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Protracheoniscus vasileradui – n. sp. (Crustacea, Isopoda, Crinochaeta) in the Romanian fauna

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SUMMARY. We describe the terrestrial isopod species *Protracheoniscus vasileradui* n. sp. collected from the deciduous forest in the Liuborajdea Valley, Iron Gates (Porţile de Fier) area. We named it *Protracheoniscus vasileradui* n.sp., in the memory of Prof. V. Gh. Radu, who was a renowned specialist in terrestrial isopods.

Keywords: isopod, specific characters, *vasileradui*

Introduction

Between 1967 and 1968 V. Gh. Radu and N. Tomescu conducted studies in the habitats of the planned reservoir and neighbouring areas of the Iron Gates (Porţile de Fier). Over 500 terrestrial isopod individuals were collected in this period (Radu and Tomescu, 1975, p. 45-46). In these samples four terrestrial isopod species were found to be new for science. Three of these were described by Radu and published in Fauna of the SRR, Crustacea, Isopoda, vol. IV, fascicle 13, 1983. One of the species mentioned in the Fauna of Porţile de Fier (1975), belonging to the genus *Protracheoniscus*, could not be described at the time by Radu, due to health issues. We recently found 3 ♂ and 8 ♀ *Protracheoniscus* in the samples collected in that period and we named them *Protracheoniscus vasileradui* n.sp., in the memory of Prof. V. Gh. Radu, who was a renowned specialist in terrestrial isopods.

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Materials and methods

The specimens of *Protracheoniscus vasileradui* were collected with the help of a leaf litter sieve, from leaf litter collected in the deciduous forests of the Liuborajdea Valley. The study sites in the Liuborajdea Valley are located between the localities Moldova Veche and Orşova, between the kilometre stones 83 and 82.

Three males and 8 females of this species were collected. Two males have been dissected and microscopic slides of the taxonomically relevant organs were prepared with Euparal and Canada balsam. The extremity of the endopodites of the first male pleopods have been photographed from the slides in ventral position and laterally in alcohol, before dissection. The males and two females have been photographed dorsally, in alcohol, in order to have a whole-body image and the dorsal colouration. Two females were included in Canada Balsam, the six other females and a male are kept in 70% alcohol. These, the whole biological material and the microscopic slides from N. Tomescu's terrestrial isopod collection are going to be donated to the Zoology Museum, Faculty of Biology and Geology of the Babeş-Bolyai University.

In describing the species *Protracheoniscus vasileradui* we will compare some characteristics with those of the species *Protracheoniscus politus*, a common, widespread species from the Romanian fauna. N. Tomescu (1972) described the ontogenetic postembryonic development of *P. politus*, and Tomescu *et al*. (2016) described the change in the morphology of the endopodites of the first male pleopods in relationship with post-reproductive moulting.

Results

Species description:

Size: males: 5 x 2 – 5.2 x 2 mm, females: 5.2 x 2 – 6 x 2.5 mm (Fig. 1 a, b).

Colour: dark-brown with yellow-orange spots.

Somatic features: cephalon: cephalic lobes poorly developed, large yellowish-orange spots on the cephalon (Fig. 1 c). Pleotelson shorter comparatively to that of the species *P. politus* (Fig. 1 d).

Appendages

Antennae. The second-last segment of the antenna is shorter than the last (Fig. 2 a).

Pereiopods. The seventh pereiopod pair of the male has a straight ventral side of the ischiopodite (Fig. 2 b). Males of the species *P. politus* have a slight curvature of the ventral side of the ischiopodite (Fig. 2 c).

Pleopods. The first pair of the male pleopod exopodites are approximatively triangular in shape, with the external side slightly concave (Fig. 3 a) and differing from the shape of the first pair of the male pleopod exopodites in *P. politus* (Fig. 3 e).

Endopodites of the male *P. vasileradui* have a wide basal half, with the external sides slightly curved (Fig. 3 b). The extremities of the endopodites are pointed (Fig. 3 c), with tips that are ventrally curved (Fig. 3 d). In males of the species *P. politus*, the first pair of the pleopod endopodites have a chitinous lobe at their extremities (Fig. 3 f, f'), which is shed with the exuvia during post-reproductive moulting and is regrown during the next year (Tomescu, 1972; Tomescu *et al*., 2016).

Derivatio nominis: we named the species *Protracheoniscus vasileradui* n.sp., in the memory of Prof. V. Gh. Radu, who was a renowned specialist in terrestrial isopods.

Figure 1. *Protracheoniscus vasileradui* nov. spec. Holotyp, male and female dorsal view: **a.** ♂ 5 x 2 mm, **b.** ♀ 5.5 x 2.2 mm, **c.** cephalic lobes, **d.** pleotelson.

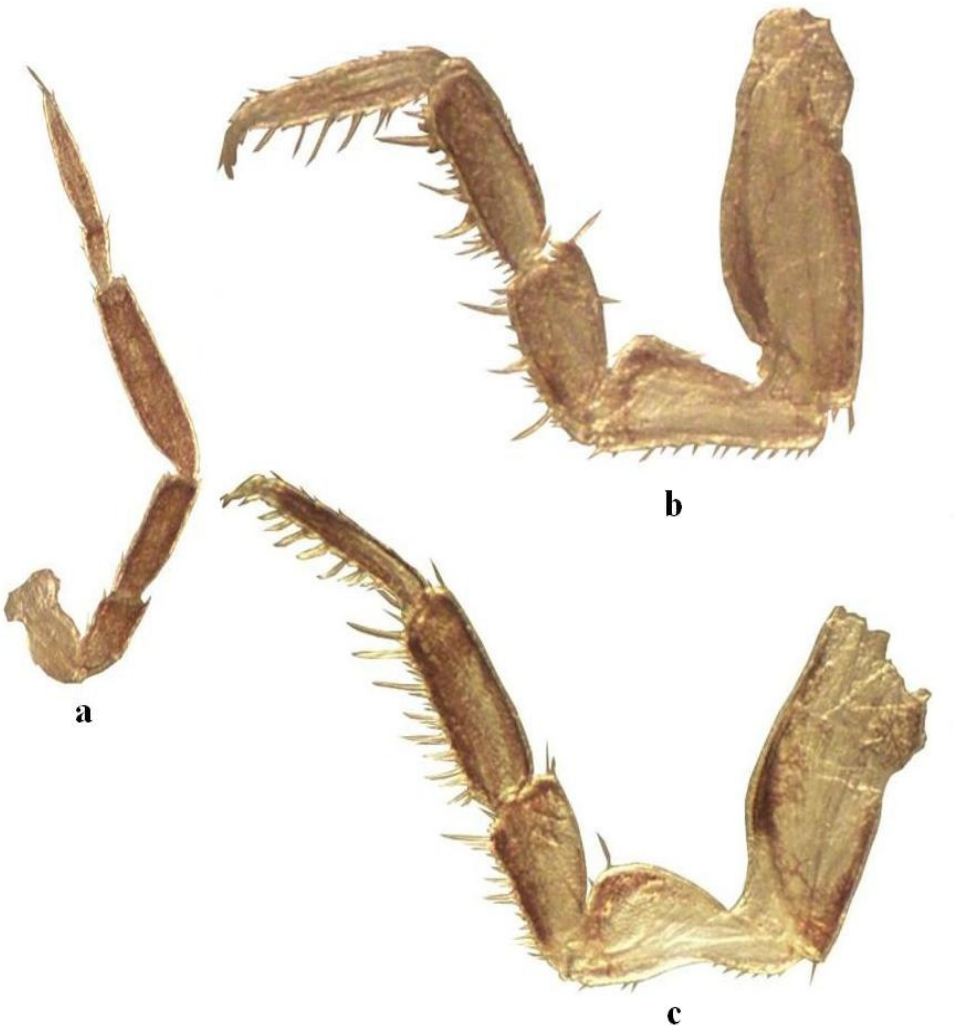

Figure 2. *Protracheoniscus vasileradui* nov. spec. Holotyp, ♂ 5 x 2 mm, **a.** antenna, **b.** pereiopods 7. *Protracheoniscus politus*, ♂ 6.5 x 2.8, **c.** pereiopods 7.

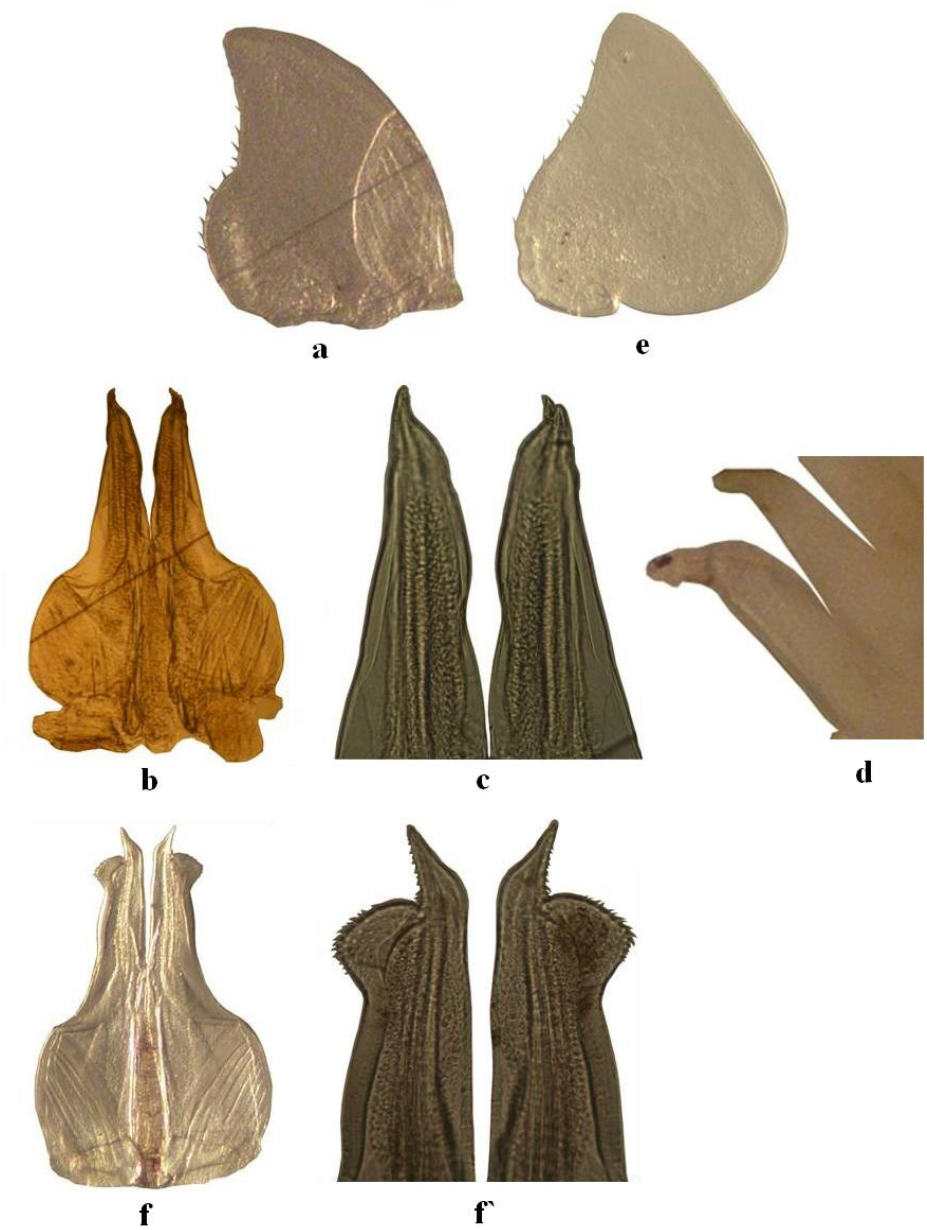

Figure 3. *Protracheoniscus vasileradui* nov. spec. Holotyp, ♂ 5 x 2 mm, **a.** exopod pleopods 1, **b.** endopod pleopods 1, **c.** apex of the endopod pleopods 1 – ventral view, **d.** apex of the endopod pleopods 1 – prophile view. *Protracheoniscus politus*, ♂ 6.5 x 2.8, **e.** exopod of pleopods 1, **f.** endopod of pleopods 1, **f`.** apex of the endopod pleopods 1.

Discussion

The species *Protracheoniscus vasileradui* n. sp. has special morphological characteristics in comparison to *Protracheoniscus politus*, a wide-spread species in Romania. The habitat, where the specimens of *P. vasileradui* were collected from, deciduous forests of the Liuborajdea Valley, in the Iron Gates (Porţile de Fier) area, seems to be a geomorphologically isolated area, that favoured, in time, the isolation of *P. vasileradui* populations. Research conducted in 1967 and 1968 aimed at recording plant and animal species in the area where a reservoir was planned to be formed, by building the Iron Gates dam on the Danube. The research was extended into the habitats of the valley slopes that were not covered by the water of the reservoir. The forest in the Liuborajdea Valley, where we collected the *P. vasileradui* specimens, is located on such a slope, and we believe these populations have survived until the present day. It is possible that the species is present also on areas in the vicinity of the Liuborajdea Valley, with similar ecological conditions.

Conclusions

The specific morphological differences between *Protracheoniscus vasileradui* n. sp. and *Protracheoniscus politus* C. L. Koch 1841 lie in the shape of the male's first pair of exopodites and endopodites, and that of the male's ischiopodites of the seventh pair of pereiopods. These are essential morphological characteristics in the separation of species belonging to the genus *Protracheoniscus*.

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