

Ectoparasites of bats of western Ukraine

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Introduction

Epidemic and epizootic significance of ectoparasites is of great importance, because on different development stages ectoparasites are sanguivorous and carriers of agents of a number of transmissible diseases.

Ectoparasites are one of the factors that influence bats. There is an interchange of ectoparasites between bats and other animals (some birds and mammals), so it is possible for infections to pass from bats to other animals.

Among bat ectoparasites, representatives of different groups of arthropods occur, including mites (Parasitiformes, Acariiformes) and insects (Aphaniptera, Hemiptera, Diptera). They include both exclusively bat parasites and non-specialised parasites of birds and mammals. In this report, the matter concerns parasites of bats of the western part of Ukraine. This is settled and migrant species.

Materials

Data was collected during 1999/2000 in Podolian caves and in Medobory Reserve. Of a large number of bat hosts, we collected ectoparasites belonging to 10 species, namely *Ixodes vespertilionis*, *Ichoronyssus* sp., *Spinturnix acuminatus*, *S. myoti*, *S. plecotinus*, Liponyssidae gen. sp., *Leptotrombidium russicum*, Ischnopsyllidae gen. sp., *Pulex irritans*, and *Nycteribia* sp.

Results

Analysis of the collected material revealed that the ectoparasites belong to 8 genera of 7 families (Table 1).

Family Ixodidae Murr.

Genus *Ixodes* Latr, 1795

1. *Ixodes vespertilionis* Koch, 1844. Hosts: *Rhinolophus hipposideros* (winter, Kryshdaleva, Vitrova cave). General quantity: 7 specimens.

Table 1. Distribution of ectoparasites by hosts

Host species	Parasite species	
	Parasitiformes	Other groups
<i>R. hipposideros</i>	<i>Spinturnix myoti</i> , <i>Ixodes vespertilionis</i>	<i>Leptotrombidium russicum</i> (Acariformes)
<i>M. daubentoni</i>	<i>Ichoronissus</i> sp., <i>Spinturnix myoti</i>	(no)
<i>M. myotis</i>	<i>Ichoronissus</i> sp., <i>Spinturnix myoti</i> ,	<i>Nycteribia</i> sp. (Diptera), <i>Ischnopsyllidae</i> gen. sp. (Aphaniptera)
<i>P. auritus</i>	<i>Ichoronissus</i> sp., <i>Spinturnix myoti</i> , <i>Spinturnix plecotinus</i>	<i>Leptotrombidium russicum</i> (Acariformes)
<i>P. austriacus</i>	<i>Ichoronissus</i> sp.	<i>Pulex irritans</i> (Aphaniptera)
<i>N. noctula</i>	<i>Spinturnix acuminatus</i>	(no)
	Lipponyssidae gen. sp.	
<i>N. leisleri</i>	<i>Spinturnix acuminatus</i>	(no)

Family Liponyssidae Ewing, 1923 (= Macronyssidae Oudemans, 1936)

Genus *Ichoronyssus* Kolenati, 1858

2. *Ichoronyssus* sp. Hosts: *Myotis myotis* (winter, Mlynky, Ugryn caves), *Myotis daubentonii* (winter, Ugryn cave), *Plecotus auritus* (winter, Ugryn cave), *Plecotus austriacus* (winter, Kryshtaleva cave). General quantity: 52 specimens.

Gen. et sp.

3. Liponyssidae gen. sp. Hosts: *Nyctalus noctula* (summer, forest). General quantity: 87 specimens.

Family Spinturnicidae Oudemans, 1901

Genus *Spinturnix* v. Heyden, 1826

4. *Spinturnix acuminatus* Kolenati, 1856. Hosts: *Nyctalus leisleri* (summer, forest), *Nyctalus noctula* (summer, forest). General quantity: 27 specimens.

5. *Spinturnix myoti* Kolenati, 1856. Hosts: *Rhinolophus hipposideros* (winter, Kryshtaleva cave), *Myotis daubentoni* (winter, Ugryn cave), *Myotis myotis* (summer, forest; winter, Mlynky, Ugryn caves), *Plecotus auritus* (winter, Slavka cave). General quantity: 30 specimens.

6. *Spinturnix plecotinus* Oudemans, 1910. Hosts: *Plecotus auritus* (winter, Ugryn, Kryshtaleva, Verteba caves). General quantity: 11 specimens.

Family Trombiculidae Ewing, 1929

Genus *Leptotrombidium* Nagayo, Mijagawa, Mitamura, Imamura, 1916.

7. *Leptotrombidium russicum* Oudemans, 1902. Hosts: *Rhinolophus hipposideros* (winter, Verteba cave), *Plecotus auritus* (winter, Mlynky cave). General quantity: 3 specimens.

Family Ischnopsyllidae

Genus *Ischnopsyllus* Westwood

8. Ischnopsyllidae gen. sp. Hosts: *Myotis myotis* (winter, Ugryn cave). General quantity: 1 specimen.

Family Pulicidae

Genus *Pulex* Linne.

9. *P. irritans* Linne. Hosts: *Plecotus austriacus* (winter, Kryshaleva cave). General quantity: 3 specimens.

Family Nycteribiidae

Genus *Nycteribia*

10. *Nycteribia* gen. sp. Hosts: *Myotis myotis* (winter, Mlynky cave). General quantity: 2 specimens.

Discussion

The issue of bat ectoparasites in the territory of Ukraine was studied by E. M. Yemchuk (1954, 1960), N. G. Bregetova (1956), V. I. Yurkina (1961), G. I. Guscha (1970). Little information is available concerning sanguivorous flies (family Nycteribiidae). Single records of them are reported in proceedings of V. I. Abelentsev (1956) and K. A. Tatarinov (1973).

As a result of research conducted, we registered 10 species of ectoparasites, which represent 8 genera of 7 families belonging to 4 orders of 2 Arthropod classes. Among them are ectoparasites that specialise on the level of Chiroptera order (*Ichoronissus* sp., *Ixodes vespertilionis*, *Nycteribia* sp., Ischnopsyllidae gen. sp.), on genera level (*Spinturnix accuminatus*, *S. myoti*, *S. plecotinus*) as well as parasites of mammals in general (*Leptotrombidium russicum*, *Pulex irritans*).

The largest species diversity is revealed for the fauna of ectoparasites of *Myotis myotis* and *Plecotus auritus* (4 species are registered).

The largest number of ectoparasites (111 specimens) is registered for *Nyctalus noctula*. Thus, ectoparasites of bats are represented by mites and insects.

The largest species diversity among the ectoparasites is characteristic for the genus *Spinturnix* (3 species).

In addition, we compared the ectoparasite faunas of different bat species. The largest similarity between ectoparasite faunas is registered for bats, which hibernate within the studied territory, including *Rhinolophus hipposideros*, *Myotis daubentonii*, *Myotis myotis*, *Plecotus auritus*, and *Plecotus austriacus*.

References

- Abelentsev V. I., Popov B. M. 1956. Order of handwinging, or the bats — Chiroptera. *In: Fauna of Ukraine. Volume 1: Mammals; issue 1.* Academy of Sciences of Ukrainian SSR Publishing House, Kyiv, 229–446. (In Ukrainian)
- Bregetova N. G. 1956. *Gamasid mites (Gamasoidea). Diagnostic key for fauna of USSR.* Institute of Zoology, Kyiv, 1–247. (In Russian)
- Guscha G. I. 1970. To issue of study trombiculida fauna of Ukrainian SSR. *In: The Second acarological conference. Volume 1.* Naukova Dumka, Kyiv, 171–172. (In Russian)
- Tatarinov K. A. 1973. *Fauna of vertebrates of the West of Ukraine.* Lviv, 1–257. (In Ukrainian)
- Yemchuk E. M. 1954. *Materials to ixodic mites fauna of Ukrainian SSR.* Academy of Sciences of Ukrainian SSR, Kyiv, 1–146. (In Russian)
- Yemchuk E. M. 1960. Ixodic mites. *In: Fauna of Ukraine.* Vol. 25, issue 1. Academy of Sciences of Ukrainian SSR, Kyiv, 1–164. (In Ukrainian)
- Yurkina V. I. 1961. Fleas. *In: Fauna of Ukraine.* Vol. 17, issue 4. Academy of Sciences of Ukrainian SSR, Kyiv, 1–152. (In Ukrainian)

Резюме

БОБКОВА О. Ектопаразити кажанів західної України. — У ході обліків рукокрилих, що зимують у печерах Поділля та літнього населення кажанів заповіднику Медобори проводилися дослідження ектопаразитофауни кажанів. Вивчався та порівнювався видовий склад ектопаразитів з шести оглянутих печер та лісової частини заповідника, який нараховує сім видів кліщів (*Ixodes vespertilionis*, *Ichoronyssus* sp., *Spinturnix acuminatus*, *Spinturnix myoti*, *Spinturnix plecotinus*, *Leptotrombidium russicum*, Liponyssidae gen. sp.), два види бліх (*Pulex irritans*, Ischnopsyllidae gen. sp.) та один вид мух-кровососок (*Nycteribia* sp.). В результаті проведених досліджень показано, що ектопаразитофауна рукокрилих Поділля складається з 10 видів, 8 родів, 7 родин, 4 рядів та 2 класів.