JULUS SCANICUS LOHMANDER, 1925 – A NEW SPECIES FOR THE ROMANIAN FAUNA

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Abstract. First record of *Julus scanicus* in the Romanian fauna.

Key words: Diplopoda, Julidae, genus *Julus*, Oltenia, Romania.

1. INTRODUCTION

In Europe, the genus *Julus* Linnaeus, 1758 contains only four species: *Julus curvicornis* Verhoeff, 1899, *Julus scandinavius* Latzel, 1884, *Julus scanicus* Lohmander, 1925 and *Julus terrestris* Linnaeus, 1758 (KIME & ENGHOFF, 2017).

Until now, the Romanian fauna had only two species of *Julus*, namely *Julus curvicornis* and *Julus terrestris* (GIURGINCA, 2021). We can add a third species: *Julus scanicus*.

Described as *Julus terrestris scanicus* by Lohmander in 1925 from Skåne (Kullaberg and Örup), the species is also recorded from Austria (GRUBER, 2007), Czech Republic (TAJOVSKÝ & TUF, 2016), Denmark (KIME & ENGHOFF, 2017), Estonia (SAMMET, IVASK, KURINA, 2018), Germany (SCHUBART, 1934, VOIGTLÄNDER & ALL., 2011), Hungary (KORSOŚ, 1994), Latvia (KIME & ENGHOFF, 2017) and Slovakia (HAL'KOVA, DRABOVA, MOCK, 2021). All this, as pointed by KIME & ENGHOFF (2017), suggests a very patchy distribution of the species: a group of populations in the Danube basin in Austria, Hungary, SW Slovakia and SE Czech Republic, another in E Germany (Brandenburg), a patch near Oldesloe in Schleswig-Holstein, more on the Danish islands of Sjaelland and Bornholm, in SW Sweden, and finally a record from Skangalia in Latvia, and now an isolated record from Romania.

During her studies on the fauna of Opiliones from Oltenia, our colleague dr. Anda Babalean (from the Faculty of Horticulture, University of Craiova) collected, among other Diplopods, several individuals which we have identified as *Julus scanicus*.

2. MATERIAL AND METHODS

All the specimens were collected by means of Barber traps with 4% formaldehyde solution in Bucovăţ Forest, 7 km from Craiova (Dolj County, Romania). Bucovăţ Forest has an altitude of 80–100 m a.s.l. and is characterized by the presence of *Ulmus procera*, *Tilia argentea*, *Cornus sanguinea*, *Acer campestre*, *Fraxinus excelsior*, *Pinus nigra*, *Taxodium* sp. and *Salix* sp. but the dominant tree genus is *Quercus* (BABALEAN, 2011).

After the specimens were moved into 75% alcohol, they were examined with an Optika SZM-4, ver.4.0.0 binocular stereomicroscope.

All taxonomically important structures were dissected and mounted in glycerine as temporary microscope preparations and observed with an Olympus CH2 microscope. For the drawings, we used the Olympus CH2 microscope with an Olympus *camera lucida*.

Material studied:

2 males and 3 females, Bucovăţ, Dolj, *Salix* forest, Romania, 29 April–5 May 2002, leg. Anda Babalean;

4 males and 1 female, Bucovăţ, Dolj, *Salix* forest, Romania, 6–12 May 2002, leg. Andra Babalean;

All specimens are preserved in the collection of the "Emile Racovitza" Institute of Speleology.

3. RESULTS

Taxonomy

Order Julida

Family Julidae Leach, 1814

Genus Julus Linnaeus, 1758

As pointed out by several authors, the genus *Julus* is very distinct in the entire family Julidae by the following characteristics of the adult males: a particularly strongly reduced and non-unciform leg-pair 1, coupled with each coxa 2 supplied with 1–3, often prominent processes, and the flagellum on the promerite being always present, characteristically thickened and somewhat ribbon-shaped (SCHUBART, 1934; LOHMANDER, 1936; EVSYUKOV, GOLOVATCH & REIP, 2018).

Julus scanicus Lohmander, 1925.

Diagnosis: Promerite very similar with *J. terrestris* but slightly slenderer and somewhat curved inward; outer arm of the opithomerite widened at the end but frayed into irregular points increasing in size proximally. In comparison with *J. terrestris*, the outer arm is less constricted before the final widened end (SCHUBART, 1934).

Description:

Color: dorsally, grey-yellowish with a narrow, dark longitudinal line; laterally, brown-grey to brownish, while ventrally the color is lighter (SCHUBART, 1934)

Eyes: present, dark colored with around 40–42 ocelli.

Gnathochilarium: short promentum, not separating the lamellae linguales; a tuft of setae on the stipes of the gnathochilarium (Fig. 1).

Fig. 1. *Julus scanicus:* gnathochilarium.

Male sexual characters:

Male leg pair 1: small, subtriangular, suture between coxa and telopodite weakly-expressed, coxa without lateral process (Fig. 2A), telopodite, in lateral view, like a rounded lobe, bearing a rather dense fringe of thin setae (Fig. 2B).

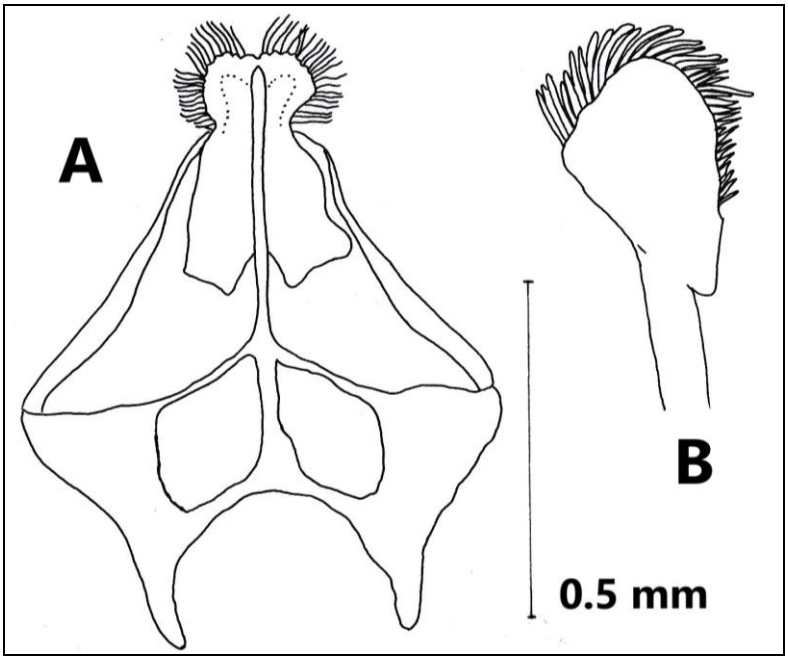

Fig. 2. *Julus scanicus*.: A. male leg pair 1; B. Telopodite of male leg pair 1, lateral view.

Male leg pair 2: only one coxal process, namely the main process which is long and slender (Fig. 3A). Penis short, rounded apically (Fig. 3B).

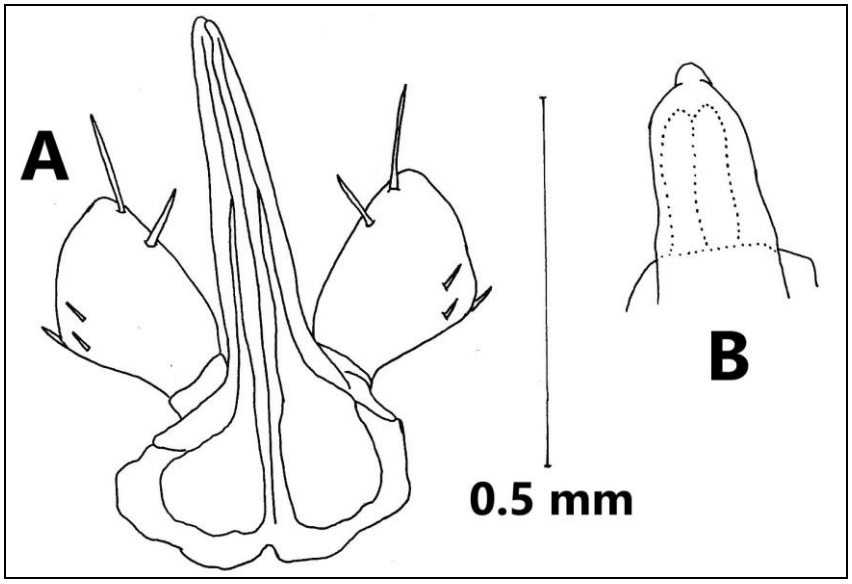

Fig. 3. *Julus scanicus*.: A. Male leg pair 2, main process of coxa; B. Penis.

Gonopods: All three parts of each gonopod form a tight block.

Promerite slightly higher than the opisthomerite, flagella well-developed, thick and slightly ribbon-shaped. No telopodite. Promerite triangular with rounded tips and with the edges slightly curved inward (Fig. 4).

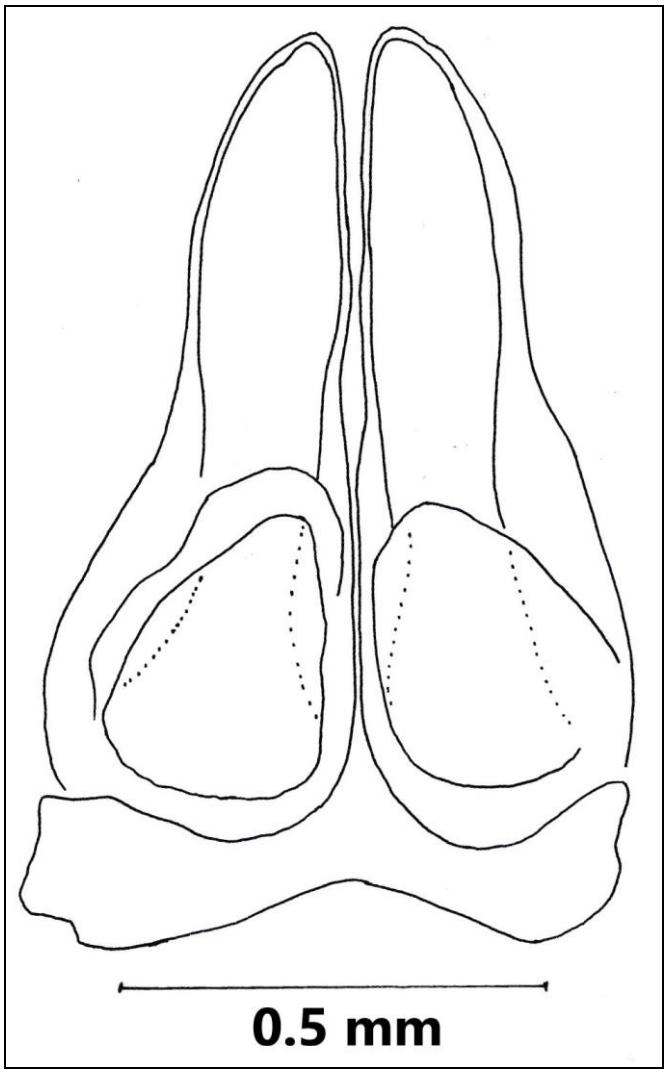

Fig. 4. *Julus scanicus*.: Promerite, posterior view.

Mesomerite simple, short with a rather rounded tip (Figs. 5–8).

Opisthomerite with a rounded tip, outer arm (Außenarm in SCHUBART, 1934 or lateral outgrowth in EVSYUKOV & ALL., 2018) higher than the mesomerite and

almost as high as the opisthomerite. The tip of the outer arm is characteristic: a rounded lobe with a serrated edge, the serrations increasing in size proximally (Figs. 5, 6, 7, 8).

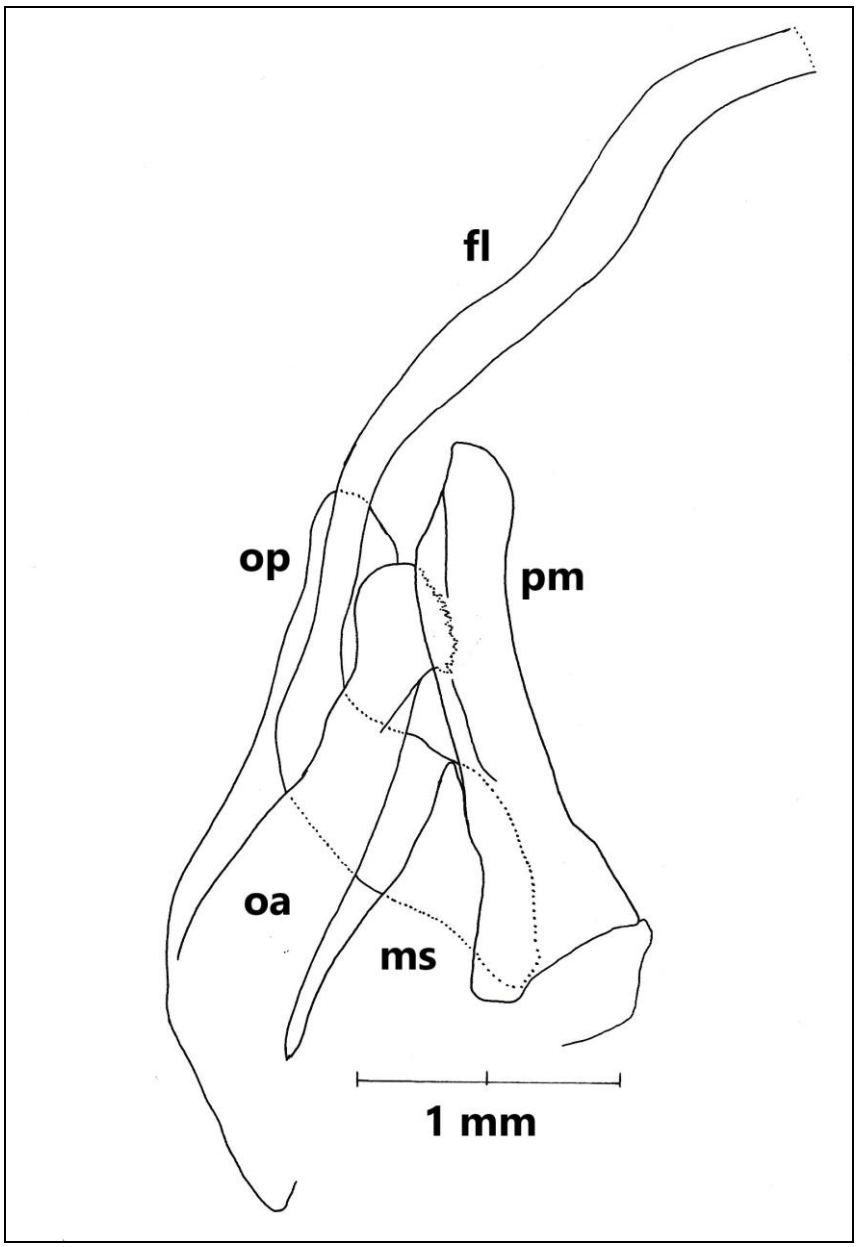

Fig. 5. *Julus scanicus*.: pm: promerite; ms: mesomerite; op: opithomerite; fl: flagellum.

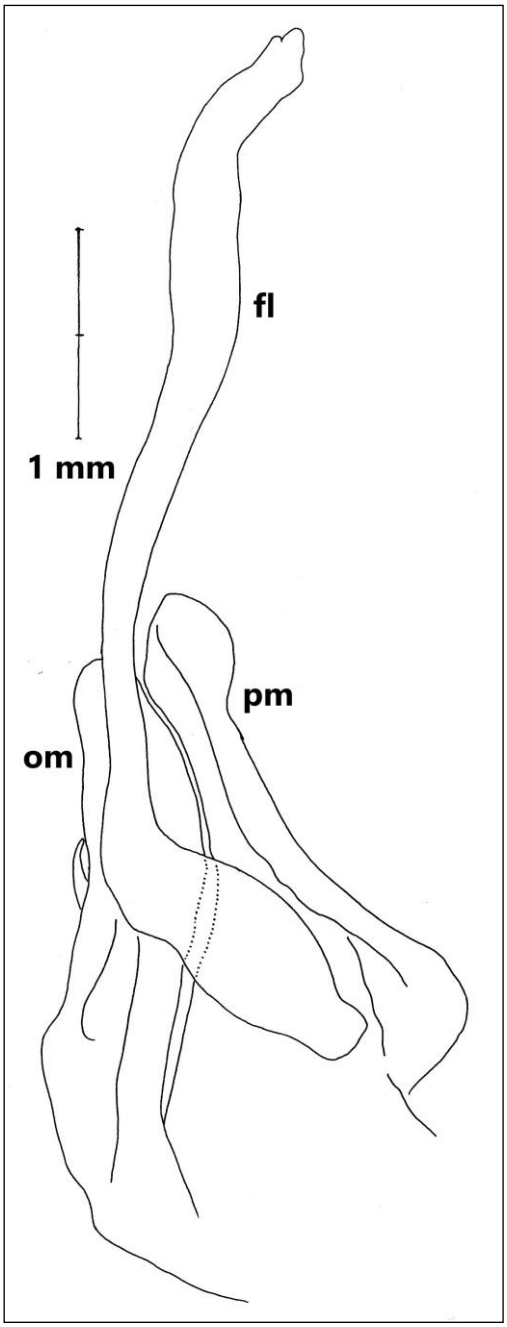

Fig. 6. *Julus scanicus*.: pm: promerite; ms: mesomerite; op: opithomerite; oa: outer arm; fl: flagellum.

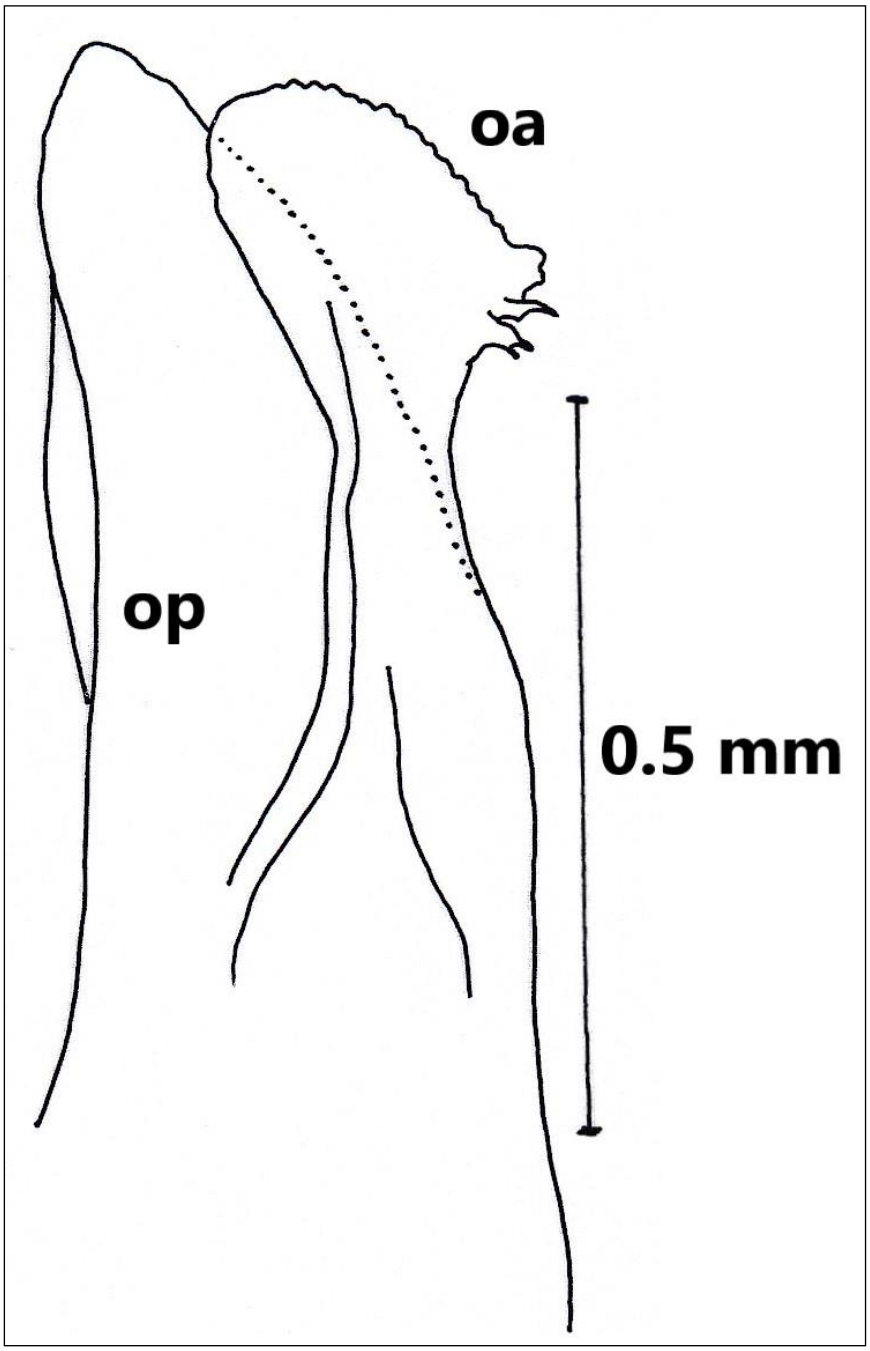

Fig. 7. *Julus scanicus*.: oa: outer arm op: opithomerite.

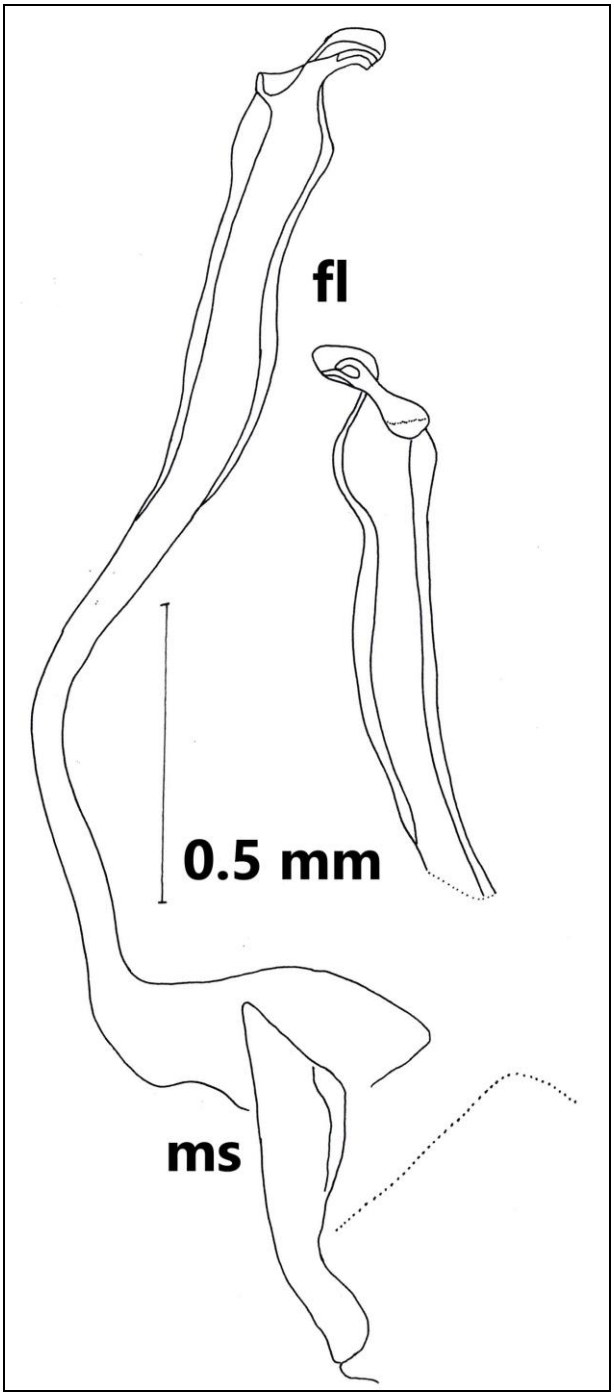

Fig. 8. *Julus scanicus*.: fl: flagellum; ms: mesomerite.

Habitat and coexisting species. Deciduous woodland, mostly damp, even very damp biotopes like *Alnus* swamps, also (wet?) heathland (KIME & ENGHOFF, 2017). Regarded as a eurytopic hygrobiont woodland species with preference for floodplains and swamp forests in Saxony-Anhalt, Germany (VOIGTLÄNDER & ALL., 2011). As such, it is significant that *Julus scanicus* was collected in Romania, in a deciduous and damp habitat with *Salix* sp.

The same Barber traps that yielded *Julus scanicus* provided several individuals of *Trachelipus difficilis* and *Polydesmus complanatus*. In another part of the Bucovăţ Forest, Barber traps placed in ash tree (*Fraxinus* sp.) leaf-litter had yielded *Glomeris connexa*.

4. DISCUSSION

Up to the present study, 170 species belonging to 62 genera, 19 families and 7 orders are included in the Diplopod fauna of Romania (GIURGINCA, 2021). Adding *Julus scanicus* raises the number to 171 species.

Among the Diplopoda of Romania, the Order Julida has the highest number of species: 6 species in the family Blaniulidae, 62 in the family Julidae and 1 species in the family Nemasomatidae.

The Julidae has the highest number of genera: *Allopodoiulus* (1 species), *Apfelbeckiella* (1 species), *Banatoiulus* (1 species), *Brachyiulus* (3 species), *Cylindroiulus* (8 species), *Enantiulus* (2 species), *Geopachyiulus* (2 species), *Haplophyllum* (1 species), *Julus* (3 species), *Kryphioiulus* (1 species), *Lamellotyphlus* (1 species), *Leptoiulus* (9 species), *Megaphyllum* (10 species), *Micropachyiulus* (1 species), *Ommatoiulus* (1 species), *Ophyiulus* (1 species), *Pachyiulus* (2 species), *Parastenophyllum* (6 species), *Typhloiulus* (3 species), *Unciger* (2 species) and *Xestoiulus* (3 species) (GIURGINCA, 2021).

From the three species of the genus *Julus*, the most widely distributed is the species *Julus terrestris* from Transylvania to Dobrogea while the other two species are more restricted (Fig. 9).

Up to now, *Julus scanicus* is recorded from only one locality in Oltenia. The third species, *Julus curvicornis* is recorded from only one locality near Cluj by VERHOEFF (1899), but the record is based on a female. As such, the inclusion of the species within the fauna of Romania might seem doubtful, but perhaps in the near future its presence might be clearly confirmed.

In our opinion, the number of Diplopoda species from Romania can be higher than the number inventoried here since several regions are less investigated from a faunistic point of view and recent researches led to the discovery of new species like *Stenophyllum tabacarui* Vănoaica, 2003 (VĂNOAICA, 2003) clearly, the anthropic areas (for instance, city parks) need much more attention as the discovery of *Bulgardicus bucarestensis* Tabacaru & Giurginca, 2006 demonstrates (TABACARU & GIURGINCA, 2006; see also GIURGINCA, BABA & MUNTEANU, 2017).

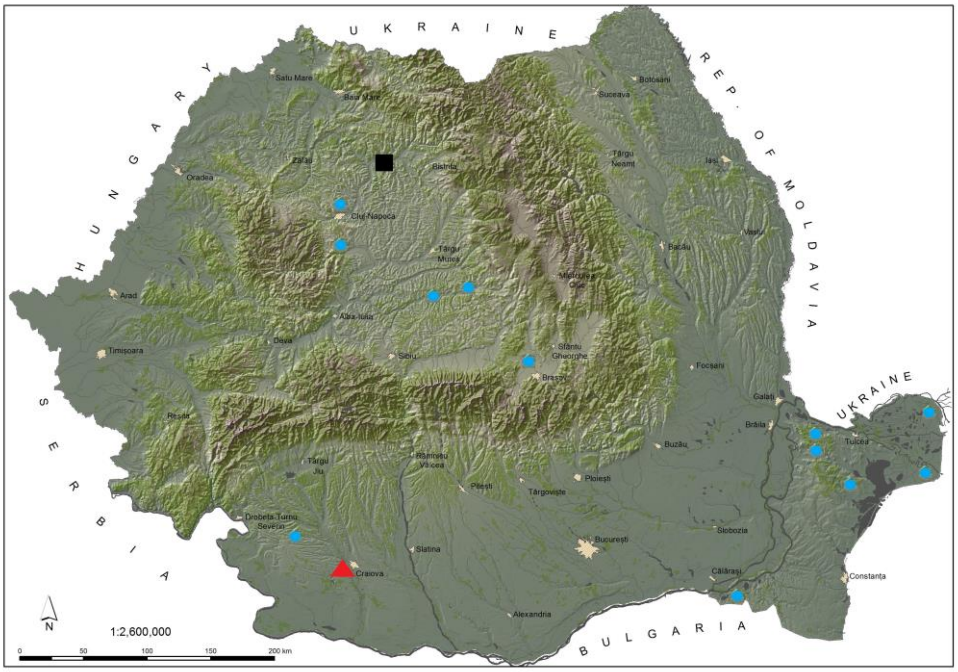

Fig. 9. Distribution of the genus *Julus* in Romania: black square-*Julus curvicornis*; blue circle-*Julus terrestris*; red triangle-*Julus scanicus*.

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