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A New Cavernicolous Species of the Pseudoscorpion Genus *Roncus* L. Koch, 1873 (Neobisiidae, Pseudoscorpiones) from the Balkan Peninsula

by

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The range of the pseudoscorpion subgenus *Parablothrus* Beier 1928 (from the genus *Roncus* L. Koch 1873) extends over the northern Mediterranean, covering a vast zone from Catalonia on the west as far as Thrace on the east. The northern limit of distribution of these false scorpions is situated within the Dolomites and the Alps of Carinthia; the most southern locations of the subgenus were registered on the island of Crete.

Eight species of *Parablothrus* are known to inhabit the Balkan Peninsula which represents an important distribution centre of the subgenus (Beier 1963, Helversen 1969); of them, six were found in the Dinaric Karst. The caves of Carniola are thus populated by *R. (P.) stussineri* (Simon) 1881, and *R. (P.) anophthalmus* (Ellingsen) 1910, *R. (P.) cavernicola* Beier 1928 and *R. (P.) vulcanius* Beier 1939 are known from Herzegovina. The last species was also collected on some Dalmatian islands. Both Adriatic and Ionian islands are inhabited by two other members of *Parablothrus*, namely *R. (P.) insularis* Beier 1939 (which was found on the isle of Brač) and *R. (P.) corcyraeus* Beier 1963, the latter living on Corfu.

Except for the Dinaric elements of *Parablothrus*, the Balkan representatives of the subgenus have not been sufficiently studied. In spite of this, one may assume that the differentiation of cave living species of *Roncus* took place both east and north of the peninsula. Namely, both Hadži (1937) and Helversen (1969) verified the presence of *Parablothrus* in these regions and also established two new species of the subgenus. One of them, *R. (P.) parablothroides* Hadži 1937, was found in Macedonia, Bulgaria and Turkey (Thrace), the other: *R. (P.) peramae* Helversen 1969, is restricted to a single cave in Epirus.

In 1972 I had the opportunity to obtain a number of false scorpions from some Serbian caves. One of the samples was thus collected in a cave which is situated on the western slopes of Mt. Stara Planina (= Mt. Balkan). From the taxonomic point of view, the pseudoscorpions from this location are the first representatives of *Parablothrus* to be found in Serbia. These specimens belong to a species which clearly differs from all parablothroid elements, and appears to be new to science.

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Roncus pljakici, new species

Derivatio nominis – This species is dedicated to Professor Milika Pljakić (Institute of Zoology, Faculty of Science, University of Belgrade) who, in a series of papers, has made an outstanding contribution to our knowledge of the Balkan endemic fauna in general and of the Serbian cave living animals in particular.

Type locality – The cave 'Pećina u selu Vrelo' on Mt. Stara Planina, 20 *km* E of Pirot and 19 *km* N of Dimitrovgrad, East Serbia; August 11, 1972 (one male, one female) and August 12, 1972 (one female); air temperature: 11°C. Specimens of *R. (P.) pljakici* were collected under stones, in total darkness.

Hydrogeologically, the complex corridor system of the cave 'Pećina u selu Vrelo' came into existence by the action of a subterranean watercourse in the source region of the river Visočica. This complex has already lost its permanent hydrographic function due to the process of intense karstification of the region.

ADULT

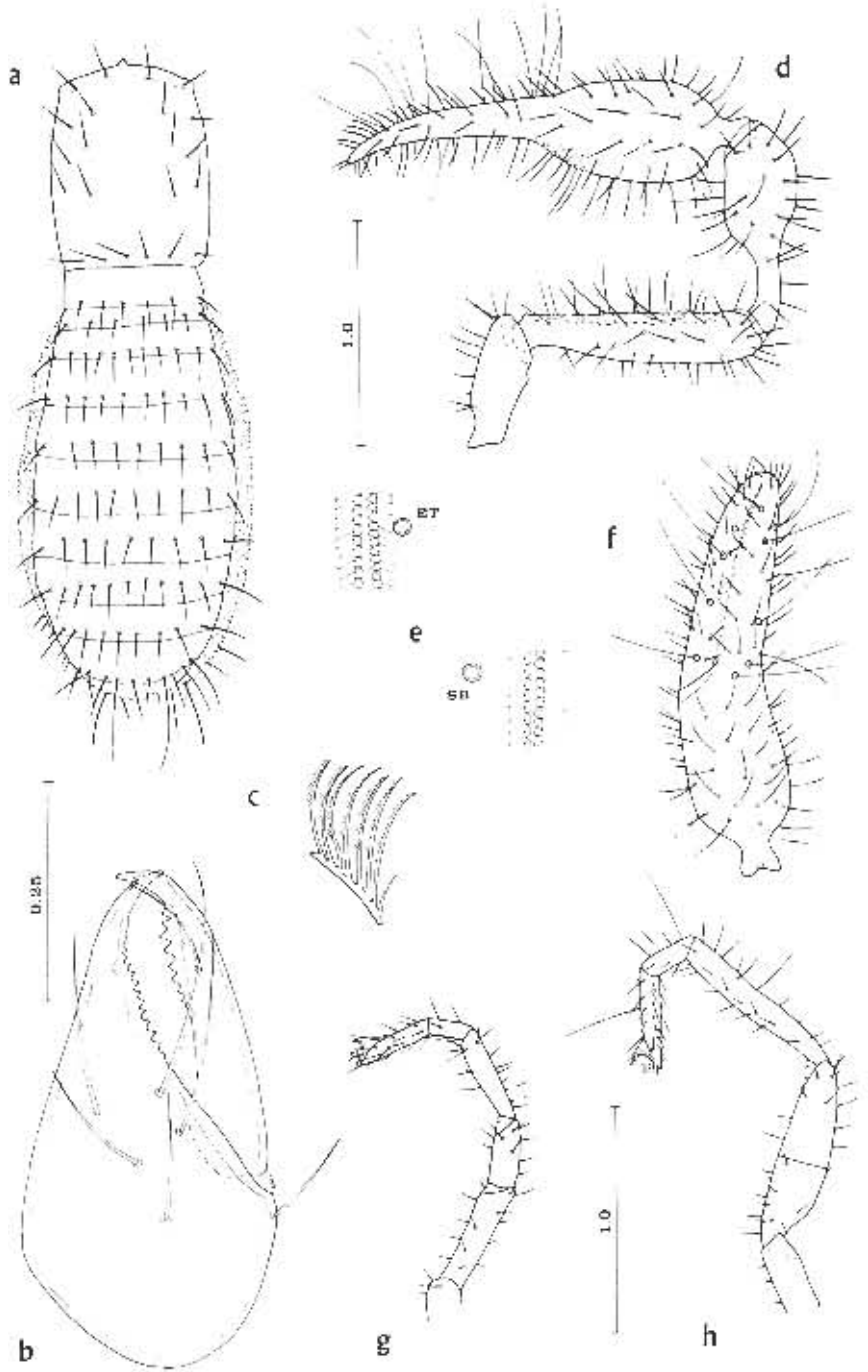
Cephalothorax – The carapace is considerably longer than broad. The epistomal process is well-developed, consisting of a broad triangular elevation. Neither eyes nor eyespots are developed (Figs. 1a & 2a). The cephalothorax carries a variable number of chaetae, 22 in the male and 23-24 in the female.

Abdomen – Tergite I normally carries six chaetae but thereafter there is a gradual increase in the number of chaetae borne on the succeeding tergites with a maximum of 11 chaetae from tergite VI onwards (6-7-10-10-9-10-10-9-11-9-9 in the male, and 6-8-8-9-10-11-11-10-10 and 6-7-10-10-10-11-11-10-11 in the female, respectively). In the male sternite II carries a cluster of 15 chaetae, thinning out anteriorly; in the female sternite II carries fewer chaetae (7-9). Sternite III of the male carries 12 chaetae; in the female this sternite possesses 10 chaetae. Normally thirteen chaetae are carried on sternites V-IX but this is subject to some variation (12-15).

Chelicerae The spinneret is represented by a low convex hyaline tubercle. The movable and fixed fingers of the chelicera carry 8-12 teeth and 10-14 teeth respectively. Seven chaetae occur on the chelicera (Figs. 1b & 2b), only one of these on the movable finger. The serrula interior possesses 29-31 blades.

Pedipalps – The movable finger of the chela carries 68-77 teeth in both male and females and 76-79 teeth on the fixed finger (Figs. 1f & 2e-g). The most distal pointed teeth on the movable finger give way to teeth with rounded tops and these are gradually replaced proximally by shorter flattened teeth. On the fixed finger the

Fig. 1. *Roncus (Parablothrus) pljakici* sp. n., male. (a) carapace and abdomen – (b) chelicera – (c) flagellum – (d) pedipalp – (e) teeth of the chela – (f) chela. Scale in *mm*.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first few teeth are pointed, slightly asymmetrical, and then there is a gradual transition to the square topped teeth of the proximal region. The granulations already noticed on the anterolateral surface of the femur also occur on the palm of the chela.

Legs – Coxa I carries 6-8 chaetae, coxa II 6-7, coxa III 5, and coxa IV 6-7 chaetae.

The chitin is reticulated throughout. In life, specimens are delicate in appearance, with almost transparant legs. Chelicerae with reddish-brown fingers; reddish-yellow carapace and tergites.

Material – Holotype, male; allotype, female; and paratype, female.

Dimensions in mm – Tab. 1 and 2.

RELATIONS BETWEEN *R. (P.) PLJAKICI* AND OTHER MEMBERS OF THE SUBGENUS

Of the Balkan pseudoscorpions of the subgenus *Parablothrus*, *R. (P.) pljakici* is allied to two other members of the subgenus, namely *R. (P.) parablothroides* and *R. (P.) anophthalmus*. They share the following characters: chaetotaxy of the chelicerae, simple teeth on the fixed finger of the chela, surface irregularities on the palm of the chela, form of the femur of the pedipalps, and some morphometric ratios.

The new species appears to be closest to *R. (P.) parablothroides*, but differs in the presence of 29-31 blades on the serrula interior (against 22-25 in *parablothroides*), in the absence of eyes (*parablothroides* possesses two small eyes), and in having the posterolateral surface of the femur of the pedipalps smooth (in *parablothroides*, this surface carries one or two tubercles). The two species also differ in number and arrangement of the teeth on the chelae, carapacal chaetotaxy, numerous morphometric ratios, and in form of the tibia of the pedipalps.

The new pseudoscorpion is easily distinguished from *R. (P.) anophthalmus* by the larger triangular epistome, the absence of a lamella on the movable finger of the chelicera, and the presence of granulations on the femur of the pedipalps. Furthermore, the two species differ clearly in such details as the form of the tibia and the femur of the pedipalps, dorsal abdominal chaetotaxy, and some morphometric ratios.

It seems probable that *R. (P.) pljakici* represents an endemic species of Balkan pseudoscorpions which appears to be specialized to the cavernicolous way of living. The analogies of this and other species of the subgenus point to the similar phenomena which occur in other genera of false scorpions (Ćurčić 1972). In all these cases, a close relationship among the species inhabiting East Serbia, Macedo-

Fig. 2. *Roncus (Parablothrus) pljakici* sp. n., female. (a) carapace – (b) chelicera – (c) flagellum – (d) pedipalp – (e) teeth of the chela – (f) teeth of the chela – (g) chela – (h) leg II – (i) leg IV. Scale in *mm*.

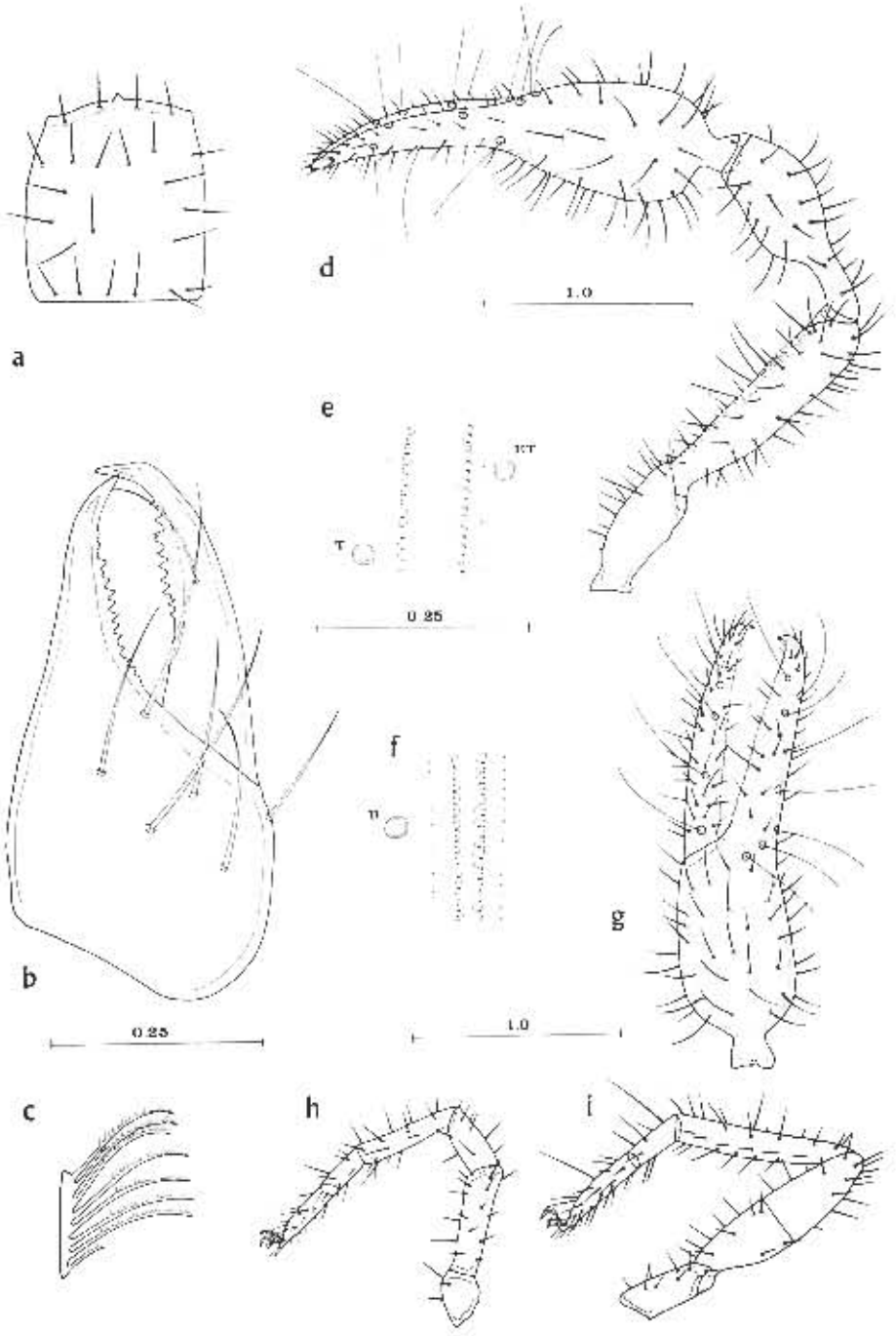
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Table 1. Range in measurements *(mm)* of various structures of *Roncus (Parabiothrus) pljakici* sp. n. together with selected ratios.

		male	female
Body			
1.	length	2.87	3.235 - 3.515
Cephalothorax			
2.	length	0.89	1.015 - 1.035
3.	anterior breadth	0.58	0.65 - 0.70
4.	maximum breadth	0.75	0.76 - 0.82
5.	ratio 2/4	1.19	1.24 - 1.36
6.	posterior breadth	0.64	0.72 - 0.77
7.	ratio 3/6	0.91	0.90 - 0.91
Abdomen			
8.	length	1.98	2.20 - 2.50
9.	maximum breadth	1.01	0.99 - 1.27
Chelicerae			
10.	length	0.54	0.60 - 0.62
11.	breadth	0.28	0.29 - 0.315
12.	height (thickness)	0.22	0.23 - 0.24
13.	length of movable finger	0.38	0.40 - 0.43
14.	ratio 10/13	1.42	1.44 - 1.50
Pedipalps			
15.	length (with coxa)	5.295	5.525 - 5.755
16.	length (without coxa)	4.715	4.925 - 5.09
17.	ratio 15/1	1.84	1.64 - 1.71
18.	length of coxa	0.58	0.60 - 0.665
19.	length of trochanter	0.65	0.665 - 0.70
20.	breadth of trochanter	0.24	0.26
21.	length of femur	1.145	1.20 - 1.21
22.	minimal breadth of femur	0.14	0.14
23.	maximal breadth of femur	0.25	0.26 - 0.27
24.	ratio 21/23	4.58	4.44 - 4.65
25.	length of tibia	0.96	1.00 - 1.06
26.	breadth of tibia	0.35	0.38 - 0.39
27.	ratio 25/26	2.74	2.63 - 2.72
28.	length of chela	1.96	2.05 - 2.13
29.	breadth of palm of chela	0.46	0.50 - 0.51
30.	ratio 28/29	4.26	4.02 - 4.26
31.	length of palm of chela	0.89	0.95 - 0.98
32.	ratio 31/29	1.93	1.86 - 1.96
33.	length of fixed finger	1.07	1.10 - 1.15
34.	ratio 33/31	1.20	1.16 - 1.17
35.	distance from the base of movable finger to B	0.12	0.15
36.	distance from B to SB	0.21	0.24 - 0.25
37.	distance from SB to ST	0.23	0.25 - 0.26
38.	distance from ST to T	0.12	0.10 - 0.15
39.	distance from T to the tip of movable finger	0.315	0.28 - 0.34

Table 2. Range in measurements *(mm)* of various structures of *Roncus (Parahlothrus) pljakici* sp. n. together with selected ratios.

		male	female
Leg II			
1.	total length	2.395	2.55 - 2.67
2.	coxa length	0.33	0.33 - 0.34
3.	coxa breadth	0.22	0.23
4.	trochanter length	0.22	0.24 - 0.25
5.	trochanter breadth	0.16	0.17
6.	femur I length	0.52	0.55 - 0.56
7.	femur I breadth	0.15	0.15 - 0.17
8.	ratio 6/7	3.47	3.29 - 3.67
9.	femur II length	0.32	0.34 - 0.37
10.	femur II breadth	0.13	0.13 - 0.14
11.	ratio 9/10	2.46	2.615 - 2.64
12.	tibia length	0.445	0.49 - 0.52
13.	tibia breadth	0.10	0.10 - 0.12
14.	ratio 12/13	4.45	4.33 - 4.90
15.	tarsus I (metatarsus) length	0.20	0.22 - 0.25
16.	tarsus I (metatarsus) breadth	0.09	0.09
17.	ratio 15/16	2.22	2.44 - 2.78
18.	tarsus II (tarsus) length	0.36	0.38
19.	tarsus II (tarsus) breadth	0.08	0.08 - 0.085
20.	ratio 18/19	4.50	4.47 - 4.75
Leg IV			
21.	total length	3.36	3.45 - 3.62
22.	coxa length	0.445	0.45 - 0.46
23.	coxa breadth	0.22	0.22 - 0.23
24.	trochanter length	0.40	0.42 - 0.46
25.	trochanter breadth	0.16	0.16
26.	femur length	0.905	0.94 - 0.97
27.	femur breadth	0.23	0.25 - 0.27
28.	ratio 26/27	3.93	3.48 - 3.88
29.	tibia length	0.84	0.90 - 0.94
30.	tibia breadth	0.12	0.14 - 0.15
31.	ratio 29/30	7.00	6.00 - 6.71
32.	tarsus I (metatarsus) length	0.29	0.27 - 0.28
33.	tarsus I (metatarsus) breadth	0.10	0.11
34.	ratio 32/33	2.90	2.45 - 2.545
35.	tarsus II (tarsus) length	0.48	0.47 - 0.51
36.	tarsus II (tarsus) breadth	0.10	0.10
37.	ratio 35/36	4.80	4.70 - 5.10

nia and Herzegovina, was noticed. It is possible, therefore, that the three regions constitute the autochthonous areas of the original populations of the analysed groups of species, out of which new species came into existence.

SUMMARY

Roncus (Parablothrus) pljakici, a new species of cave living pseudoscorpions, is described from the cave 'Pećina u selu Vrelo' on Mt. Stara Planina, East Serbia. The problem of its taxonomic position in the subgenus is discussed. The new species is the first representative of *Parablothrus* to be found in Serbia.

It seems possible that *R. (P.) pljakici* represents an endemic species, specialized for a cavernicolous way of living. The analogies of this and other species of the subgenus point to some similar phenomena which occur in other genera of Balkan false scorpions (Ćurčić 1972). In all these cases, a close relationship among the species inhabiting East Serbia, Macedonia and Herzegovina was noticed. It is probable, therefore, that the three regions represent the autochthonous areas of the original populations of the analysed groups of species, out of which new species came into existence.

RÉSUMÉ

La grotte 'Pećina u selu Vrelo' dans la montagne Stara Planina en Serbie orientale est habitée par un Pseudoscorpion cavernicole du genre *Roncus (Parablothrus)*; il diffère nettement des autres membres du sous-genre *Parablothrus* et appartient à une nouvelle espèce: *R. (P.) pljakici.* En même temps, ce Pseudoscorpion est le premier représentant, tandis que sa localité-type est le premier lieu de trouvaille des *Roncus* cavernicoles en Serbie.

Il est probable que *R. (P.) pljakici* représente une espèce endémique, adaptée à la vie cavernicole. Les analogies entre cette espèce et les autres espèces du même sous-genre nous conduisent à des constatations identiques à celles faites chez des espèces d'autres genres des Pseudoscorpions (Ćurčić 1972): à savoir que dans tous ces cas, on a constaté la parenté entre les espèces habitant les régions de la Serbie orientale, de la Macédoine et de l'Herzégovine. Conformément à cela, il est possible que ces régions représentent des aires autochtones des populations ancestrales des groups analysés, dont les nouvelles espèces tirent leur origine.

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