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Three new Siphonaptera from the Balkans

by

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The territory of the Balkan Peninsula is very interesting from the zoogeographical viewpoint not only with regard to Coleoptera and similar groups, but also other insects such as fleas. This paper is a further contribution to the knowledge of this interesting fauna of the order Siphonaptera.

Palaeopsylla soricis scobina subsp. nov.

(Figs. 1, 5)

Palaeopsylla soricis (Dale, 1878). Rosický, 1959, Acta Acad. Sci. czechoslov. brun. **31**: 335.

Type material: Male holotype, female allotype, 10 ♂ 4 ♀ paratypes from the Vitoša Mts., western Bulgaria, 18. V. 1957, *Sorex araneus,* expedition ČSAV; 2 ♂ 2 ♀ paratypes,

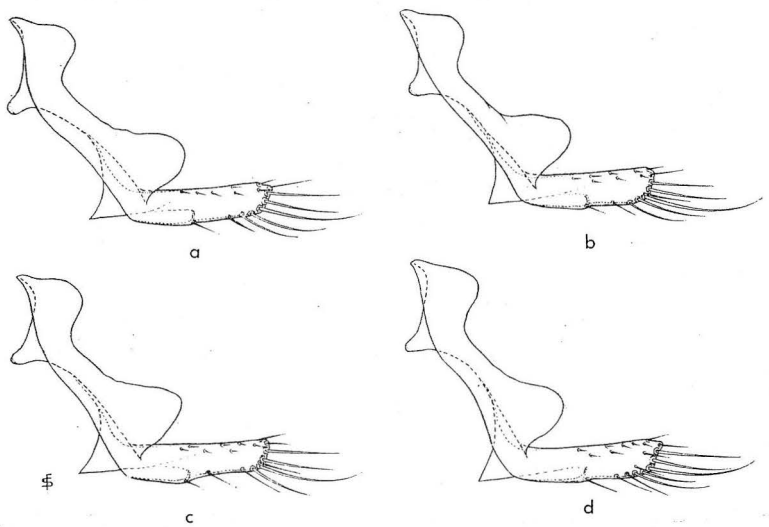
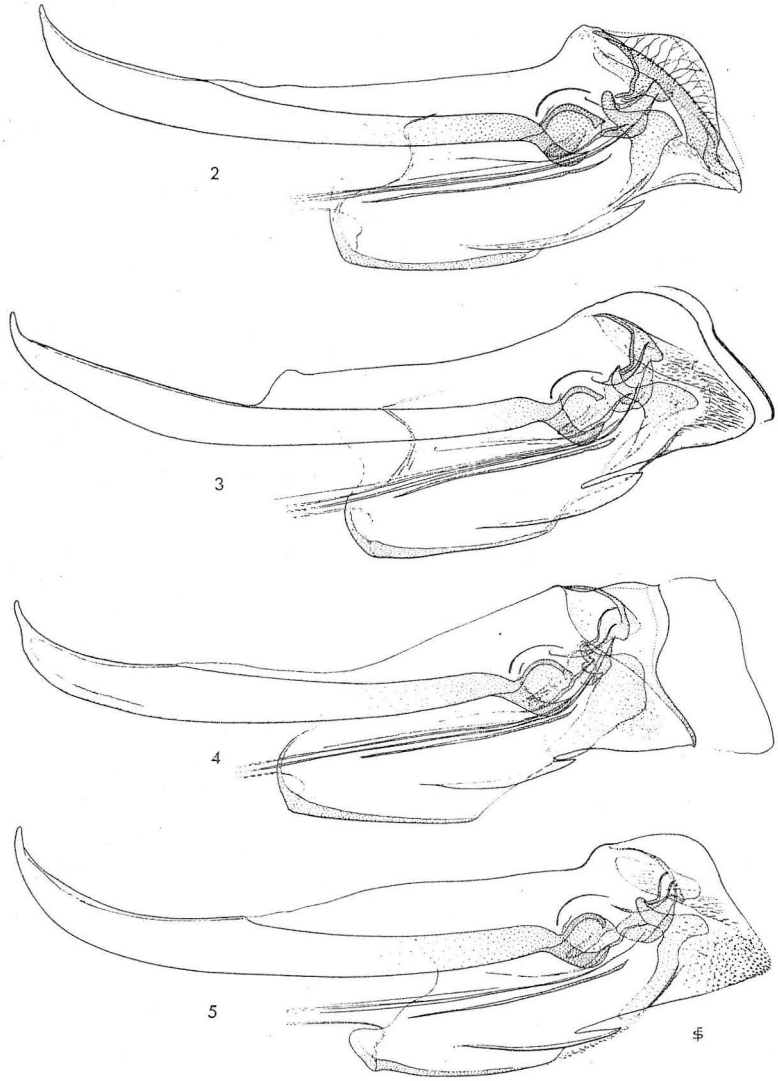


Fig. 1. *Palaeopsylla soricis scobina* n. ssp. (a: holotype; b—d: paratypes from Vitoša).

Aleko mountain hut, ± 1700 m., Vitoša Mts., 31. VI. 1957, *Sorex araneus,* J. Hanzák; 1 ♀ paratype, Jakuruda, Rila Mts., south-western Bulgaria, 11. VI. 1957, *Sorex macropygmaeus* (= *Sorex caecutiens*), J. Hanzák; 1 ♂ paratype, Predel, Pirin Mts., ± 1150 m., *Neomys anomalus,* J. Hanzák; 1 ♂ 2 ♀ paratypes, Rilski monastery, south-western Bulgaria, VI. 1957, *Neomys fodiens,* expedition ČSAV; 3 ♂ paratypes, Rilski monastery, VI. 1957, *Sorex araneus,* expedition ČSAV. Holotype, allotype and several paratypes in the collection of the Parasitological Institute of the Czechoslovak Academy of Sciences, Prague; other



Figs. 2—5. Phallosomes of: 2. *Palaeopsylla soricis soricis* (Dale) (neotype); 3. *P. s. rosickyi* Smit (Karlova Studánka, Czechoslovakia); 4. *P. s. starki* Wagner (Stina de Vale, Romania); 5. *P. s. scobina* n. ssp. (holotype).

paratypes in the British Museum. The following paratypes are in the J. Wagner collection, Zoologisches Museum, Hamburg: 1 ♂ 1 ♀, near Djevdjelia, Kožuf Planina, South Yugoslavia, VIII. 1938. *Sorex araneus,* B. Petrow; 1 ♀, same locality, IX. 1938, *Neomys fodiens,* B. Petrow.

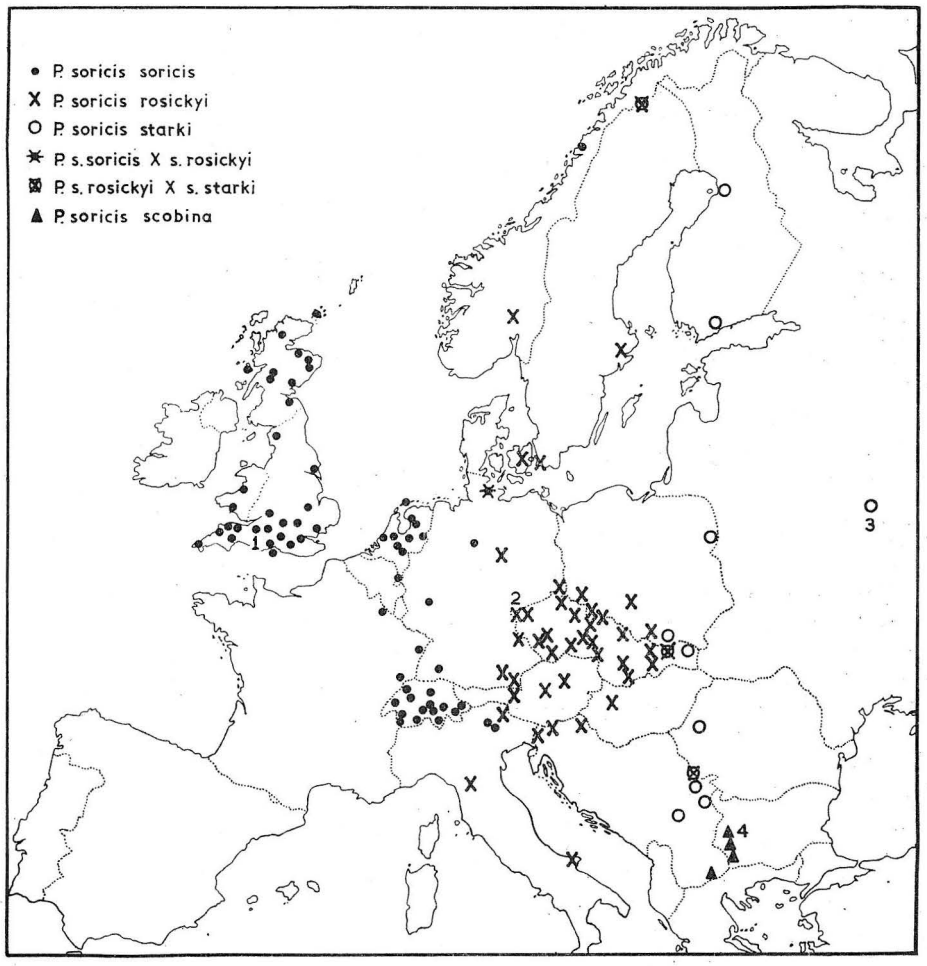


Fig. 6. Map showing the distribution of the subspecies of *Palaeopsylla soricis.*

Male: Apical margin of distal arm of sternum IX (Fig. 1) markedly obtuse (as in *P. s. starki*); the angle formed by this arm with the proximal arm is greater than in the other three subspecies and the ventro-posterior lobe of the latter arm projects also more than that of the other forms. Dorso-posterior angle of the lateral wall of aedeagus (Fig. 5) smoothly rounded (as in *P. s. rosickyi,* Fig. 3); hamulus long and narrow;

ventro-posterior area of lateral aedeagal wall densely spiculose; for other differences in the aedeagi between this and the other subspecies contrast Fig. 5 with Figs. 2—4.

Female: not distinguishable from that of the other three subspecies.

The distribution in Europe of the four known subspecies of *P. soricis,* based on the data of male specimens, is shown in Fig. 6.

Ctenophthalmus uncinatus angustus subsp. nov.*)

(Figs. 7, 8, 10, 11)

Ctenophthalmus uncinata Wagn. Wagner, 1939, Bull. Soc. sci. Skoplje 20: 157; Yurkina, 1961, Fauna Ukraini 17 (4): 99, fig. 72.

Type material: Male holotype and female allotype from Kopaonik Mts., Yugoslavia, *Clethrionomys glareolus,* 22. V. 1936, K. Martino; 1 ♂ 1 ♀ paratypes, Mt. Suvo Rudište, 1700 m., Kopaonik Mts., Yugoslavia, 24. VIII. 1939, *Neomys fodiens,* B. Petrow; 2 ♀ paratypes, Mt. Suvo Rudište, 1700 m., 26. VIII. 1939, *Pitymys* sp., B. Petrow; 1 ♂ 3 ♀ paratypes, Majdanpek, 30 km. south-west of Donji Milanovac, Yugoslavia, IV. 1938, *Clethrionomys glareolus,* B. Petrow; 1 ♀ paratype, Durmitor Mts., Yugoslavia, IX. 1938, *Apodemus flavicollis,* B. Petrow. All these specimens are in the J. Wagner collection, Zoologisches Museum, Hamburg, with the exception of 1 ♂ 1 ♀ paratypes which have been presented to the British Museum collection of fleas at Tring. 2 ♂ paratypes, Stara Planina, Yugoslavia, X. 1947, *Clethrionomys glareolus,* M. Todorović; 1 ♂ paratype Kopren (now: Dabišin vrh), Yugoslavia, 7. X. 1947, *Apodemus sylvaticus,* M. Todorović. These specimens are in the collection of the Parasitological Institute of the Czechoslovak Academy of Sciences, Prague.

This new subspecies differs from *C. u. uncinatus* (Wagner, 1898) in the male (Figs. 7, 8) by having a longer and narrower ventral lobe of the fixed process of the clasper and by the markedly narrower movable process which is about twice as long as its maximum width as against one-and-a-half times in the nominate subspecies (Fig. 9). Phallosome as in the nominate subspecies. Sternum VII of female (Figs. 10, 11) with the dorso-lateral lobe usually considerably smaller than that of *C. u. uncinatus* (Fig. 12) although some specimens of the latter have a sternum VII which is indistinguishable from that of the new subspecies.

One male *C. uncinatus,* Sinaia, Romania, 8. X. 1958, *Microtus arvalis,* J. Hanzák (in the collection of the Parasitological Institute of the Czechoslovak Academy of Sciences, Prague), is structurally intermediate between the two subspecies.

Although *C. uncinatus* is very closely related to *C. obtusus* J. & R., 1912, it seems advisable to keep them separate as full species, especially on geographical grounds. The distribution of the two subspecies of *C. uncinatus* is shown in Fig. 13.

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*) It has unfortunately been overlooked that specimens of *Ctenophthalmus uncinatus* from Stara Planina, Yugoslavia, were recently described by Rosický & Todorović as *C. uncinatus koshanini* (1964, Čsl. Parasitol. 11: 210). *Ctenophthalmus uncinatus angustus* Smit & Rosický, described above, is consequently herewith placed as a synonym of *C. uncinatus koshanini* Rosický & Todorović, 1964.

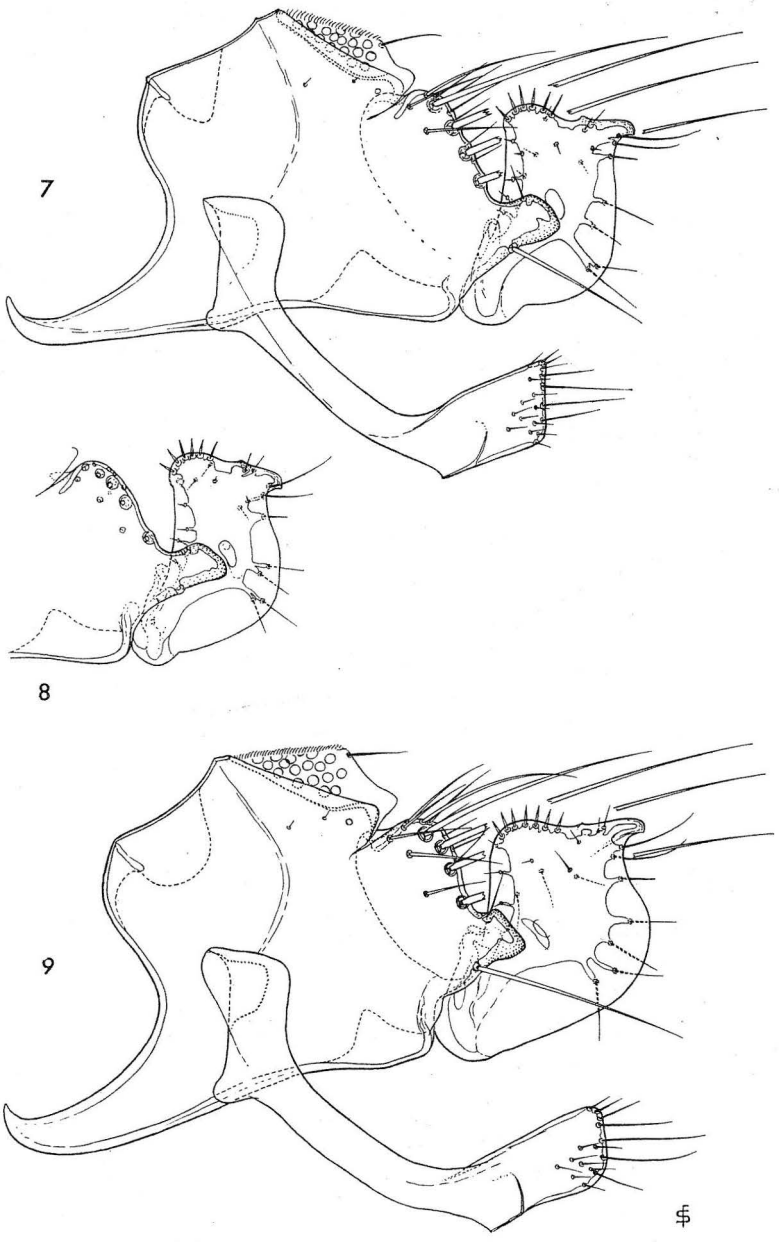
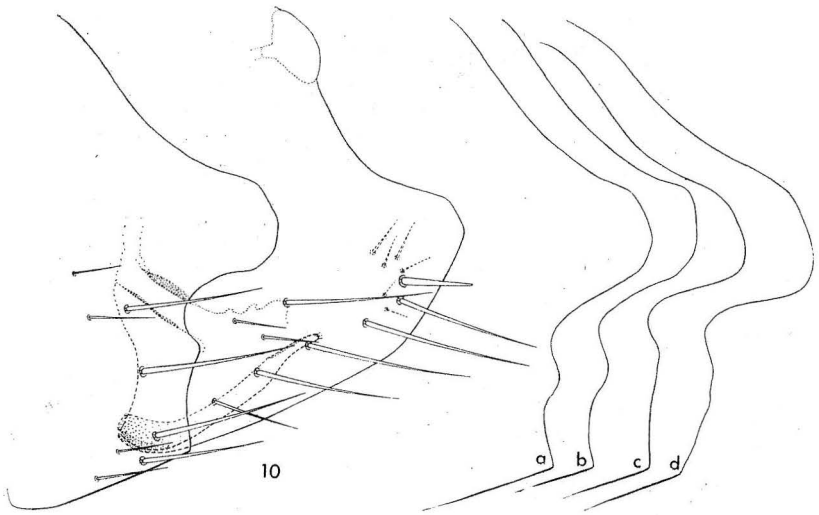


Fig. 7. *Ctenophthalmus uncinatus angustus* n. ssp., segment IX (holotype). Fig. 8. *C. u. angustus,* clasper processes (Majdanpek, Yugoslavia). Fig. 9. *C. u. uncinatus* (Wagner) (Punta, Norwegian Lapland).



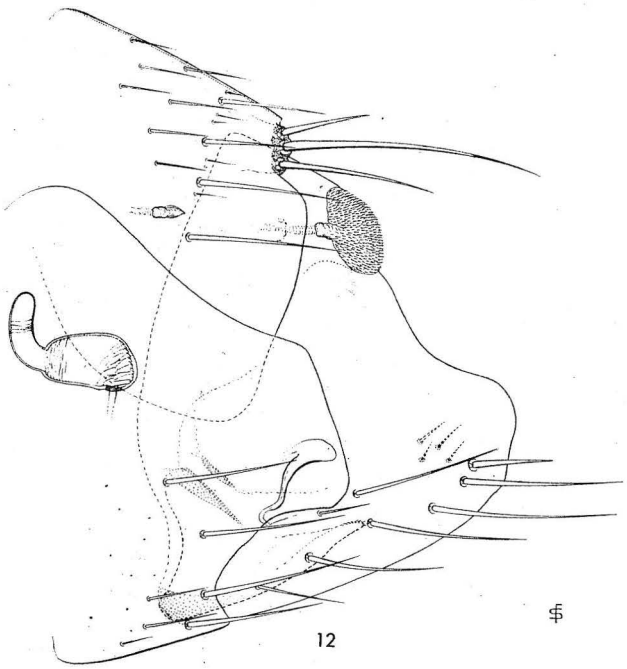


Fig. 10. *Ctenophthalmus uncinatus angustus* n. ssp., sternum VII and segment VIII (Allotype). Fig. 11. *C. u. angustus,* outlines of sternum VII of four paratypes (a, b: Suvo Rudište; c, d: Majdanpek). Fig. 12. *C. u. uncinatus* (Wagner), terminal abdominal segments of female (Immerfoss, Norwegian Lapland).

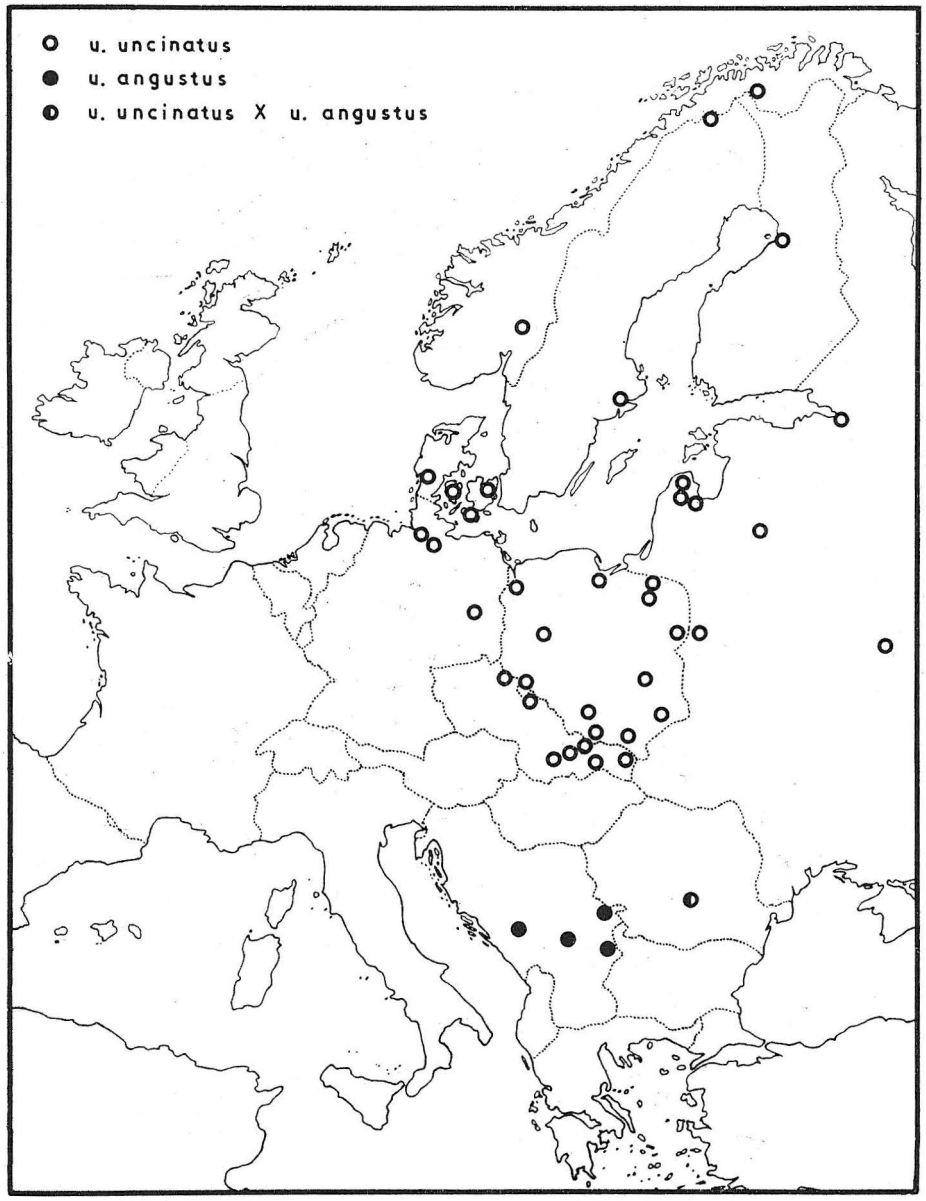


Fig. 13. Map showing the distribution of the two subspecies of *Ctenophthalmus uncinatus*.

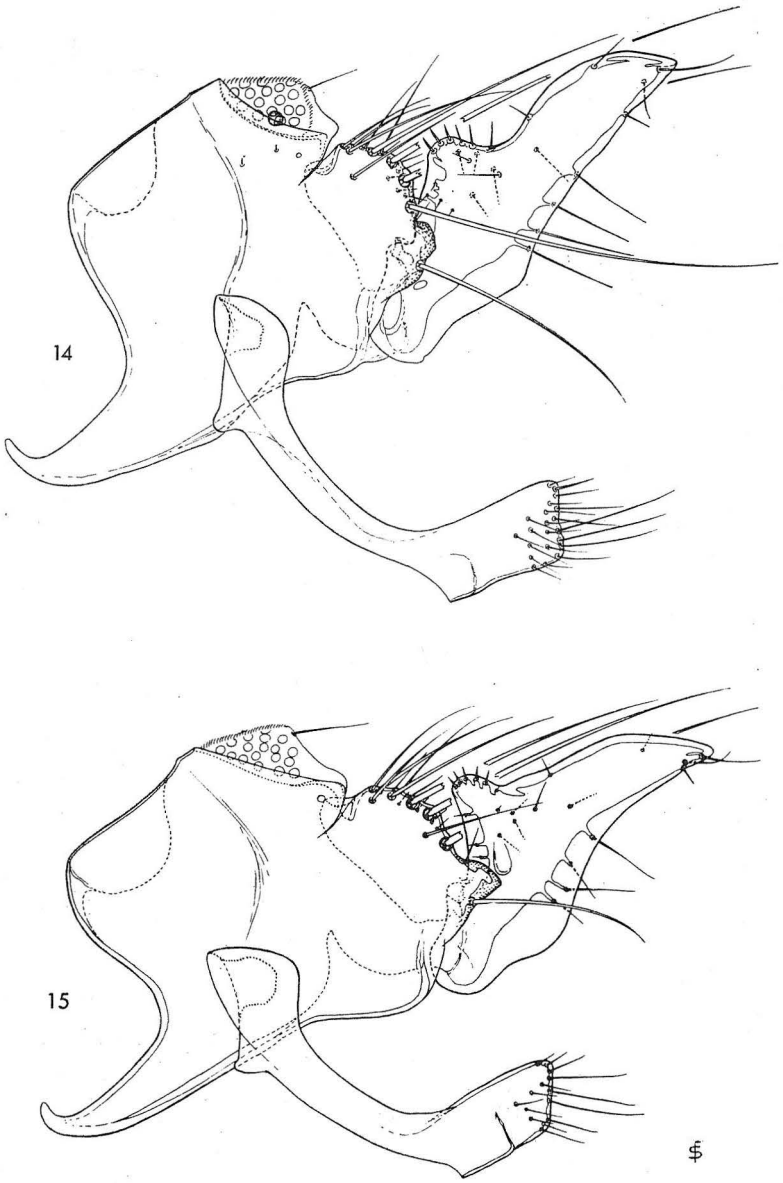


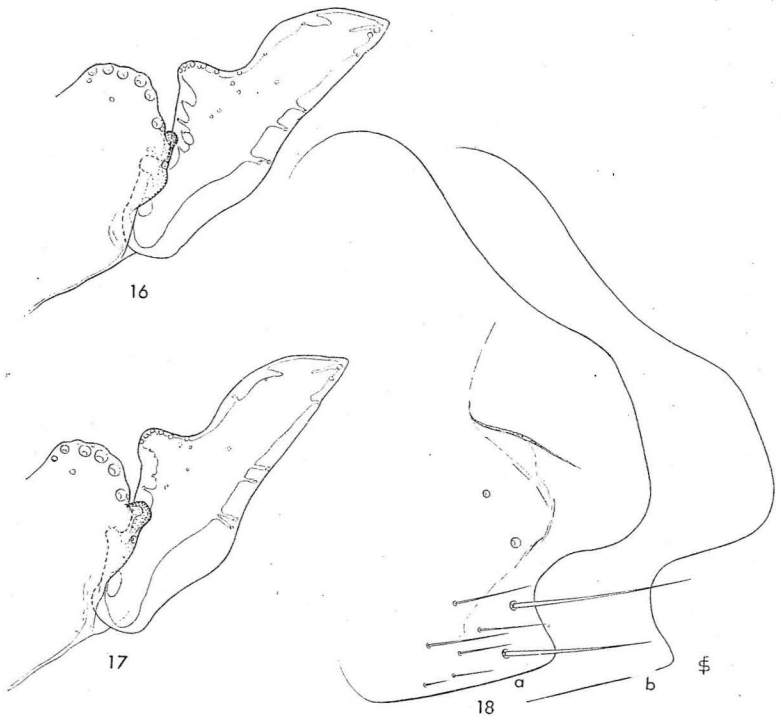
Fig. 14, 15. Segment IX of: 14. *Ctenophthalmus assimilis erectus* n. ssp. (holotype); 15. *C. a. assimilis* (Taschenberg) (Netherlands).

Ctenophthalmus assimilis erectus subsp. nov.

(Figs. 14, 16—18)

Type material: Male holotype, female allotype and 2 ♂ 1 ♀ paratypes from Mt. Alí-Botúsh, south-west Bulgaria, X. 1958, *Microtus arvalis,* J. Hanzák; 1 ♂ paratype, Bosna, Yugoslavia, 1. VI. 1903, *Spalax leucodon,* R. Kohaut. Holotype, allotype and one topotypical paratype in the collection of the Parasitological Institute of the Czechoslovak Academy of Sciences, Prague; 1 ♂ 1 ♀ topotypical paratypes and the paratype from Bosna in the British Museum collection at Tring.

This new subspecies differs from the nominate subspecies in the male by the smaller and squarer ventral lobe of the fixed process of the clasper (Figs. 14, 16, 17, cf. Fig. 15), by the vertically drawn-out posterior part of the movable process and by the somewhat broader distal arm of sternum IX. Sternum VIII basically without minute spicules along the cuticular ridges; the sternum is more triangular than that of the nominate subspecies. The female differs from that of *C. a. assimilis* by the larger size of the lateral lobe of sternum VII, a main row of four instead of six setae on sternum VII and by the presence of an elongate uncoid sclerotization (Fig. 18).



Figs. 16, 17. Clasper processes of two topotypical paratypes of *Ctenophthalmus assimilis erectus* n. ssp. Fig. 18. *C. a. erectus,* (a) sternum VII of allotype, (b) outline of sternum VII of a topotypical paratype.

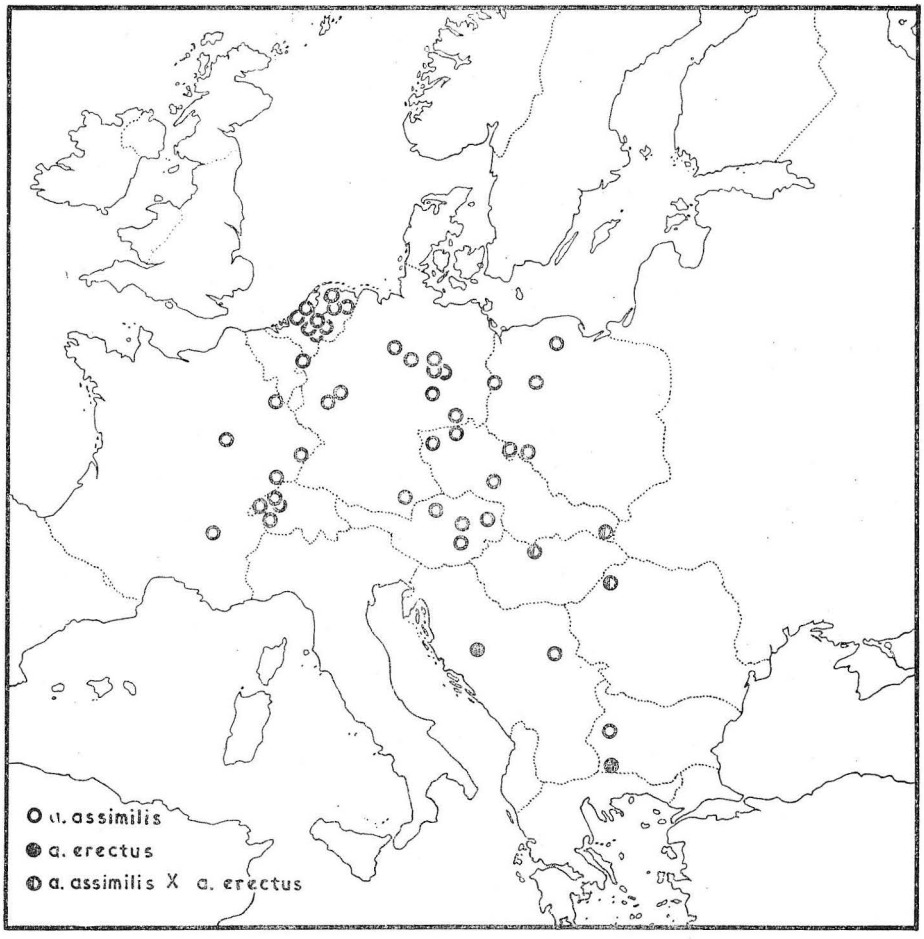


Fig. 19. Map showing the distribution of the two subspecies of *Ctenophthalmus assimilis*.

The distribution of the two subspecies of *Ctenophthalmus assimilis* is shown in Fig. 19. Note that specimens which are intermediate between the two subspecies have been found at Lúčky (Slovakia, Czechoslovakia), Budapest (Hungary) and Csehtelek (western Romania). The pattern of distribution is not yet very clear and it is hoped that specimens of *assimilis* from many localities in south-eastern Europe will become available for further study.

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