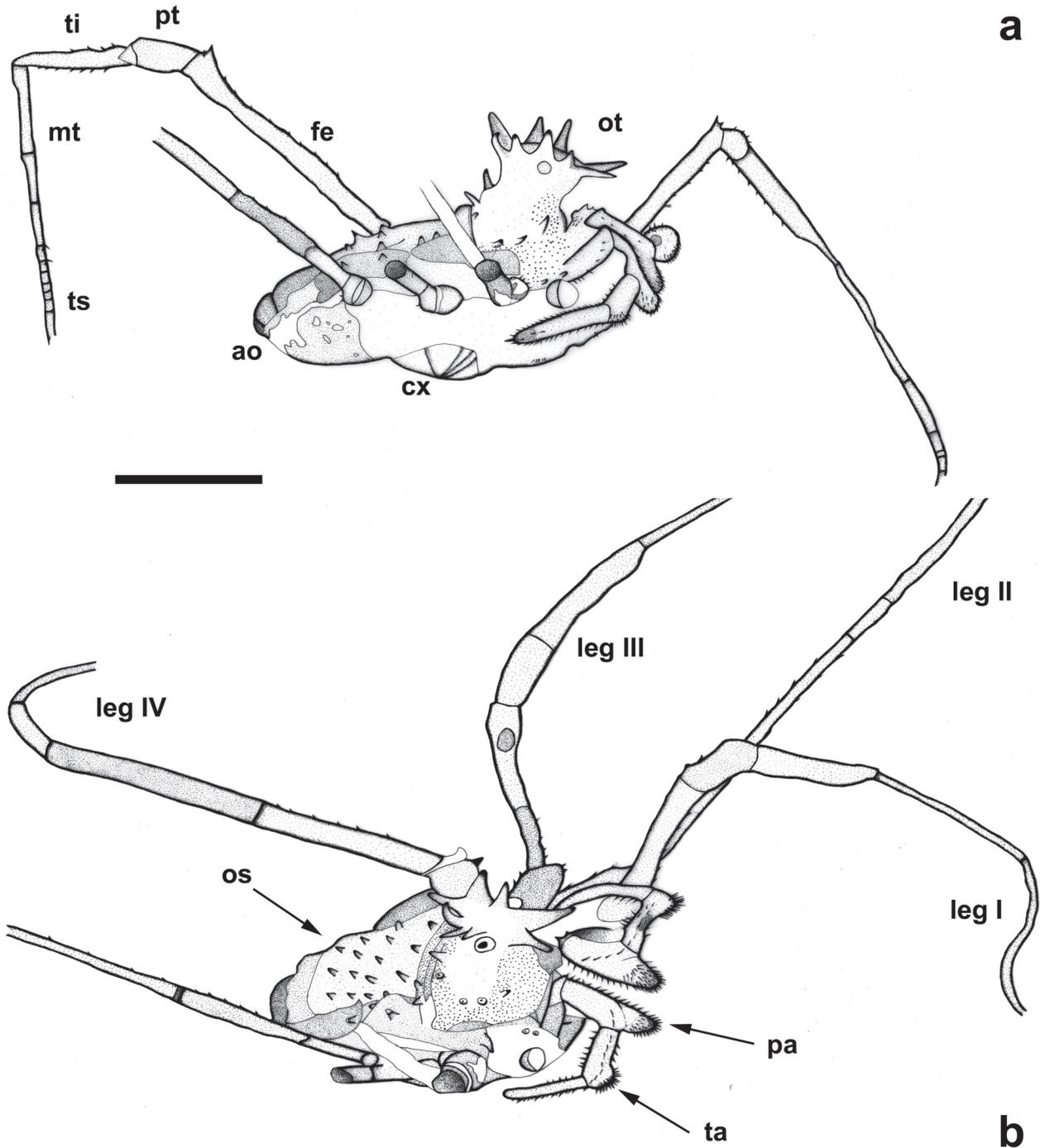


Fig. 2. *Stephanobunus mitovi* n. gen. n. sp.; Camera lucida drawings of the holotype. – **a.** Lateral view. **b.** Dorsolateral view. Abbreviations: ao = anal operculum, cx = coxae, fe = femur, mt = metatarsus, os = opisthosomal spination, ot = ocular tubercle bearing spines, pa = pedipalpal patella apophysis, pt = patella, ta = pedipalpal tibial apophysis, ti = tibia, ts = tarsus; walking legs numbered in sequence. White areas represent a white film typical for Baltic amber preservation. – Scale bar equals 1.0 mm.

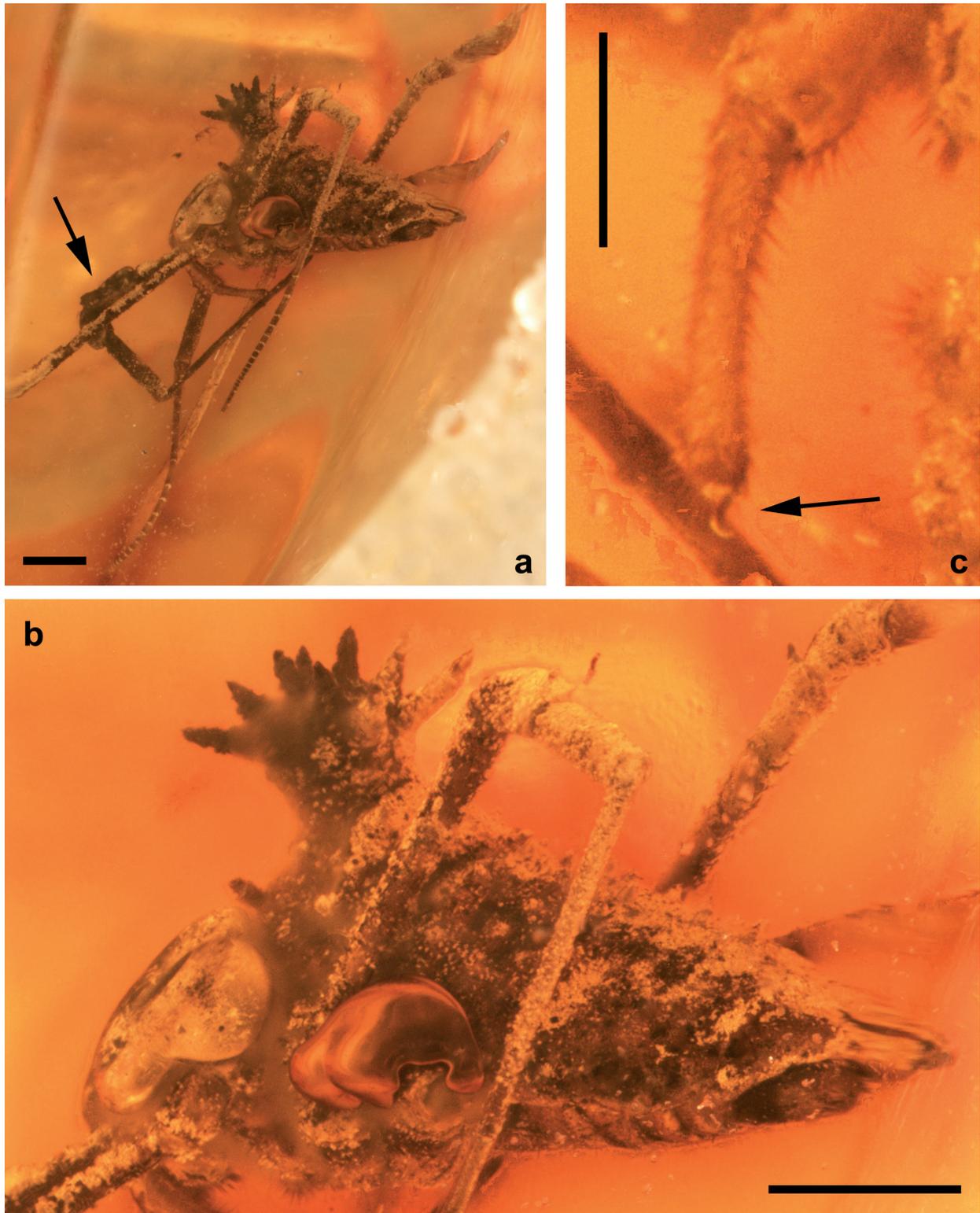


Fig. 3. *Stephanobunus mitovi* n. gen. n. sp., paratype; Palaeogene (Eocene) Baltic amber; SMF, ex WUNDERLICH collection. – **a.** Lateral overview, slightly in posterior aspect; distal femur and patella of left leg I thickened (arrow), but this probably represents an artefact. **b.** Details of the body in postero-lateral view; bubble-like inclusions associated with the coxae may represent extruded haemolymph from lost limbs. **c.** Details of the pedipalp tarsus with its single claw (a eupnoid character: arrowed) lacking dentition. – Scale bars equal 1.0 mm (a, b), 0.5 mm (c).

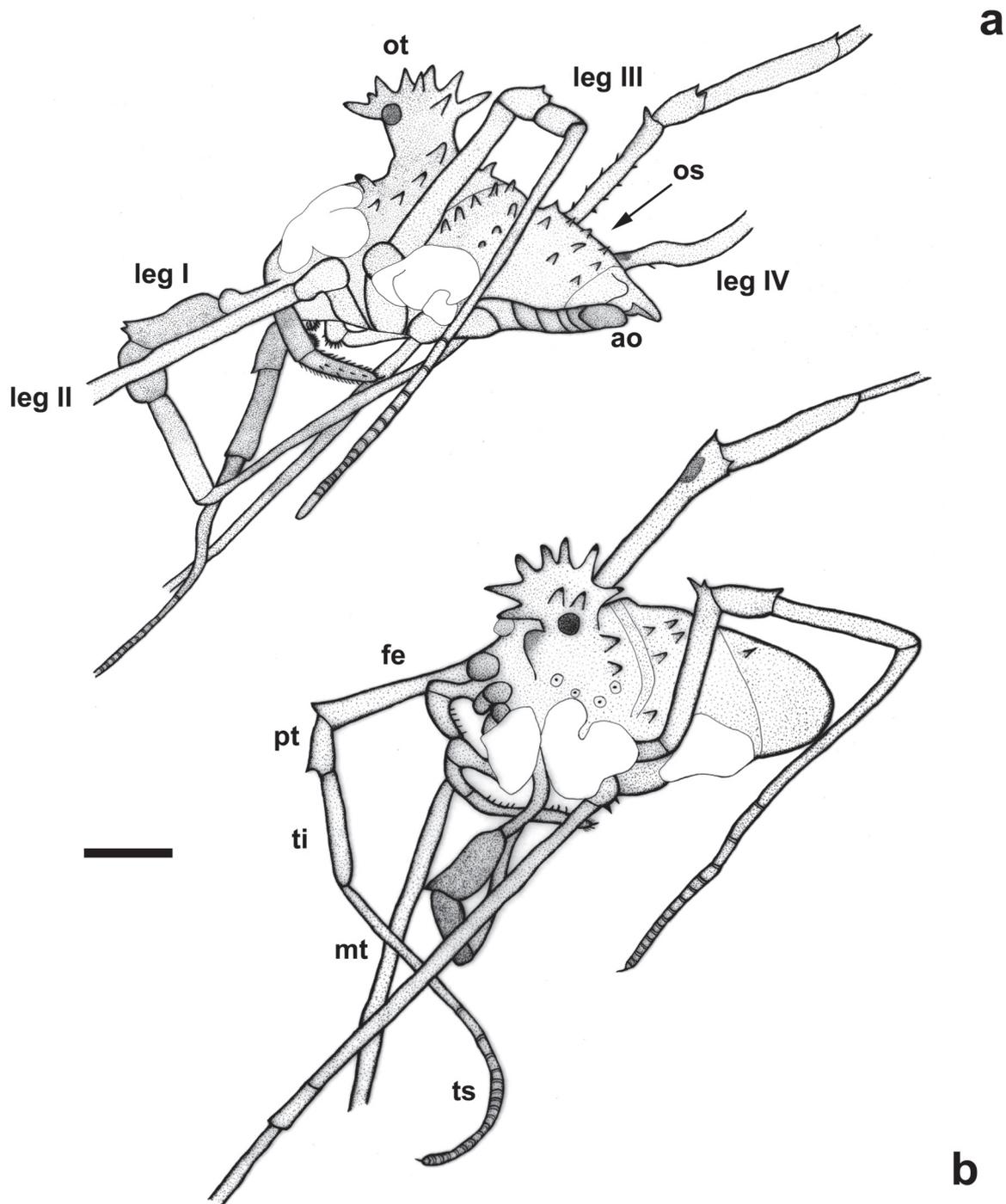


Fig. 4. *Stephanobunus mitovi* n. gen. n. sp.; Camera lucida drawings of the paratype. – **a.** Lateral-posterior view. **b.** Dorso-anterior view. Abbreviations as in Fig. 2; walking legs numbered in sequence. – Scale bar equals 1.0 mm.

2. Material and methods

The holotype of the new species originated from the private collection of JÜRGEN VELTEN (Idstein, Germany) and has subsequently been deposited in the American Museum of Natural History, New York under the acronym AMNH Ba-JVe181. The paratype of the new species originated from the private collection of JÖRG WUNDERLICH (Hirschberg, Germany) and is now held in the Senckenberg Forschungsinstitut und Naturmuseum (SMF), Frankfurt/Main (museum number not yet assigned). The specimen figured by WEITSCHAT & WICHARD (2002) was not available for study, but may be conspecific. The examined specimens were studied and drawn using a Leica MZ12 stereomicroscope with a camera lucida attachment. Both fossil and Recent material was photographed using a Leica stereomicroscope running the Leica Application Suite[®] software. Stacks of images were assembled into a single final picture using Auto Montage[®] and brightness, contrast, etc. were adjusted manually using Adobe Photoshop[®]. A precise locality for the specimens is not available, but most of the recently collected Baltic amber originates from the Kaliningrad region of the Russian Baltic coast. Baltic amber is usually dated to a Palaeogene (Eocene) age of around 45–50 Ma. Further details about the geological setting, depositional environment and dating of Baltic amber can be found in, e. g., WEITSCHAT & WICHARD (2002) and references therein. The amber specimens were compared to extant material and the literature (particularly ROEWER 1912; MARTENS 1978; STAREGA 1984). Specimens of Recent harvestmen examined in detail for direct comparison with the fossils are listed below, and selected examples were photographed (Fig. 5) to show similarities and/or differences to the amber material. Specimens come from the Museum für Naturkunde, Berlin (ZMB) unless stated otherwise.

Cristina femoralis SØRENSEN, 1910 (misidentified as *Cristiana armata* ROEWER, 1911); 5 juveniles, Ins. Kwidjwi (Kiwu-See), IX.[19]07, ZMB 12282, (ROEWER Nr. 7995); 2 ♂, 2 ♀, (syntypes of *C. armata*), rev. W. Starega, 1977, Albert-Edward-See, ZMB 12277.

Cristina crassipes LOMAN, 1902, 3 ♂, 7 ♀, 9 juveniles (all syntypes), Togo, Bismarckburg, leg. BÜTTNER, ZMB 12283.

Megabunus diadema (FABRICIUS, 1779); 2 juveniles, Løfallstrand LM 321559, v.strand Hoj: Krimherad, Norway, 1.5.1975, leg. FELTKUSS, det. I. STOL, Zoological Museum, University of Bergen no. C.7444; Skeie, Rosendal, Norway, 13-6-43.T-L 2009-08-25; Zoological Museum, University of Bergen no. A.436; Norway, Rosendal, nára el-verket, Hoi. Kvinnherad 9.6.1965, H. KAURI det., Zoological Museum, University of Bergen, Nr. A.3022.

Megabunus lesserti SCHENKEL, 1927; 3 ♀, Austria, Tennengebirge, Eiskogel, c. 2220 m, C. MUSTER leg., July 1999, private collection of C. MUSTER, Putbus.

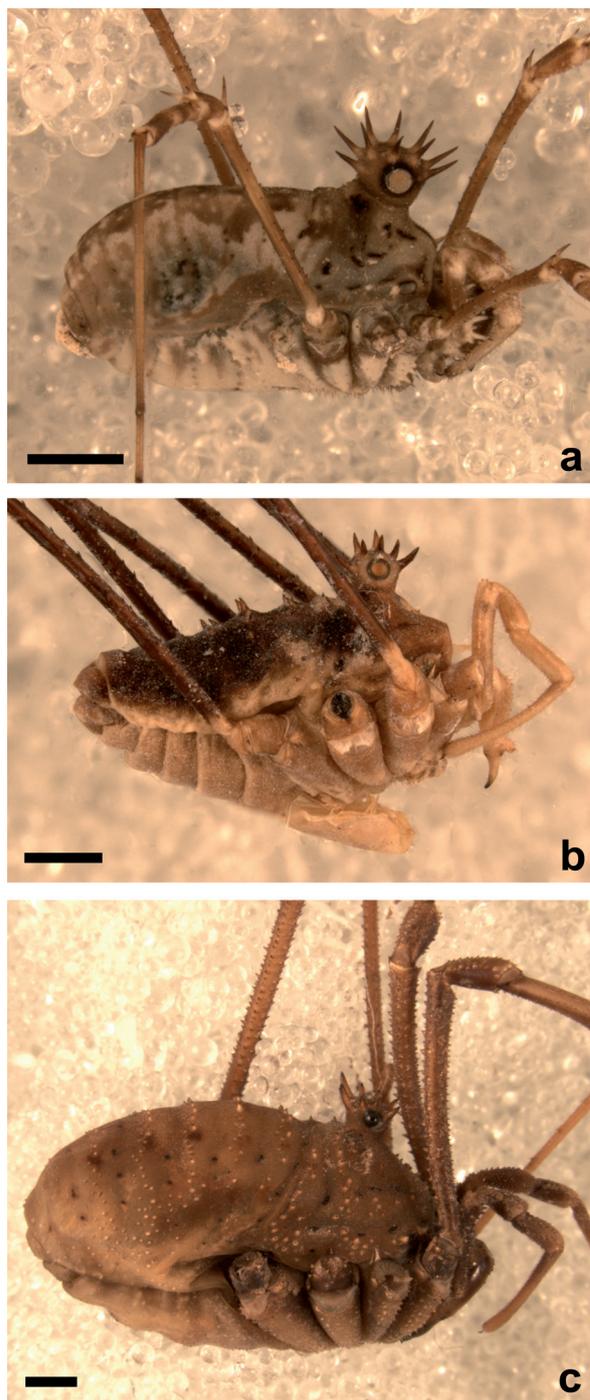


Fig. 5. Selected modern harvestmen with spinose ocular tubercles in lateral view. – **a.** *Megabunus diadema* (FABRICIUS, 1779) (Zoological Museum, University of Bergen Nr. A.436); note the strongly spined pedipalp femur and lack of spines on the dorsal opisthosoma. **b.** *Odontobunus africanus* ROEWER, 1910 (ZMB 12728); note the spines on the opisthosoma, but also the absence of apophyses on the pedipalp. **c.** *Cristina crassipes* LOMAN, 1902 (ZMB 12283); note the relatively small ocular tubercle with the largest spines at the back and the rather globose opisthosoma. – All scale bars equal 1.0 mm.

Odontobunus africanus ROEWER, 1910; 1♂, 1♀, 1 juvenile, Ruwanda, Rugago Wald, 800 m, 20.08.07, ZMB 12719 (ROEWER No. 7986).

Platybunus bucephalus (C. L. KOCH, 1835); numerous specimens, Germany, Beltenhaushöhle, 11.08.1990, ZMB 34422.

Rilaena triangularis (HERBST, 1799); numerous specimens, Germany, Brandenburg-Niederlehme, Kiefernwaldweg, 27.09.2007, ZMB 47976.

3. Systematic palaeontology

Opiliones SUNDEVALL, 1833

Eupnoi HANSEN & SØRENSEN, 1904

Remarks. – We are confident that the amber specimens belong to the suborder Eupnoi since the carapace is divided by sulci into a pro-, meso- and metapeltidium and, significantly, the pedipalp ends in a single claw (Fig. 3c). Reduction or absence of the pedipalpal claw would be typical for Dyspnoi, while a large and strongly raptorial pedipalp would be typical for Laniatores. The fourth suborder, Cyphophthalmi, can be easily excluded as these are tiny harvestmen with short legs and no median eyes.

Phalangiidae LATREILLE, 1802

Remarks. – Among the eupnoids, we can exclude the family Caddidae due to the lack of extremely large eyes and the family Sclerosomatidae due to the apparent lack of a scutum parvum; i. e. the fusion of the first five opisthosomal tergites into a single dorsal plate. The pronounced ocular tubercle in the fossils tends to rule out Neopilionidae; which is also a family with a typically Gondwanan distribution today. Monoscutidae is a modern Australasian family and the fossils show neither the fused dorsal surface of one of the monoscutid subfamilies nor the enlarged chelicerae of the other. This leaves Protolophidae, a North–Central American family today, and the much more widely distributed Phalangiidae, found across Eurasia, Africa and North America. Explicit characters to exclude protolophids are not clearly preserved, but overall our fossils seem most consistent with being phalangiids (cf. TSURUSAKI 2007) – particularly given the presence of a prominent, raised and highly ornamented ocular tubercle.

Stephanobunus n. gen.

Type and only species: *Stephanobunus mitovi* n. gen. n. sp.; by original designation.

Etymology: From the ancient Greek ‘stephanos’ (στέφανος), meaning crown or crowned in reference to the

crown-like thorns on the ocular tubercle, and the typical harvestman suffix ‘bunus’.

Diagnosis. – Phalangiid harvestmen with a raised and prominent ocular tubercle, bearing two rows of 4–5 large spines; anteriormost pair of spines largest and pointing distinctly forwards. Eye lens relatively small; not dominating ocular tubercle. Tubercle itself surrounded posterolaterally by ca. 10 further prominent spines from the propeltidium. Dorsal surface of opisthosoma with four or five rows of short, thorn-like spines. Legs moderately long, leg I ca. 1.3 times body length, and without strong denticles along the articles. Pedipalps without strong thorns on the inner face of the femur, but with blunt, setose mesal apophyses on both the patella and tibia.

Remarks. – Based on initial observations, a strong similarity to *Megabunus* – and *M. diadema* with its highly spinose ocular tubercle in particular (Fig. 5a) – was assumed. Data on the morphology, biology and distribution of extant *Megabunus* species can be found in e. g. MARTENS (1978), KOMPOSCH (1998) and MUSTER et al. (2005). The button-like setose apophysis on the pedipalp femur and the larger, bluntly rounded and similarly setose apophyses on the patella and tibia closely resemble the morphology of most *Megabunus* species (cf. MARTENS 1978, figs. 496, 502, 514, 522, 527); although numerous other phalangiid genera can exhibit a similar pedipalp too (see below). Significantly, the new fossils differ from *Megabunus* in several key aspects. These include: (a) the absence of strong, raptorial thorns on the inner (ventral) surface of the pedipalp femur, (b) the presence of distinct rows of spines on the dorsal opisthosoma, which are not seen in any extant *Megabunus* species known thus far and (c) the fact that the ocular tubercle is strongly raised with a slightly constricted base and that the eye lens in the fossil is relatively small compared to the rest of the tubercle; compare this with the large eye lens dominating the ocular tubercle in *M. diadema* for example (Fig. 5a).

Based on comments in the literature, probable Eurasian relatives of *Megabunus* were also considered. *Platybunus* C. L. KOCH, 1848 and *Metaplatybunus* ROEWER, 1911 both express a patella and tibial apophysis similar to that seen in the fossils, but these modern genera again differ in having strong spination of the pedipalpal femur in particular, and in lacking a strongly-spined ocular tubercle. Some *Metaplatybunus* species have weakly-defined spines on the dorsal opisthosoma (ROEWER 1923, fig. 1020), but this character is not consistent within the genus. The monotypic Siberian genus *Acanthomegabunus* TSURUSAKI, TCHEREMIS & LOGUNOV, 2000 also shares some similarities with the fossils in palpal morphology, and expresses weak opisthosomal spination. However, it has a diagnostic character of dorsal spines on the pedipalpal patella which are wholly absent in the amber specimens. The legs of *Acanthomegabunus* are also noticeably

more spinous than those in the fossils. Species of *Astrobunus* THORELL, 1876 also have a spinous ocular tubercle with 4–5 long thorns on each side and rather high and prominent spines on the dorsal opisthosoma. However, while the pedipalpal patella of the genus *Astrobunus* bears an apophysis, the tibia does not. Furthermore the pedipalpal femur bears a row of small pustules on the inner face and the pedipalpal claw is toothed. Both these characters differ from the amber material.

In general, while there are various further Eurasian harvestman genera which show either a similar pattern of palpal apophyses and/or at least some degree of spination on the ocular tubercle, none of them offer a strong match to the highly distinctive morphology, and especially the ‘crown of thorns’ on the eye tubercle, seen in the amber fossils. We should not rule out the possibility of a modern tropical genus. Among spiders there is the famous precedence of the family Archaeidae, discovered in Baltic amber (KOCH & BERENDT 1854) before any of the living species were described from their modern distributions in Africa and Australia. Among the tropical harvestmen the African genus *Odontobunus* ROEWER, 1910 in particular offers a similar habitus to the amber fossils (Fig. 5b) with a raised, prominent eye tubercle bearing a crown-like set of spines (four on each side) and a dorsal opisthosoma in the form of a leathery plate bearing a series of almost blade-like thorns or spines in four rows with an underlying granular ornament (ROEWER 1910, pl. 5, figs. 21–22; ROEWER 1923, fig. 1043). However, *Odontobunus* differs from the amber fossils in three key details: (a) the patella and tibia in the living genus lack apophyses, (b) the ocular tubercle of *Odontobunus* is somewhat smaller and less pronounced or strongly spined and (c) the tarsal claw of the living genus is toothed. There is also a distinct (and diagnostic) projection on the *Odontobunus* chelicerae, but its presence or absence is equivocal in the fossil material.

STARĘGA & SNEGOVAYA (2008) treated *Odonotobunus* as being closely related to their new genus *Camerobunus* STARĘGA & SNEGOVAYA, 2008 as well as to *Cristina* LOMAN, 1902 and *Megistobunus* HANSEN, 1921. Of these *Camerobunus* has pedipalps similar to the fossil, but with more slender and pointed apophyses, yet the ocular tubercle is less obviously spinose and the dorsal body less distinctly ornamented. *Cristina* shares with the amber fossils the spiny ocular tubercle and ornament on the dorsal body; albeit here along the whole length of the opisthosoma (Fig. 5c). Also the *Cristina* body is generally more globose than in the fossils and the ocular tubercle is less pronounced and has the largest spines at the back of the tubercle (Fig. 5c). At least males of *Cristina* have an inflated leg I femur-tibia. This feature is not seen in the amber fossils, but their gender is unfortunately equivocal. *Megistobunus* also shows similarities in dorsal ornament and has an apophysis on at least the pedipalpal patella (see e. g. LAWRENCE 1962), but differs in the shape and spination details of the ocular tubercle.

In summary, the amber specimens appear to share a number of gross morphological features with *Megabunus*, *Odontobunus* and *Cristina* in particular (Fig. 5). However, the combination of characters seen in the fossils precludes their confident assignment to any one of these extant genera – at least as they are currently defined – without expanding the list of diagnostic characters considerably. For this reason we propose a new genus, diagnosed as above, to accommodate the fossil material. The fossils could be related to one of the three genera noted above, but in the absence of a cladogram for the phalangiid genera it is difficult to determine their sister-group objectively at this stage. Genital characters, especially the male penis, are equivocal in the fossils.

Stephanobunus mitovi n. gen. n. sp.

Figs. 1–4

Holotype: American Museum of Natural History (AMNH Ba-JV181), New York, USA (ex VELTEN collection) (Figs. 1–2).

Paratype: Senckenberg Forschungsinstitut und Naturmuseum (SMF), Frankfurt/Main, Germany (ex WUNDERLICH collection) (Figs. 3–4).

Type locality and horizon: Baltic region, precise locality not recorded. Baltic amber (Paleogene: Eocene).

Etymology: In honour of Dr. PLAMEN MITOV (Sofia) for his contributions to both fossil and Recent harvestman systematics, and for his helpful advice during the preparation of this paper.

Diagnosis. – As for the genus.

Description. – Holotype body length ca. 2.8 mm, maximum height (without ocular tubercle) 1.31 mm. Prosoma comprised of pro-, meso- and metapeltidium, with lengths of ca. 0.7, 0.1 and 0.1 mm respectively for a total length of ca. 0.9 mm. Propeltidium with granular ornament, dominated by prominent ocular tubercle, length ca. 0.7 mm, height 0.69 mm; eye lens diameter ca. 0.1 mm. Ocular tubercle bears a crown-like, but asymmetrical, ornament of robust spines; four on the left side, five on the right. Antermost spines on both sides project largely forwards, length 0.33 mm; remaining spines project largely upwards and vary in length from ca. 0.1 to 0.3 mm. Postermost spine on right side notably curved inward. Ocular tubercle encircled by further spines, here derived from the propeltidium. Spination pattern consists of three prominent spines laterally, flanking the ocular tubercle, length ca. 0.15 mm, and four slightly smaller spines emerging behind the ocular tubercle, lengths ca. 0.1 mm. Propeltidium also bears two pairs of two anterolateral spines projecting laterally outwards more or less over the leg I trochanter. Metapeltidium (?) with at least one pair of two lateral spines.

Chelicerae equivocal. Pedipalps pediform, spinose; total length ca. 2.1 mm. Lengths of individual articles (in mm): femur 0.44, patella, 0.69 (with apophysis), tibia 0.39, tarsus 0.56. Femur with a setose, button-like apophysis close to

the distal end. Patella and tibia both with prominent, distal, bluntly rounded mesal apophyses; both articles with sparse setae along their length and a brush of dense setae on the apophysis. Patellar apophysis projects ca. 0.2 mm beyond the distal end of the article; tibial apophysis projects ca. 0.1 mm. Patella and tibia with a distinct row of stout setae on the lateral side. Tibia with spine-like setae on the inner (ventral) face. Tarsus moderately setose, ending in a single claw. Leg series incomplete, but legs moderately long; leg I at least 4 mm long, leg IV at least 5 mm; leg II incomplete but evidently longest in life based on the articles preserved. Approximate lengths of individual articles (where measureable, in mm) as follows. Leg I: patella 0.5, tibia 1.1, tripartite metatarsus 0.55. Leg II: femur 2.2, patella 0.4, tibia incomplete, but at least 3. Leg III: femur 1.2, patella 0.5, tibia 1.0. Leg IV: femur 2.0, patella 0.5, tibia 0.8, tripartite metatarsus 1.4 (subdivisions 0.7, 0.4, 0.3 respectively); tarsus incomplete but evidently annulate, length at least 0.5, but entire length not preserved. Femora with a pair of short dorso-distal spines projecting over the adjacent patella. Femur and patella in particular with sparse rows of setae; setation of more distal elements largely equivocal.

Opisthosoma slightly flattened, not globose, and weakly-segmented. Dark area at posterior end probably corresponds to anal operculum; laterally largely covered with a thin, white emulsion. First two thirds of the opisthosoma dorsally ornamented with four rows of up to six short, slightly recurved spines; length of each spine ca. 0.05 mm. A putative fifth row posterior to this (see below) is expressed as a single blunt spine visible on the midline.

Paratype body length ca. 4.5 mm, maximum height (without ocular tubercle) 2.3 mm. Prosoma comprised of pro-, meso- and metapeltidium, individual elements difficult to determine but total prosoma length of ca. 1.3 mm. Propeltidium dominated by prominent ocular tubercle, length ca. 0.7 mm, height 0.68 mm; eye lens diameter ca. 0.2 mm. Ocular tubercle bears a crown-like ornament of robust spines; five on both the left and right sides. Antermost spines on both side project largely forwards, length 0.30 mm; remaining spines project largely upwards and vary in length from ca. 0.1 to 0.3 mm. Ocular tubercle encircled by further spines, here derived from the propeltidium. Spination pattern consists of three prominent spines laterally, flanking the ocular tubercle, length ca. 0.15 mm, plus a further pair of spines (not seen in the holotype) emerging from the base of the ocular tubercle. Two large, posteriorly-directed spines originate behind the ocular tubercle; but it is unclear if they originate from the meso- or metapeltidium. Propeltidium also bears at least one (but perhaps up to four) anterolateral spines projecting laterally outwards more or less over the leg I trochanter.

Chelicerae relatively small, only proximal parts visible and lacking any obvious ornament. Pedipalps pediform, spinose; lengths of individual articles hard to de-

termine exactly, but tarsus 0.9 mm. Femur with a setose, button-like apophysis close to the distal end. Patella apophysis equivocal, tibia with distal setose mesal apophyses. Tarsus moderately setose, ending in a single claw. Leg series incomplete, but legs moderately long; leg I complete, length 5.9 mm, leg III also complete, length 8.5 mm. Leg II incomplete but evidently longest in life based on the articles preserved. Approximate lengths of individual articles (where measureable, in mm) as follows. Leg I: femur 1.3, patella 0.5, tibia 0.95, tripartite metatarsus 1.45, tarsus 1.27. Tarsus annulate with 16 individual elements and ending in a single claw. Distal end of femur and whole of patella of left leg I covered with a dark material making them appear thicker than in life. Leg II: femur 3.5, patella 1.0. Leg III: femur 2.1, patella 0.55, tibia 1.3, metatarsus 2.45, tarsus 1.2. Tarsus annulate with 13 individual elements and ending in a single claw. Leg IV largely equivocal, only partial femur preserved. Trochanters of at least legs I and II with a strong retrolateral spine. Both femora and patellae of all legs with a pair of short dorso-distal spines projecting over the adjacent patella and tibia respectively. Femur and patella in particular with sparse rows of setae; setation of more distal elements largely equivocal.

Opisthosoma slightly flattened, not globose, and bluntly rounded posteriorly. Most of the dorsal opisthosoma ornamented with five rows of up to five (but probably more) short spines, length ca. 0.13 mm. Dorsal surface of both prosoma and opisthosoma also with additional slightly granular ornament. Dark area at posterior end probably corresponds to anal operculum; opisthosoma laterally covered with two areas of thin, white emulsion and a brown bubble (haemolymph?) near a missing leg.

Remarks. – The two specimens differ slightly in size and ornament. The paratype is about 1½ times larger than the holotype and the spines on the dorsal surface of the opisthosoma are somewhat more prominent, as are the spines at the distal end of the femur and patella of the legs. There appear to be minor differences in the pattern of spines on the prosoma surrounding the ocular tubercle and the paratype is generally darker and presents a slightly more robust appearance. However, the ‘crown-of-thorns’ decorating the prominent ocular tubercle is very similar in both specimens, albeit with nine spines in the holotype and ten in the paratype. Although less obvious in the paratype because of the angle at which it sits in the matrix, the setose apophyses on the pedipalp appear to be present in both available examples. Leg lengths relative to the body are also similar. In summary, we have little hesitation in treating these two specimens as conspecific and feel that any dissimilarities observed are well within the range of ontogenetic or perhaps sexually dimorphic differences. Slight changes in morphology during ontogeny are not unknown (e.g. GNASPINI 2007) and young harvestmen can have less complex ornament compared to adults.

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