Flea species new for the Hungarian fauna (Siphonaptera), VII.*

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Abstract — Five flea species are reported new to the fauna of Hungary: Atyphloceras nuperus (Jordan), Rhadinopsylla mesoides Smít, Amalaraeus penicilliger kratochvili Rosicky, Doratopsylla dasyenema cuspis (Rothschild) and Nosopsyllus mokrzechyi (Wagner). Locality data, taxonomical remarks and zoogeographical evaluations are given for every species in question. With 16 figures.

The following flea species new for the Hungarian fauna were obtained from the bodies of small mammals (insectivores and rodents) in the last two years:


This mountain species was first announced from the Western Carpathians by Jurík (1960). Since then we have found specimens from more than forty mountain localities that are above 700 m. It was ascertained that the area of distribution of A. nuperus in Central Europe basically corresponds with the natural distribution of fir-tree (Abies alba L.) (Dudich 1983). Our material was collected in pure beech forests, but maybe, fir was certainly distributed in the mid-Holocene and probably also in historical times. A. nuperus as a stenochronous species is a member of the winter fleasynusia of the bank vole in the highest mountain sites in Hungary. For this reason hitherto it has not been detected. Our few specimens were sampled along with the following flea species: Ctenophthalmus agytes peustianus Rosicky, Ctenophthalmus c. congener (Rothschild), Hystrihapsylla t. talpae (Curtis), Peromyscopsylla b. bidentata (Kolenati), Peromyscopsylla fallax (Rothschild), Rhadinopsylla integella (Rothschild). In the Mátra Mts. it has been found with Ctenophthalmus obtusus Jordan et Rothschild, Rhadinopsylla mesoides Smít, and Amalaraeus penicilliger kratochvili Rosicky.

Indexes of infestation (calculated for the bank vole only) on the whole were low: extensity 1.8–2.4%, mean intensity 0.018–0.047. Low degree of dominance was calculated, too (D = 1.1–2.5). There were 183 specimens of C. glareolus and 71 specimens of other members of the family Arvicolidae (Pitymys subterraneus Deséls-Longch. and Microtus arvalis Pall.3) examined totally.

The occurrence of A. nuperus in Hungary can be expected in the Kőszeg Mts. (foothill of the Alps, in the western part of our country) and probably in the Zemplén Mts. as a continuation of the distribution of this species from Slovakia. Since A. nuperus was not mentioned in the volume of Siphonaptera — Fauna Hungaricae (Szabó 1975) the morphological patterns necessary in the identification of this species are given (Figs. 1–4).


This rare mountain species is distributed in the great European mountain ranges (Pyrenees, Alps, Carpathians and Balkan mountains). Rosicky (1950) first recorded Rhadinopsylla mesoides J. et R. from the High Tatra Mts. in the Western Carpathians. Since it is known only from a few localities in the Vihorlat Mts. (Dudich 1984a); Kremnické vrchy Mts. (Jurík 1960); Polana Mts. (Dudich 1984b); Western Tatra Mts. (Dudich, 1982) and Javorniky Mts (Ryba et al. 1975) all the localities are in Czechoslovakia. Only single specimens of Rhadinopsylla mesoides had been collected rarely from the fur of the main host species, abundant collections were made from the winter-nests of the bank vole (Ryba et al. 1975). R. mesoides is a member of the winter-synusia of nests of C. glareolus (Schreb.). Our only specimen was collected with other late autumn and winter flea species: A. nuperus (Jordan);
A. penicilliger kratochvili Rosicky; Peromyscopsylla fallax (Rothschild); R. integella (Rothschild); P. bidenatata (Kolenati) and others. Because the main Slovakian localities are at an altitude between 550 and 1000 m, it may be supposed that the species might occur in the mountains of Hungary.

Since Rhadinopsylla mesoides was not included in the Hungarian fauna work, the morphological patterns of both sexes are given in Figs. 5–8.


This subspecies of A. penicilliger (Grube) is of mountain distribution in Central Europe and the Balkan peninsula. In the Slovakian part of the Western Carpathians on the whole it has a continuous distribution. It does not occur in lowlands and hollows, therefore we suppose an isolated island-like population of A. penicilliger kratochvili in the Mátra Mts. In the neighbouring mountains on both sides of the Mátra it was not recorded in the same vegetation and at the same time. For the mid-October sample of A. penicilliger kratochvili the following indexes of infestation were calculated (for the C. glareolus only): extensity 14.4%; mean intensity 0.27 and dominance 15.0.

The occurrence of A. penicilliger kratochvili in Hungary may be expected in the Zemplén Mts. as a continuation of the distribution from the Slovakian part and in the western part of our country — in the foothills of Alps — now. In the Mátra Mts. both congeneric species of the genus Amalaraeus occur together (A. arvicolae Ioff was recorded by Haflinger 1973), therefore figures to show the variability of the 7th sternum and the patterns of internal genitalia of females of both species are given (Figs. 9–11). The separation of the females is based on that ambiguous patterns published in the key (Szabó 1975) is quite impossible since the shape of patterns overlap.

The occurrence of the eastern, mainly mountain, subspecies of *D. dasyenema* (ROTHSCHILD) was expected only from the mountainous parts of eastern Hungary (SZABÓ 1975, 1980). This subspecies occurs in Slánske vrchy Mts. in Slovakia (on its Hungarian side the abovementioned material was collected), in the Eastern Beskid mountain range and in the Vihorlat Mts. (DUDICH 1984a) but no specimen was found in the Thais lowland in Slovakia nor in Hungary. *D. dasyenema cuspis* may occur in Hungary now in the entire eastern part of the country as a possible continuation of its distribution from the mountains of Roumania (Bihor Mts.). Namely, westwards from the locality mentioned above, in the Slovakian part of the Aggtelek karst (Slovenský kras) and in the Bükk Mts. we know the nominate form only. So the valley of the river Hernád seems to be a natural barrier in the distribution of the two subspecies today.

The following indexes of infestation were observed (calculated for the two shrew species only): extensity 17.1%; mean intensity 0.35 and dominance 23.5.

Our specimens were collected together with the following taxa from the eastern province: *Ctenophthalmus agyrtes kleinschmidtianus* PEUS; *Palaeopsylla soricis starki* WAGNER and *Hystrichopsylla o. orientalis* SMIT.

The morphological patterns of the males from the Zemplén Mts. are “clear cuspis” found in the Slovak Eastern Carpathians (Fig. 12), but the outline of the 7th sternum in the females is highly variable owing to the introgression influence between the two subspecies along the border of their distribution area (Fig. 13).
Nosopsyllus mokrzeckyi (Wagner, 1916) — Locality. 1 ♀: Hortobágy (Great Pannonian lowland, Com. Hajdú-Bihar), August 1943, collector unknown (OKI, deposited in HNHM, Budapest, No. 120), host: M. arvalis (Pall.).

A single specimen of N. mokrzeckyi (Wagn.) was found among a longer series of N. fasciatus (Bosc) collected on the common vole in the most remarkable steppe region in the Pannonian lowland. The occurrence of this species was not confirmed recently in the same region (Szabó 1981). The recent distribution of N. mokrzeckyi in Central Europe and the Balkan peninsula is little known. It occurs in Yugoslavia, Roumania and the European part of the USSR in the primary steppe region (Suciu 1973; Yurkina 1961). The first finding in the Carpathian Basin was reported by Jurik (1962) in the Slovakian part of the Danube lowland on the house mouse (Mus musculus L.) in a village habitat. According to this author the possibility of an anthropogenous transport of the parasite with synanthropic rodents, via the Danube, in historic time should be considered. In the flea collection of the Entomological Division of the Slovak National Museum in Bratislava we recently found a further specimen.

Fig. 11. Duct of bursa copulatrix: in a = Amalaraeus penicilliger kratochvili Rosický and b = Amalaraeus arvicolae (Ioff) (after Smit). — Figs. 12–13. Doratopsylla dasycnema cuspis (Rothschild): 12 = terminalia of male, 13 = outlines of sternum 7 and spermatheca in female. — Figs. 14–16. Nosopsyllus mokrzeckyi (Wagner): 14 = clasper and sternum 9 of male (Tekovské Lužany, Slovakia), 15 = tergum 8 of the male, 16 = outline of sternum 7 and spermatheca of female (Hortobágy).

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DISCUSSION

As the result of our study the Hungarian flea fauna increases by five new taxa, so the total number of the known species and subspecies is now 68. With the exception of Palaeopsylla steini JORDAN we have completed the Hungarian flea fauna by the heretofore unrecorded species of the mountain fauna complex according to ROSICKÝ (1967). From among the species of the boreo-montane province, i.e. taiga faunal complex includes Ctenophthalmus u. uncinatus (WAGNER), Rhadinopsylla integella (ROTSCHILD) and we suppose with a high degree of probability of the occurrence of Peromyscopsylla silvatica (MEINERT) in the northern part of our country as a continuation of its range of distribution from Slovakia. It was collected not far from the border, in the Slovak Karst region. So the Hungarian Northern-Mountains, east of the Danube, have the same fleafauna compositions deriving from small terrestrial mammals as have the Polish or Slovak Western Carpathians—with the exception of the boreo-alpine species as are Amphipsylla sibirica and Megabothris rectangulatus. These species have very limited distribution in the Carpathians and occur in the highest mountains having primarily at least a subalpine zone.

References


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