

Aquatic amphipods (Crustacea: Amphipoda: Crangonyctidae) in three pieces of Baltic amber

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Abstract

Three amber pieces containing crangonyctid aquatic amphipods are examined. One of the specimens appears to have the urosome unsegmented, and uropods 3 shortened, resembling extant *Synurella* sp. In another amber piece there are eight specimens of *Palaeogammarus* sp. which look as if they had been dry prior to becoming embedded in the resin.

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Results and discussion

The specimens in the examined amber pieces 2 and 3 (Figs. 2 and 3) very probably represent crangonyctid aquatic amphipods. They are similar to the published descriptions of *Palaeogammarus* species (Zaddach 1864; Lucks 1927; Just 1974; Coleman and Myers 2000; Jazdzewski and Kulicka 2002). Their rounded anteroventral head lobe, the shapes and marginal setation of coxae 1–4 and bases 5–7, the shortened second antenna, and the rather straight posterior margins of pleonites 1–2 correspond to those of the four known *Palaeogammarus* species (Zaddach 1864; Lucks 1927; Just 1974; Jazdzewski and Kulicka 2002).

The anterior part of the amphipod from amber piece 1 (Fig. 1) closely resembles *Palaeogammarus* species. However, a segmentation of the urosome, which occurs in all *Palaeogammarus* species, is not visible. It is neither clear if the urosome segments are really fused, nor if this

might be an artefact. An unsegmented urosome occurs in extant *Synurella* species, cf. *Synurella ambulans* (F. Müller, 1846) in Schellenberg (1942). Also differing from *Palaeogammarus* species there are no rows of spines (cf. Fig. 3d, and Zaddach 1864: Fig. 11) on the dorsal face of the urosome, and uropods 3 seem to be strongly reduced in size, consisting of a rather short peduncle and a minute ramus with some short terminal setae. The shortened uropods 3 are in contrast with all three *Palaeogammarus* species, which have quite long third uropods (compare, e.g., with Just 1974: Fig. 1). However, the uropod morphology of the specimen in amber piece 1 is similar to that of extant *Synurella* sp. (see Schellenberg 1942: Fig. 66B; Karaman 1974). Recent members of the genus *Synurella* occur in shallow waters in the temperate zone from northern Germany to the Pacific coast, from the northwestern Balkans to the polar sea and the west coast of Alaska. Occurrence in Baltic amber may reflect a similar distribution millions of years ago, if indeed the specimen is a *Synurella*.

It is a mystery how aquatic animals could have been preserved in amber. Zaddach (1864) presumed that the

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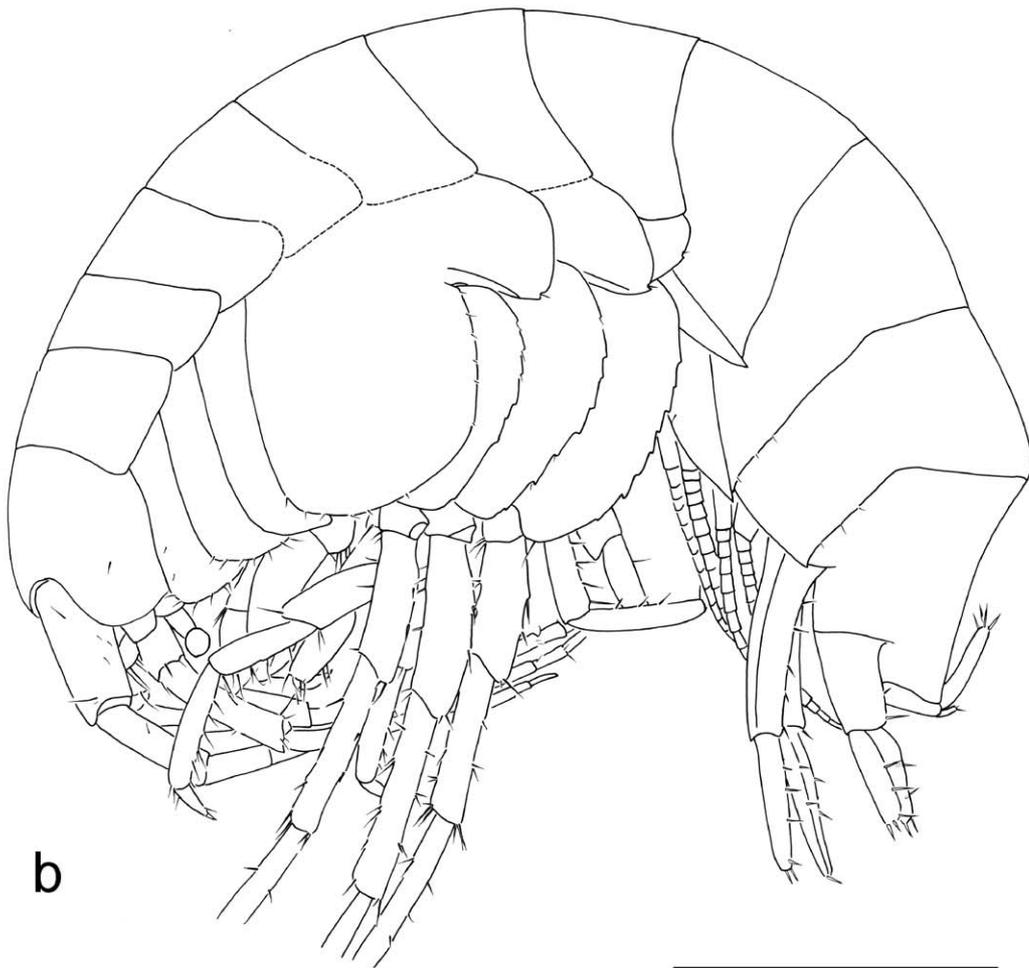
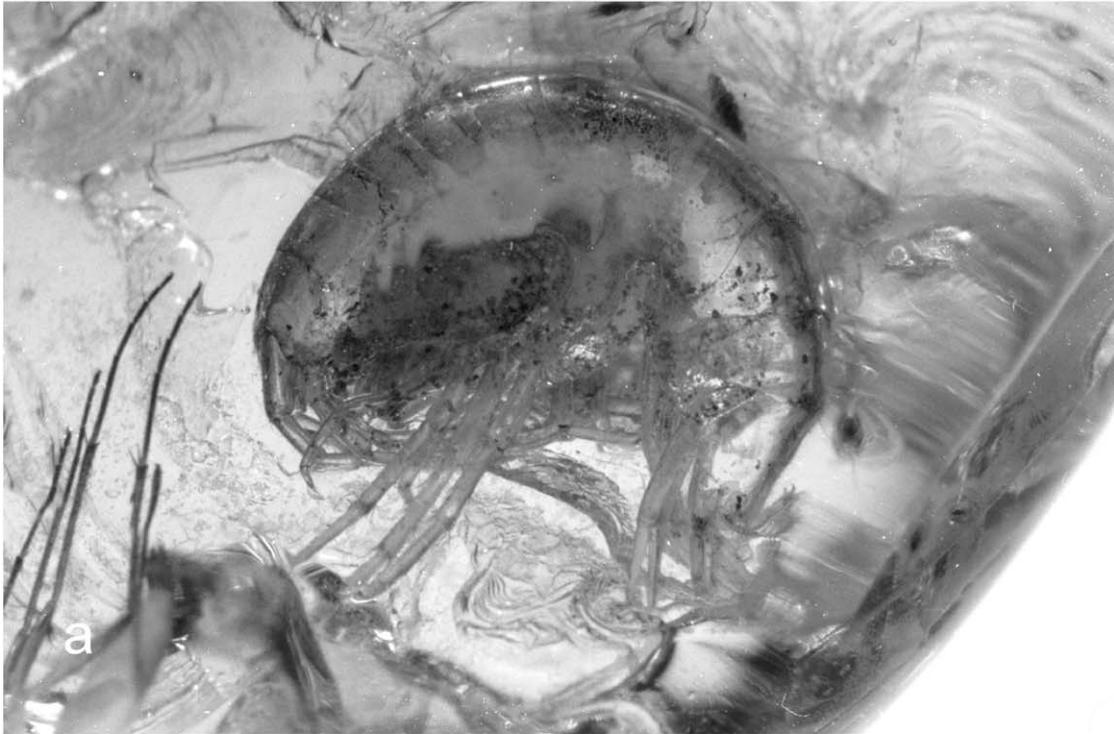


Fig. 1. Amphipod in amber piece 1, views of left body side. (a) Microphotography (by Carsten Gröhn). (b) Line drawing; scale bar 1 mm.

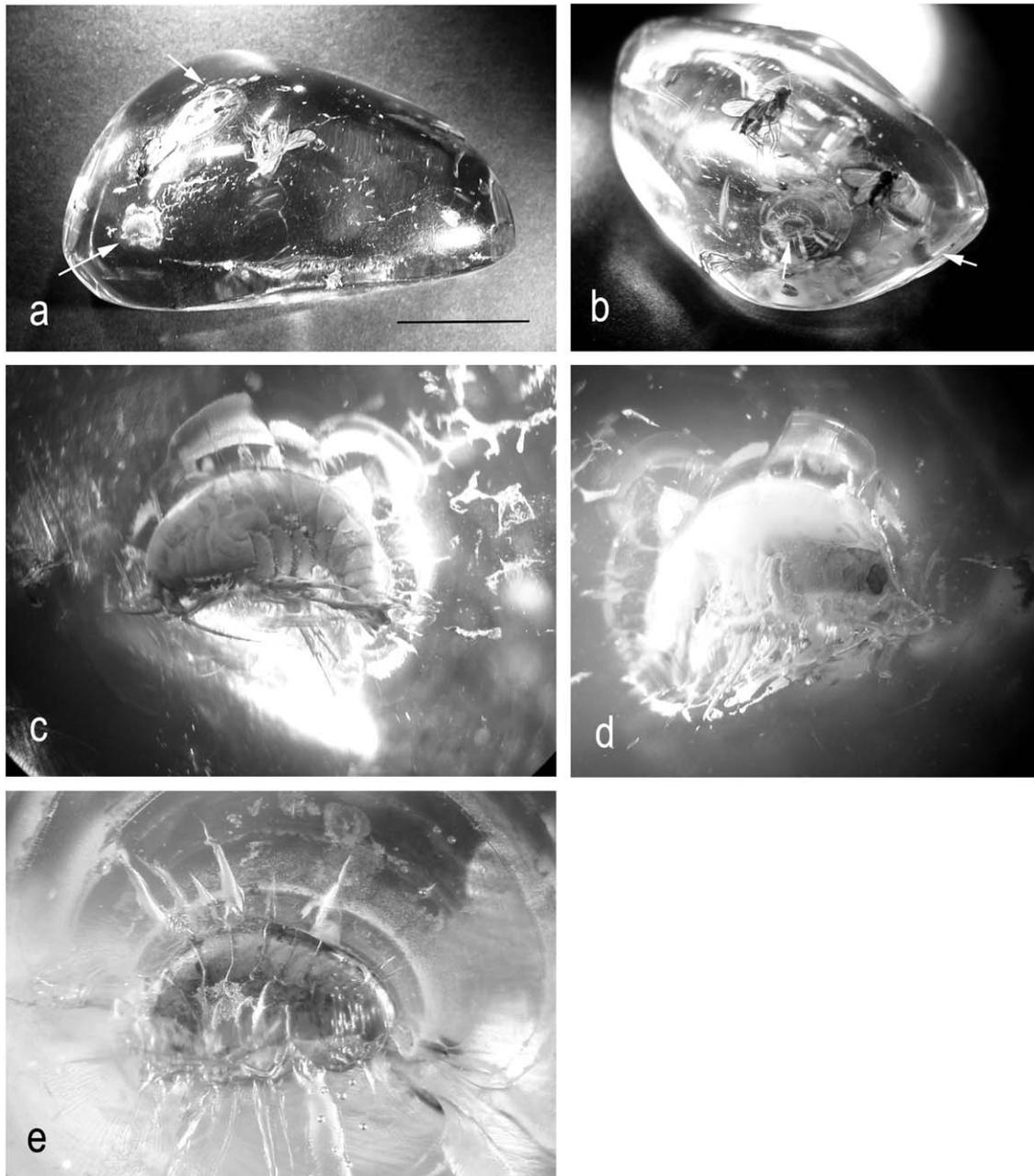


Fig. 2. Amber piece 2 with two specimens of *Palaeogammarus* sp. (a, b) Different views of amber piece 2; arrows point to amphipods; scale bar 1 cm. (c) Left body side of the larger amphipod specimen. (d) Right body side of larger specimen. (e) Smaller amphipod specimen.

amphipod he studied had been dry before it was trapped in the resin. Coleman and Myers (2000) found signs of shrinkage on the cuticle of *Niphargus groehni*. The specimens in amber piece 3 studied here were definitely dry before being enclosed by the resin. They show strong signs of shrinkage, and the typical silvery reflections caused by air below the cuticle. Jazdzewski and Kulicka (2000) described an amber piece containing about seven

amphipod specimens, similar to amber piece 3 with eight specimens studied herein. They imagined a scenario of enclosure in which the amphipods were captured in a “quickly drying out micro-pool at the water line, as well as sudden covering of the half-dry crustaceans by the drops of resin falling from the neighbouring trees”. Another possibility would be that dried amphipods were blown into the resin by the wind.

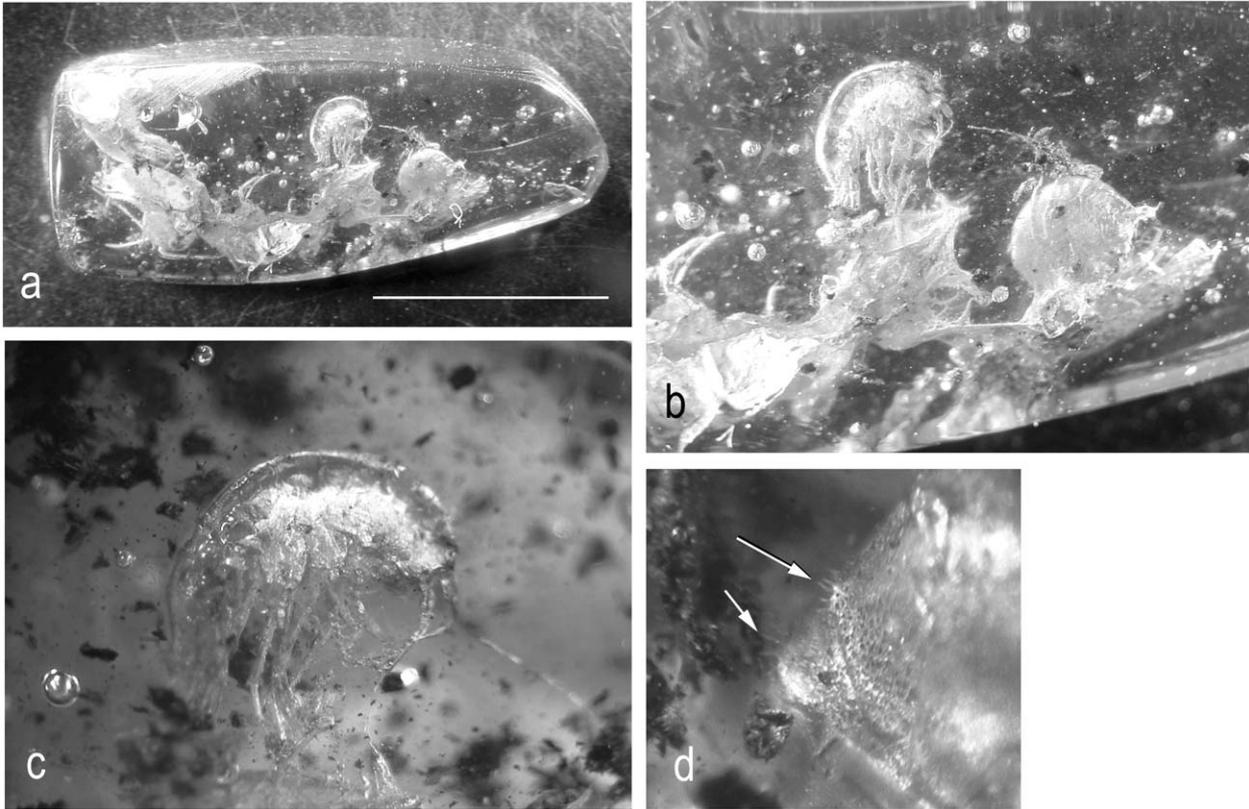


Fig. 3. Amber piece 3 with eight specimens of *Palaeogammarus* sp. (a) Overview; scale bar 1 cm. (b) Detail of middle section as seen in (a). (c) Amphipod showing strong signs of shrinkage prior to embedding, and air trapped below the cuticle. (d) Two rows of urosome spines (arrow) on the very left specimen in Fig. 3a.

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