ONE MORE FOSSIL NIPHARGID (MALACOSTRACA: AMPHIPODA) FROM BALTIC AMBER

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Material and Methods

Our fossil amphipod was discovered in a piece of Eocene Baltic amber by the second author and was purchased by the Museum of the Earth, Polish Academy of Sciences. The piece has been polished so that the surfaces are more or less parallel to the animal’s body. Drawings and photos were done using a stereomicroscope NIKON SMZ 800 according to the method described by Coleman (2003).
carpus slightly shorter than propodus, also with several postero-marginal setae; propodus comparatively long, with 2 short setae on anterior margin and 6-7 pairs of setae on the posterior margin; dactyls comparatively robust, with strong apical nail, inner margins with 3-5 spinifirm setae (Figs. 2B, C).

Pereiopods 5-7 clearly visible (Fig. 1A); basal articles comparatively robust, at most twice as long as wide; with widely rounded, prominent postero-distal lobe. Anterior and posterior margins armed with several small setae, more numerous on posterior margins. Ischium rectangular; merus, carpus and propodus of somewhat increasing lengths in P5 and more clearly visible in P7. Distal setae on propods nearly as long as dactyls, comparatively robust, but more slender than in P3 and P4 (Figs. 2D-G). Dactyls of posterior pereiopods pectinate with 5-6 setae on their inner margins (Figs. 2E-G).

Remarks.—The specimen is approximately 18 mm in length. Anterior and posterior parts of the body are better visible from the left side, whereas the central part - from the right side. Antennae, except for the basal articles as well as third uropods are lacking; no trace of eyes are visible (Figs. 1A-D). The shape and armament of the propodus and dactylus of the gnathopod are definitely *Niphargus*-like.

Because of the oblique position of telson in the amber piece studied, the true length of this structure and of its apical spines can be somewhat underestimated in the drawing. Due to the oblique position of some appendages against the polished surfaces of the amber piece the true shape and article proportions in the drawings can be somewhat misshapen; for instance the true length (slenderness) of pereiopod dactyls may be somewhat underestimated.

**DISCUSSION**

Those clearly visible elements of the above described niphargid appear very similar to the morphological details of *Niphargus groehni* Coleman and Myers, 2001. These similarities consist of: the shape of head interantennal lobe; the shape of the fourth coxal plate; the shape, article proportions, and armament of pereiopods; and the telson shape and armament.

The differences lie in the shape of third epimeral plate that in *N. groehni* is a bit acutely produced, whereas in our specimen it is broadly rounded. Also, our specimen...
Fig. 2. *Niphargus cf. groehni*, line drawings. A, right gnathopod 2; B, left pereiopod 3; C, left pereopod 4; D, left pereiopod 5; E, distal articles of left pereiopod 7; F, right pereiopod 5; G, right pereiopod 7; H, last metasome segment and urosome, left side; I, telson, lower side. B, C, D, F, and G - scale a; H and I - scale b; A and E - scale c.
possesses a denser armament with spiniform setae on the pereiopodal dactyli. However, this last feature can be age/size dependent, and the niphargid of Coleman and Myers was distinctly smaller (approximately 12 mm in length) than our specimen. Because the age of their *N. groehni* is roughly estimated by Coleman and Ruffo (2002) to be approximately 50 My, both amber pieces originate most probably from the same Baltic area and because the morphological similarities are rather evident, we propose at this time to refer to our specimen as *Niphargus* cf. *groehni* Coleman and Myers, 2001.

*Niphargus groehni* was assigned to the subgenus *Phaenogammarus*. However, recent studies using comprehensive morphological (122 characters) and biochemical (nuclear 28S and mitochondrial 12S rDNA sequences) features from over 100 species of *Niphargus* by Fiser et al. (2008) inclined these authors to reject all earlier subdivisions of this genus.

The inclusion of water dwelling arthropods - especially Amphipoda - in the resin that eventually became amber appears to be not so rare as one might expect. Already several records of crangocytids enclosed in Baltic amber (Zaddach, 1864; Lucks, 1928; Just, 1974; Jazdzewski and Kulicka, 2000a, b, 2002; Coleman and Myers, 2001; Coleman, 2004, 2006) and 3 records of niphargids (Coleman and Myers, 2001; Coleman and Ruffo, 2002; present data) that suggest such amphipods that lived very near the water surface, e.g., as occurs with the extant crangonyctid *Synurella*, or some epigean niphargids, e.g., *Niphargus valachicus* (see Fiser et al., 2009), would have had more “opportunities” to become amber fossils.

The location of all three hitherto described amber-entombed niphargids in the central Baltic area (all pieces from the Sambian Peninsula) are situated far north of the present distribution area of *Niphargus*. This clearly shows how the distribution of this genus extended more to the north during the much warmer middle Tertiary period.

Acknowledgements

Thanks are due to Dr. Cene Fiser (University of Ljubljana, Slovenia) for his professional, precious discussion and also to Prof. Boris Sket (the same institution) for his comments. We acknowledge with thanks the help of two colleagues from the University of Lodz: Prof. Michal Grabowski for taking photos, and especially the help of Mr. Piotr Jozwiak, M. Sc., in the preparation of the definitive drawings.

References


Received: 27 November 2009.

Accepted: 22 December 2009.