

## First record of the genus *Crinitodiscus* Sellnick, 1931 in Romania with the description of *Crinitodiscus kolcsari* sp. nov. (Acari: Uropodina: Discourellidae)

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**Abstract:** The first Romanian species of the genus *Crinitodiscus* Sellnick, 1931 is described and illustrated on the basis of two collected females. The new species differs from the other members of the genus by the V-shaped anterior process on the female genital shield and the ridged anterior margin of the postdorsal shield. The *Crinitodiscus* species were previously reported only from the East Mediterranean region. This occurrence represents the first Central European data on the genus.

**Key words:** Acari, Uropodina, *Crinitodiscus*, new species, Romania

### 1. Introduction

The genus *Crinitodiscus* was established by Sellnick (1931) as a new subgenus of the genus *Discopoma* with the type species *Crinitodiscus beieri* Sellnick, 1931 from Greece. Hirschmann and Zirngiebl-Nicol (1967) later transferred it to the “Ganggattung” *Discourella*, in their specific system “Gangsystematik der Parasitiformes”. Zirngiebl-Nicol (1972) gave a redescription for the genus on the basis of several other specimens collected from Greece and placed it as a subgenus of *Urodiaspis* Berlese, 1916. Hirschmann (1979) mentioned *Crinitodiscus* as a separate “Stadiengattung” (possible genus) in his “Stadiensystematik”. Some years later, Athias-Binche and Błoszyk (1985) redefined the genus *Crinitodiscus* and proposed a new subgenus (*Orientidiscus* Athias-Binche & Błoszyk, 1985) as well. Athias-Binche and Błoszyk (1985) described two new *Crinitodiscus* species from Turkey, *C. pawlowskii* Athias-Binche & Błoszyk, 1985 and *C. rafalskii* Athias-Binche & Błoszyk, 1985, placing them in the subgenus *Crinitodiscus* (*Orientidiscus*). In a summarizing work of uropodid genera and species, Wiśniewski and Hirschmann (1993) again placed the *Crinitodiscus* species into the genus *Urodiaspis*. Recently, Kontschán (2003) presented this genus with the description of a new species, *C. mahunkai* Kontschán, 2003, from Albania, and Bal (2005, 2006) described 2 new species from Turkey: *C. ozkani* Bal, 2005 and *C. ayyildizi* Bal, 2006. Recently, Kontschán (2013) summarized the Uropodina species of the Balkan Peninsula and presented the genus *Crinitodiscus* from Montenegro, Macedonia, and Bosnia-Herzegovina as well.

### 2. Materials and methods

Soil samples containing the new species were collected in Transylvania (Romania) by the young researcher Levente-Péter Kolcsár, near the village Runc. The materials were put into plastic bags and transported to the Hungarian Natural History Museum, where the collected materials were extracted using the Berlese method. The clean mite samples were separated under a stereomicroscope. The *Crinitodiscus* specimens were cleared with lactic acid, placed on deep half-covered slides, and identified under a microscope. The identified mites were stored in 70% ethanol and deposited in the Soil Zoology Collection of the Hungarian Natural History Museum (HNHM) and in the Natural History Museum, Geneva (NHMG). Illustrations were made with the aid of a drawing tube. All measurements are given in micrometers; width of the idiosoma was taken at the level of coxae IV. Abbreviations: h1–4: hypostomal setae; v: ventral setae; ad1–2: adanal setae; St1–5: sternal setae.

### 3. Results

*Crinitodiscus kolcsari* sp. nov. (Figures 1, 2a–2e, 3a–3d, and 4a–4e)

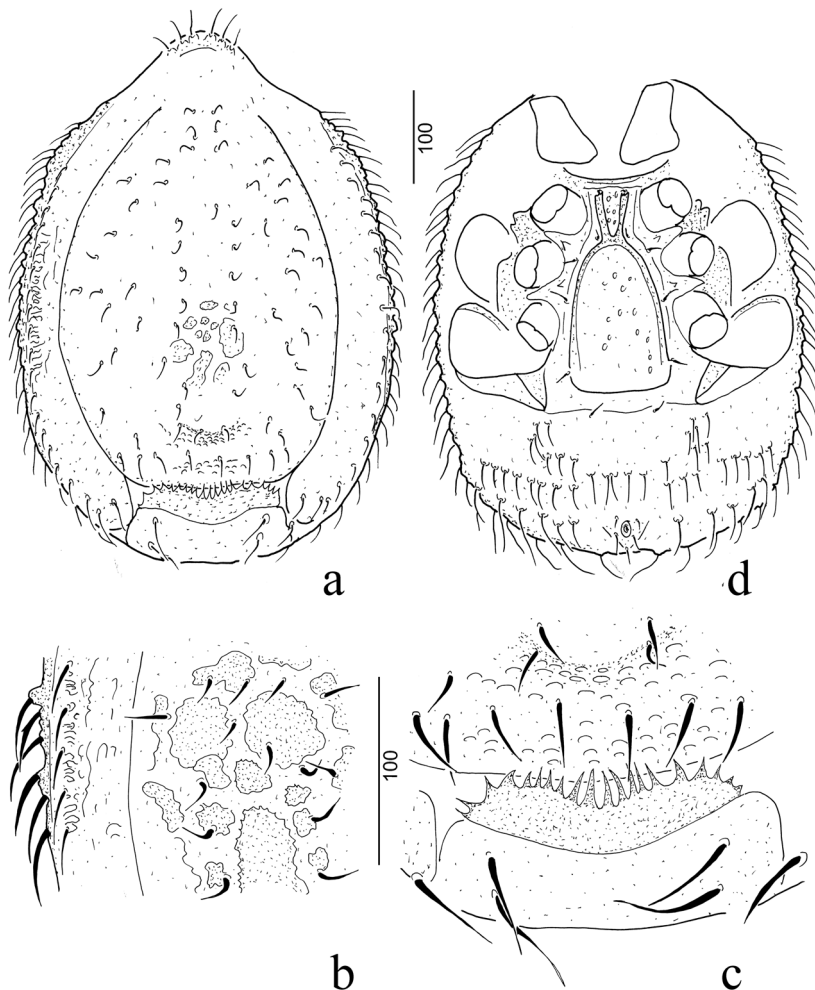
Material examined. Holotype. One female (HNHM) Romania, Mt. Apuseni, Runc, Runcului Gorges/Cheile Runcului, 2013.10.10, 46.513014°N, 23.438586°E, from soil, 10.X.2013. L-P. Kolcsár coll. Paratype. One female (NHMG), locality and date same as for the holotype.

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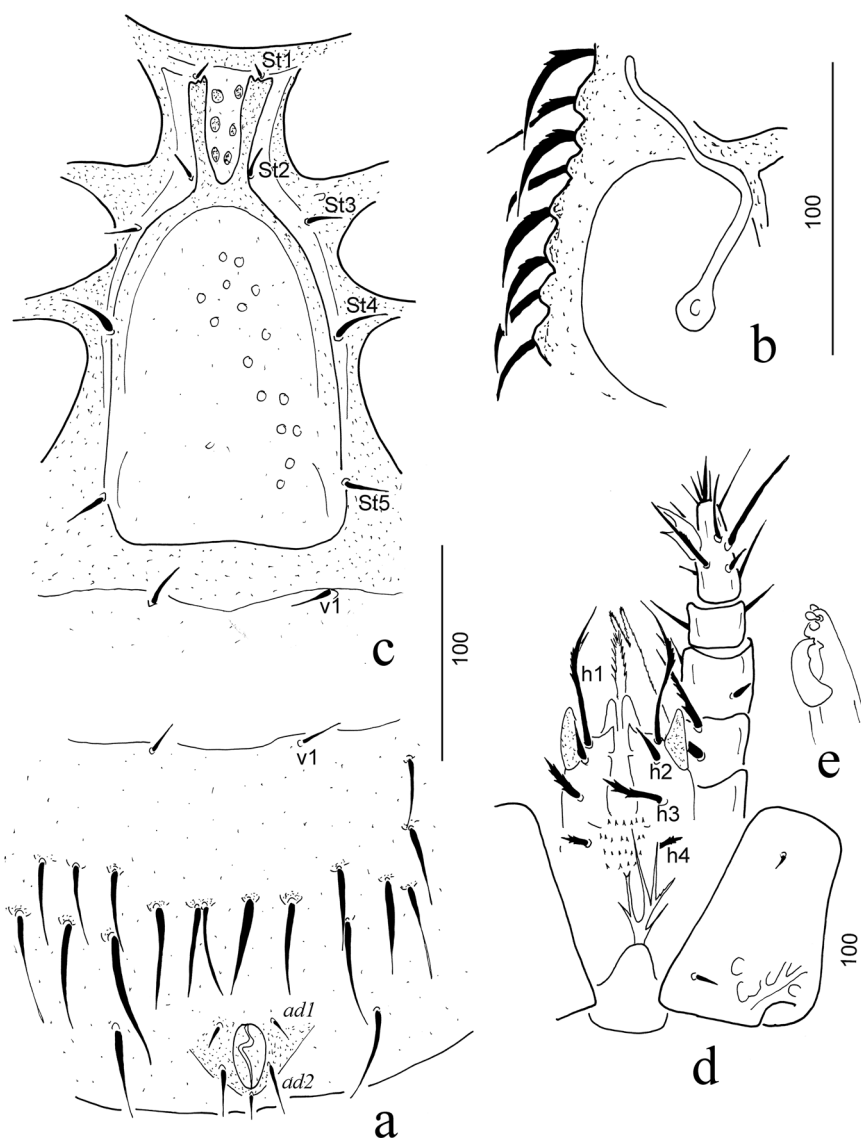
Description. Female. Body length: 560–570  $\mu\text{m}$ , body width: 390–400  $\mu\text{m}$  ( $n = 2$ ).

Dorsal idiosoma (Figure 1a). Oval-shaped. Marginal and dorsal shields fused anteriorly. All setae on dorsal shield smooth, curved, needle-like, and long (ca. 13–18  $\mu\text{m}$ ), dorsal shield covered by large, deep, irregular pits (Figures 1b and 4a). Caudal area of dorsal shield elevated from other areas, surface of posterior part of dorsal shield covered by oval pits (Figure 1c). Marginal shield bearing smooth and needle-like setae (ca. 13–18  $\mu\text{m}$ ), margin of idiosoma with ca. 36–38  $\mu\text{m}$  basally serrate setae. Marginal shield ornamented by irregular, curved, line-like sculptural pattern (Figure 1b). Postdorsal shield situated on caudal area of dorsal shield, postdorsal shield without sculptural pattern, with two pairs of needle-like setae (ca. 51–53  $\mu\text{m}$ ). Anterior margin of postdorsal shield bears a wide and apically serrate process (Figures 1c and 4c).

Ventral idiosoma (Figure 1d). All sternal setae smooth and needle-like; St1 (ca. 6–7  $\mu\text{m}$ ) situated near the anterior margin of sternal shield, St2 (ca. 14–16  $\mu\text{m}$ ) at level of posterior margin of coxae II, St3 (ca. 16–18  $\mu\text{m}$ ), at level of anterior margin of coxae III. St4 (ca. 25–27  $\mu\text{m}$ ) situated at level of anterior margin of coxae IV, St5 (ca. 19–20  $\mu\text{m}$ ) placed near basal edges of genital shield. Surface of sternal shield smooth, except area anterior to genital shield, where it is covered by some oval pits (Figure 2c). Sternal and ventral shields fused, but a transversal groove situated at level of setae v1 (ca. 20–22  $\mu\text{m}$ ); ventral shield without sculptural pattern. Numerous pairs of setae situated on ventral shield; these setae smooth, needle-like (ca. 35–44  $\mu\text{m}$ ), and placed on small protuberances (Figures 2a and 4b). Anal opening situated on a small, triangular emersion and oval. Setae around anal opening smooth and needle-like; setae ad1



**Figure 1.** *Crinitodiscus kolcsari* sp. nov. female, holotype: a) dorsal view; b) setation and ornamentation on dorsal and marginal shields; c) caudal area of dorsal body; d) ventral view.



**Figure 2.** *Crinitodiscus kolcsari* sp. nov. female, holotype: a) ventral area; b) peritreme; c) intercoxal area; d) ventral view of tritosternum, coxae I, palp, and gnathosoma; e) chelicerae.

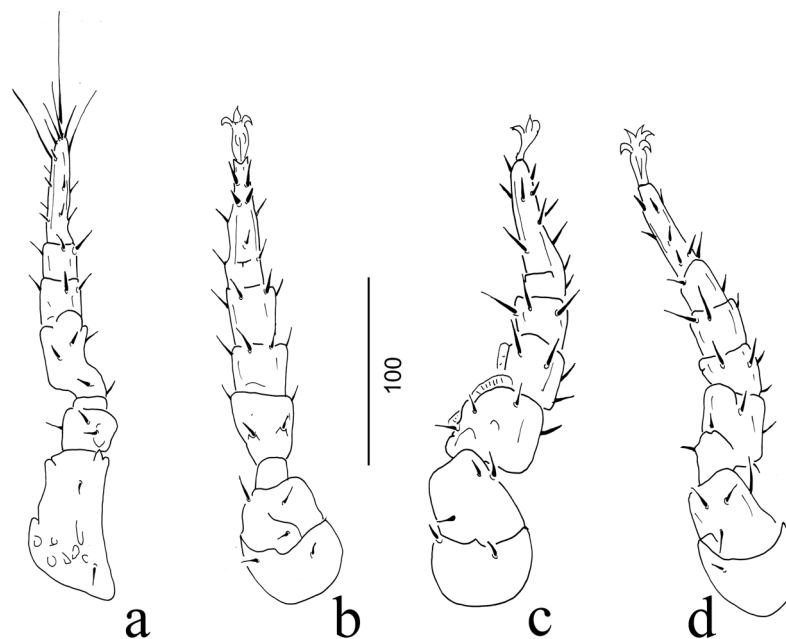
short (ca. 9–10  $\mu\text{m}$ ), ad2 longer (ca. 22–23  $\mu\text{m}$ ), postanal seta as long as ad1 (Figure 2a).

Genital shield linguliform, with rounded anterior margin, its surface covered by some oval pits. Anterior margin of genital shield bearing two V-shaped apical processes (Figures 2c and 4d). Peritremes L-shaped, stigmata situated between coxae II and III (Figure 2b). Tritosternum (Figures 2d and 4e) with triangular base, tritosternal laciniae divided into 6 smooth branches.

Gnathosoma (Figure 2d). Corniculi horn-like, internal malae shorter than corniculi, smooth and apically rounded. Hypostomal setae h1 long (ca. 53  $\mu\text{m}$ ), marginally serrate,

with a short and smooth marginal branch, h2 short (ca. 14  $\mu\text{m}$ ) and smooth, h3 marginally serrate and long (ca. 23  $\mu\text{m}$ ), h4 similar in shape to h3 and ca. 10  $\mu\text{m}$  long. Movable digit of chelicerae longer than fixed digit, and bearing one tooth on central area and one bulbiform sensory organ on apical part. Fixed digit with one small tooth (Figure 2e). Labrum long and apically serrate, epistome marginally serrate and apically divided into two branches (Figure 2d). Palp trochanter with two serrate ventral setae, other setae on palp smooth.

Legs. Leg I without ambulacral claws (Figure 3a) and with smooth and needle-like setae; other legs bearing



**Figure 3.** *Crinitodiscus kolcsari* sp. nov. female, holotype: a) leg I; b) leg II; c) leg III; d) leg IV (ventral view).

smooth setae (Figures 3a–d), long and apically pilose setae on trochanters III and IV not visible.

Male, nymphs, and larvae unknown.

Etymology. I dedicate this new species to my dear friend, Levente-Péter Kolcsár, who collected the new species.

Remarks. This new species differs from other closely related species by the two V-like anterior processes on the female genital shield, which have not been observed in the previously described *Crinitodiscus* species.

**Key to the known species of *Crinitodiscus* (for females only)**

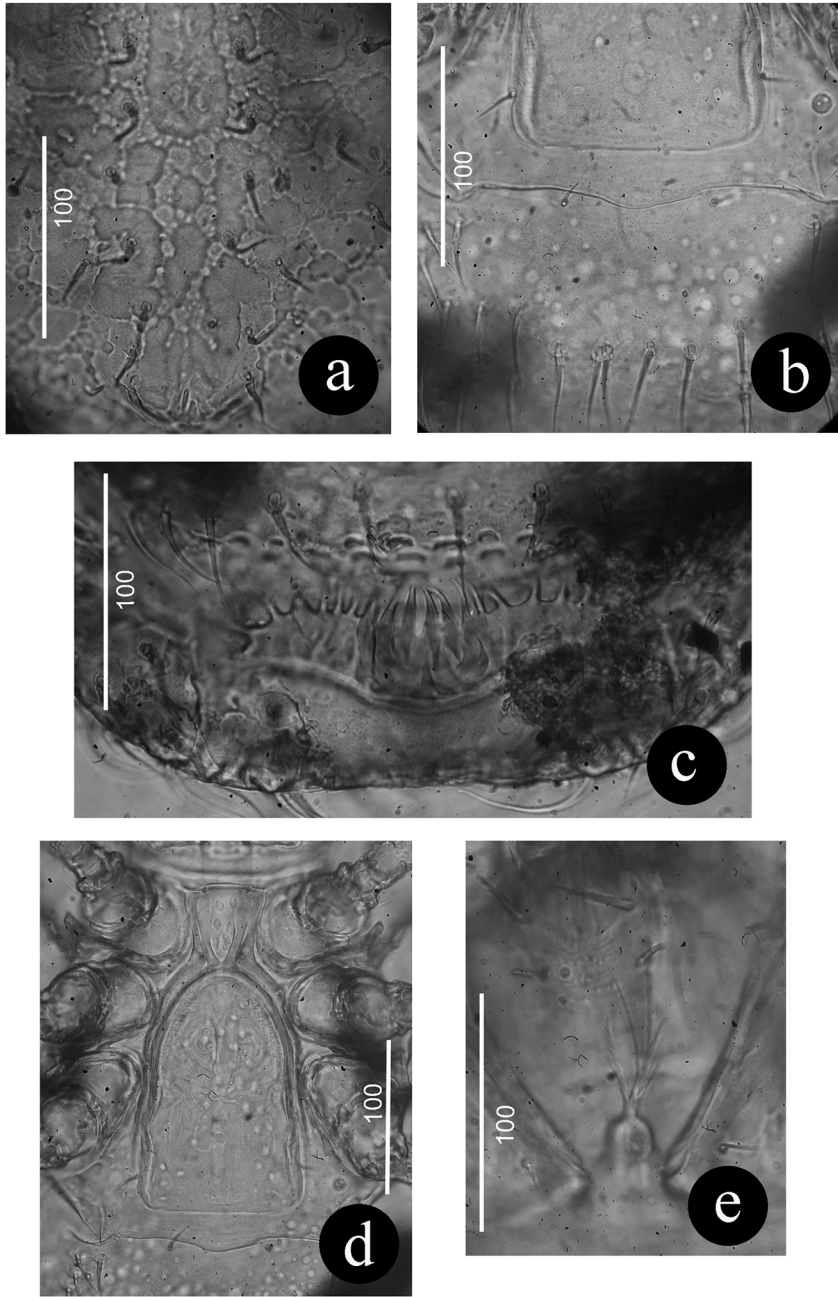
1. Anterior process on genital shield present ..... 3
- Anterior process on genital shield absent ..... 2
2. Shape of genital shield oval, marginal shield with numerous very short setae, setae on caudal region of dorsal idiosoma not situated on protuberances ..... *C. mahunkai*
- Shape of genital shield linguliform, marginal shield with some long setae, setae on caudal region of dorsal idiosoma situated on protuberances ..... *C. ayyildizi*
3. Surface of genital shield ornamented ..... 4
- Surface of genital shield smooth ..... *C. beieri*
4. Sternal shield ornamented, marginal and dorsal shields fused anteriorly ..... *C. kolcsari*
- Sternal shield without ornamentation, marginal and dorsal shields completely separated ..... 5
5. Dorsal and ventral setae marginally pilose .... *C. ozkani*
- Dorsal and ventral setae smooth ..... 6

6. Dorsal setae narrow and long ..... *C. rafalski*
- Dorsal setae short and robust ..... *C. pawlowski*

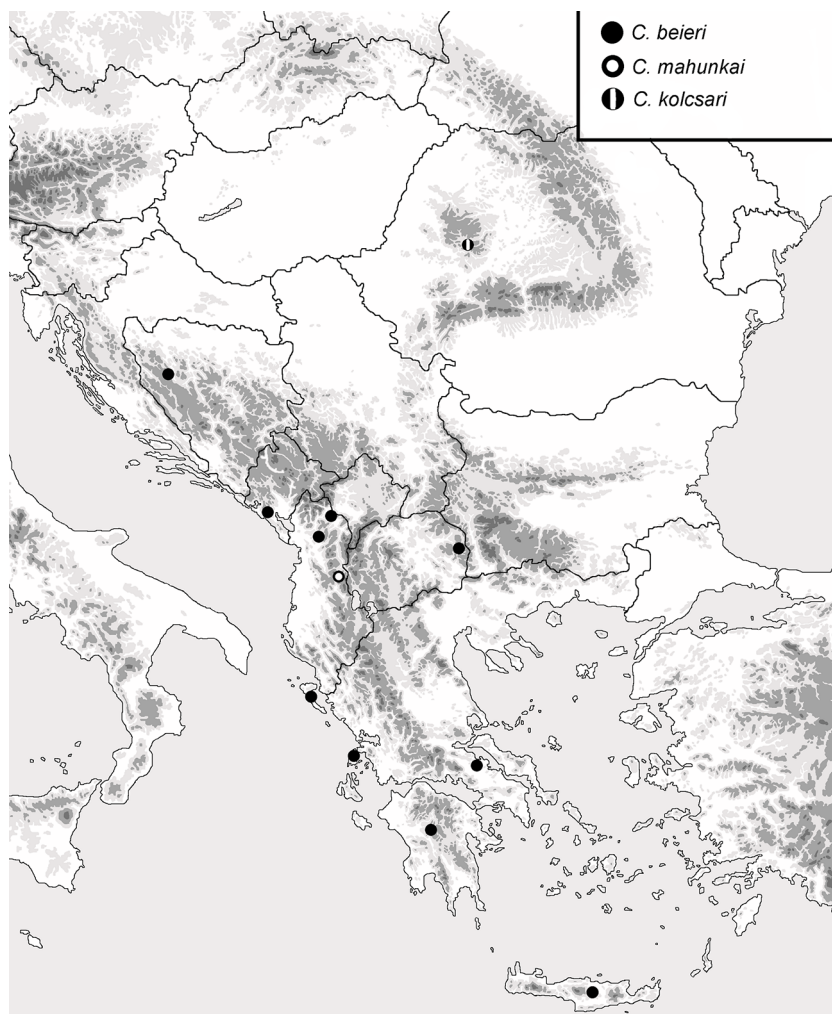
#### 4. Discussion

The genus *Crinitodiscus* seems to be an East Mediterranean genus which occurs in Greece, Albania, Montenegro, Bosnia and Herzegovina, Turkey, and Iraq. The first occurrence of this genus in Romania is a surprise, because the northern border of the previously known distribution of the genus lies in Bosnia and Herzegovina (Figure 5). The Romanian occurrences support a connection between the Balkan Peninsula and the Carpathian Basin. Perhaps this connection can be interpreted on the basis of the tectonic history of the Apuseni Mountains, which consist of two large parts. The northern part (Bihor Mountains, Vlădeasa Mountains) is of autochthonous origin; this region was elevated from the collision of the Dacia and Tisza microplates. The southern Apuseni Mountains (Metaliferic Mountains, Zarand Mountains) are a fragment of the Vardar block, which emerged and drifted north (Ianovici et al., 1976; Nicolae and Saccani, 2003; Schmid et al., 2008) to the current location. Due to these tectonic movements, the *Crinitodiscus* species can be found in the Carpathian Basin, along with several other soil-dwelling animal groups (e.g., earthworms (Csuzdi et al., 2011)).

Athias-Binche and Błoszyk (1985) established a new subgenus for two species described from Turkey (*Orientidiscus* Athias-Binche & Błoszyk 1985), on the basis



**Figure 4.** Photos of *Crinitodiscus kolcsari* sp. nov. female, holotype: a) setae and ornamentation on dorsal shield; b) ventral setae; c) caudal area of dorsal part of body; d) intercoxal area; e) tritosternum.



**Figure 5.** Occurrences of the *Crinitodiscus* species in the Balkan Peninsula and Carpathian Basin.

of the differences of the two subgenera; the new species belongs to the original subgenus, but one character in the new species (ornamented genital shield in female) is typical for the *Orientidiscus* subgenus. On the basis of the ornamentation of the genital shield in the new species, it seems certain that this character is not sufficient for separation of the two subgenera.

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