CHIGGERS PARASITIZING SMALL MAMMALS IN THE SOUTHERN PART OF YUGOSLAVIA (ACARINA: TROMBICULIDAE)

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Abstract. In the territory of the Socialist Republics of Macedonia and Montenegro and in the Autonomous Region of Kosovo 13 species of chiggers parasitizing small mammals were found: Neotrombicula (Neotrombicula) autunnalis, N. (N.) zachvatkini, N. (N.) japonica, N. (N.) illyricensis, N. (N.) ceramica, N. (N.) rhinolophi, Myiotorpedula (Myiacarus) maris, Leptotrombidium (Leptotrombidium) europaeum, Nasatrombicula (Nasatrombicula) bareschi, Ascochroenastia (Ascochroenastia) tayseyi, Chelonota costulata, Schontelenchus (Platytrichus) kranolis and Euschoenastia (Brombaldia) bulgarica.

During joint Yugoslav-Czechoslovak expeditions which were carried out in 1968-1969 in the territory of the Socialist Republics of Macedonia and Montenegro and in the Autonomous Region of Kosovo with the aim to study natural foci of infections, special attention was paid to ectoparasites of small free-living vertebrates as potential vectors of some diseases. Among others larvae of the family Trombiculidae were collected. On the total of 11 species of small mammals (Neomys anomalus, Apodemus flavicollis, A. sylvaticus, A. agrarius, A. mystacinus, Mus musculus, Dolomys bogdanovi, Clethrionomys glareolus, Microtus arvalis, Glis glis and Rhinolophus hipposideros) 13 species of chiggers were found, out of which 6 species had been found for the first time in the territory of Yugoslavia. Thus, the investigations have brought new zoogeographical information about the distribution of this important group of parasitic mites in the Peninsula of Balkan.

SPECIES COLLECTED

1. Neotrombicula (Neotrombicula) autunnalis autunnalis (Shaw, 1790), (Richards, 1950)*

Material: Kumanovo (Vojnik)—10 L on A. flavicollis (May 19, 1968); Strumica (Bansko)—1 L on A. flavicollis (May 17, 1968); Struga (Vardar)—1 L on N. anomalus (May 25, 1968); Struga (Beléște)—1 L on A. flavicollis (May 26, 1968); Stari Dojran (Rabrovo)—1 L on A. sylvaticus (May 18, 1968); Virpazar—7 L on D. bogdanovi (May 17, 1969).

*) The classification of subspecies of the group autunnalis corresponds to that of Kepka (1964).
The distribution area of this species includes the whole Europe; the area of findings reported by some authors extends as far as the Middle Asia on one hand and North America on the other (Daniel 1959). Due to the fact that a whole group of closely related species is attached in the literature to the name *N. autumnalis*, it is necessary to consider the findings outside Europe with some reservations. As far as the Yugoslav territory is concerned, this species has been reported for the first time from North Slovenia (Daniel and Brelil 1959).


2. *Neotrombicula* (*Neotrombicula*) *zachvatkini* (Schluger, 1948)

Material: Djan Tepe (Maleševske planine)—9 L on *C. glareolus* and 10 L on 4 *A. flavicollis* (May 15, 1968); Stari Dojran (Nikolić)—9 L on *A. sylvaticus* (May 20, 1968); Stari Dojran (Rabirovo)—2 L on 2, *A. flavicollis*, 1 L on *A. sylvaticus* (May 18, 1968); Strumica (Bansko)—1 L on *A. sylvaticus* (May 17, 1968); Prilep—1 L on *A. flavicollis* (May 23, 1968).

The distribution area of *N. (N.) zachvatkini*, as well as that of the preceding species, includes practically the whole Europe; further collections will be necessary in order to determine the southern and western boundary, especially in the Balkans where other three morphologically related species occur, making the so-called “complex zachvatkini”. They are joined by another species described from mountains of the Asian part of
Turkey (Daniel 1960, Kepka 1966). As far as the Yugoslav territory is concerned, this species has been reported from the Socialist Republic of Slovenia (Daniel and Breligh 1959).

3. Neotrombicula (Neotrombicula) japonica (Tanaka, Teramura, Kagaya, 1930)

Material: Novi Dojran—1 L on M. musculus (May 19, 1968); Prizren (Vrbnica)—1 L on A. sylvaticus (May 10, 1969); Pećka Banja—2 L on 2 A. sylvaticus (May 13, 1969).

![Map of occurrence of larvae of the family Trombiculidae in the southern part of Yugoslavia.](image)


The species under consideration has been described from the Far East where it is widely spread. In Europe, it has been found in Austria, Czechoslovakia and Albania (Daniel 1959) and in Bulgaria (Kolebinkova 1969). This has been the first finding on the territory of Yugoslavia.

4. Neotrombicula (Neotrombicula) llogorensis (Daniel, 1960)

Material: Priština (Grmja)—5 L on 4 A. flavicollis (May 7, 1969); Priština (Miloševu)—2 L on A. sylvaticus (May 8, 1969); Prizren—4 L on 4 A. sylvaticus, 1 L on A. flavicollis, 1 L on M. musculus (May 9—11, 1969); Prizren (Vrbnica)—7 L on 6 A. sylvaticus (May 9—10, 1969); Peć—7 L on 3 A. sylvaticus (May 12, 1969); Peć (Selo Vrelo)—2 L on A. agrarius (May 13, 1969).
N. (N.) logorensis was described from coast mountains of Albania (Daniel 1960); furthermore, it has been found in Bulgaria where it occurs in masses in all biotopes between 300 and 1900 metres above the sea level (Kolebinova 1969) and in the region of the Minor Caucasus (Mulyarskaya 1968). Our finding—the first one of the species in the Yugoslav territory—confirms the opinion of Kepka (1968) who considers N. (N.) logorensis to be an Adriatic and Pontic-Mediterranean faunistic element.

5. Neotrombicula (Neotrombicula) cerainia (Daniel, 1960)


This species, as well as the preceding one, was described from the coast mountains of Albania (Daniel 1960) and, furthermore, from Bulgaria by Kolebinova (1969). Our finding has been the first one in the territory of Yugoslavia. Kepka (1968) considers this species to be a Pontic-Mediterranean element.


Material: Pč (Rugovska kisura)—6 L. on R. hipposideros (May 12, 1969).

The species under consideration has been described from the territory of Bulgaria. Our finding, which has been the first one in the territory of Yugoslavia, is also the first one outside terra typica.

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7. Myiatrombicula (Myiacarus) mursis (Oudemans, 1910)


This species occurs in the Western and Central Europe (Daniel 1957a); from the Southern Europe, it has been reported from Bulgaria by Kolebinova (1969). Our finding has been the first one on the territory of Yugoslavia.

8. Leptotrombidium (Leptotrombidium) europaeum (Daniel et Brelih, 1959)

Material: Prilep—7 L. on 3 A. floricollis (May 21, 23, 1968); Novi Dojran—5 L. on A. floricollis (May 19, 1968); Kumanov (Vojnik) 1 L. on A. floricollis (May 10, 1968); Prizren (Vrbnica)—3 L. on A. mystacinus (May 10, 1969); Virpazar—4 L. on D. bogdanovi, 1 L. on A. floricollis (May 17, 1969).

This species has been originally described from North Slovenia as the subspecies L. (L.) intermedium europaeum. On the basis of recent findings it is considered to be an inde-
pendent species (Hushcha and Shluger 1967; Vercammen—Grandjean—personal information). Furthermore, it has been found in the Southern and Central Europe (Czechoslovakia, Austria, Bulgaria, Albania, Spain).

9. *Sasatrombica (Sasatrombica) buresci* Kolebinova et Beron, 1965

**Material:** Šavnik (Ptnica)—4 L on *R. kipposideros* (May 23, 1969).

Described from the territory of South Bulgaria (Strandzha Kolebinova and Beron, 1965). Our finding, which is the first one of this species on the territory of Yugoslavia, is also the first one outside terra typica.

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10. *Ascoschoengastia (Ascoschoengastia) latyshevi* (Schluger, 1955)

**Material:** the Biogradska lake—2 L on *G. glis* (May 15, 1969).

The given species has been described from the Far East. The first finding in Europe was reported by Daniel (1959) from Czechoslovakia. Furthermore, it has been found in Austria (Sixl 1969). Our finding is the first one of this species in the territory of Yugoslavia.

11. *Cheladonta costulata* (Willmann, 1952)

**Material:** Prizren—1 L on *A. sylvaticus* (May 10, 1969).

This species has been reported from the territory of Czechoslovakia (Willmann 1952, Daniel 1957b), Austria (Kepka 1958), Belgium (Vercammen—Grandjean 1960) and Bulgaria (Kolebinova 1969). In the territory of Yugoslavia, it has been found in Slovenia (Daniel and Brelih 1959).

12. *Schoutedenichia (Platytrichia) krampitzi* (Willmann, 1952)

**Material:** the Prespan lake—5 L on *A. flavicollis* (May 24, 1968); Kumanovo (Mlado Nagoričano)—4 L on *A. flavicollis* (May 9, 1968); Prilep—1 L on *A. flavicollis* (May 23, 1968); Priština (Miloševo)—9 L on *M. arvalis* (May 8, 1969); Prizren (Vrbnica)—1 L on *A. mystacinus* (May 10, 1969); Pećka Banja—1 L on *A. sylvaticus* (May 13, 1969); Virpazar—1 L on *A. mystacinus* (May 17, 1969); Ulcinj—4 L on *A. sylvaticus* (May 21, 1969); Šavnik—1 L on *A. flavicollis* (May 22, 1969); Šavnik (Ptnica)—3 L on *A. sylvaticus* (May 23, 1969).

*S. (P.) krampitzi* is distributed in the southern part of Europe (Italy, Sicily, Albania—Daniel 1960), Bulgaria (Kolebinova 1969) and in Minor Asia (Turkey—Kepka 1966). Our finding has been the first one from the territory of Yugoslavia.
13. Euschoengastia (Brunehaldia) bulgarica Verčammen-Grandjean et Kolebinova, 1966

Material: Prilep—21 L on 3 A. flavicollis (May 23, 1968); Stari Dojran (Rabrovo)—9 L on 2 A. syriacus (May 18, 1968); Novi Dojran—2 L on M. musculus (May 20, 1968).

This species has been described from Bulgaria. Our finding has been the first one in the territory of Yugoslavia and also the first one outside terra typica.

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—, Euschongastia ulceroferiens n. sp., nový druh larv racei z čeledi Trombiculidae způsobující vlivy v pokožce hraška Microtus arvalis. Čas. Čs. spol. entomol. 54: 172—179, 1957b.


M. D., Parasitologický ústav ČSAV, Flemingovo n. 2, Praha 6, ČSSR.

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