

Sucking lice of the *Enderleinellus*, *Hoplopleura*, *Schizophthirus* and *Neohaematopinus* genera (Phthiraptera) on small mammals (Insectivora, Rodentia) in Slovakia

Ján KRIŠTOFÍK¹ & Alexander DUDICH²

¹Institute of Zoology, Slovak Academy of Sciences, Dúbravská cesta 9, SK-84206 Bratislava, Slovakia; e-mail: uzaekris@savba.sk

²Department of Biology, Faculty of Ecology and Environmentology, Technical University, T. G. Masaryka 20, SK-96053 Zvolen, Slovakia

KRIŠTOFÍK, J. & DUDICH, A., Sucking lice of the *Enderleinellus*, *Hoplopleura*, *Schizophthirus* and *Neohaematopinus* genera (Phthiraptera) on small mammals (Insectivora, Rodentia) in Slovakia. *Biologia, Bratislava*, 55: 487–499, 2000; ISSN 0006–3088.

In 1964–1999, a total of 17,450 lice of 10 species of the genera *Enderleinellus* (1 species), *Hoplopleura* (5 species), *Schizophthirus* (3 species), *Neohaematopinus* (1 species) were collected from 44,914 small mammals belonging to 30 species. In most species the knowledge of their distribution in Slovakia and their main and occasional hosts have been specified. *Hoplopleura captiosa* and *Schizophthirus dyromydis* were recorded in Slovakia for the first time.

Key words: sucking lice, Phthiraptera, geographical distribution, Slovakia.

Introduction

The investigation of the lice fauna of Slovakia was carried out in selected regions and on hosts belonging to the families Soricidae and Muridae (subfamily Sicistinae). A survey of published papers dealing with these topics is given by KRIŠTOFÍK & DUDICH (2000). However, data on the occurrence of lice on hosts of the families Sciuridae and Myoxidae in Slovakia are scarce (JURÍK, 1957; SMETANA, 1965; CYPRICH et al., 1999). The aim of this paper is to broaden knowledge about the main and occasional hosts of the species of the genera *Enderleinellus*, *Hoplopleura*, *Schizophthirus* and *Neohaematopinus* and their distribution in Slovakia.

Material and methods

The majority of small mammals (93.4% of individuals) were collected by snap traps installed in lines, with a minority (6.6% of individual) caught by metallic live traps. A total of 44,914 small mammals of 30 species were examined for ectoparasites in 1964–1999. The material consisted of the following species and numbers of individuals: *Crocidura leucodon* (Hermann, 1780) – 72, *C. suaveolens* (Pallas, 1811) – 43, *Neomys anomalus* Cabrera, 1907 – 337, *N. fodiens* (Pennant, 1771) – 738, *Sorex alpinus* Schinz, 1837 – 353, *S. araneus* Linnaeus, 1758 – 5,564, *S. minutus* Linnaeus, 1766 – 1,680, *Sciurus vulgaris* Linnaeus, 1758 – 4, *Talpa europaea* Linnaeus, 1758 – 61, *Sicista betulina* (Pallas, 1779) – 11, *Arvicola terrestris* (Linnaeus, 1758) – 384, *Chionomys nivalis* (Martins, 1842) – 95, *Clethrionomys glareolus* (Schreber, 1780) – 14,121, *Microtus agrestis* (Linnaeus, 1761) – 782, *M. arvalis* (Pallas,

1778) - 1,877, *M. oeconomus* (Pallas, 1776) - 72, *M. subterraneus* (de Selys-Longchamps, 1836) - 2,902, *M. tatricus* Kratochvíl, 1952 - 71, *Cricetus cricetus* (Linnaeus, 1758) - 11, *Apodemus agrarius* (Pallas, 1771) - 706, *A. flavicollis* (Melchior, 1834) - 12,293, *A. sylvaticus* (Linnaeus, 1758) - 1,356, *A. uralensis* (Pallas, 1811) - 456, *Micromys minutus* (Pallas, 1771) - 307, *Mus musculus* Linnaeus, 1758 - 301, *Mus spicilegus* Petyenyi, 1882 - 14, *Rattus norvegicus* (Berkenhout, 1769) - 196, *Dryomys nitedula* (Pallas, 1778) - 29 *Muscardinus avellanarius* (Linnaeus, 1758) - 15, *Myoxus glis* (Linnaeus, 1766) - 63. Lice collected from mammals were preserved in alcohol and mounted on permanent slides in Liquido de Swan. The material is deposited in the author's collection at the Institute of Zoology SAS, Bratislava, Slovakia.

Results and discussion

A total of 17,450 lice of the genera *Enderleinellus*, *Hoplopleura*, *Schizophthirus* and *Neohaematopinus* were obtained from the small mammals in Slovakia (Appendix 1).

Enderleinellus nitzschi Fahrenholz, 1916 is distributed in Eurasia. *S. vulgaris* is its main host (DURDEN & MUSSER, 1994). The occurrence of this species in Slovakia was first recorded by CYPRICH et al. (1999). With regard to its general distribution we propose that it occurs throughout Slovakia.

Hoplopleura acanthopus (Burmeister, 1839) is distributed in the Holarctic region. Its main hosts are representatives of *Arvicola* Lecepede, 1799, *Blanfordimys* Argyropulo, 1933, *Chionomys* Miller, 1908, *Clethrionomys* Tilesius, 1850, *Dicrostonyx* Gloger, 1841, *Lasiopodomys* Lataste, 1887, *Lemniscus* Thomas, 1912, *Lemmus* Link, 1795, *Microtus* Schrank, 1798, *Phaulomys* Thomas, 1905, *Synaptomys* Baird, 1858 (DURDEN & MUSSER, 1994). A total of 8,514 *H. acanthopus* individuals were found in our material. Among them 7,953 individuals (93.4%) were collected from *Microtus* species *M. agrestis* 1,690 (19.9%), *M. arvalis* 2,835 (33.3%), *M. oeconomus* 38 (0.5%), *M. subterraneus* 2,989 (35.2%), *M. tatricus* 401 (4.7%), *C. glareolus* 323 (3.8%), *S. alpinus* 23 (0.3%), *S. araneus* 70 (0.8%), *S. minutus* 13 (0.2%), *Ch. nivalis* 49 (0.6%), *A. flavicollis* 40 (0.5%) and *A. terrestris* 38 (0.3%). On other hosts only 0.1-0.01% of the individuals were found (*C. cricetus* - 8, *M. minutus* - 6, *A. sylvaticus*, *D. nitedula*, *N. anomalous* - 2 each, *N. fodiens* and *M. musculus* - 1). *H. acanthopus* is widely distributed in Slovakia (Fig. 1). The *Microtus* species, *Ch. nivalis* and *C. glareolus* are its main hosts; this louse occurs only occasionally on other mammals.

Hoplopleura affinis (Burmeister, 1839) is distributed in Eurasia, *Apodemus agrarius*, *A. chevrieri* (Milne-Edwards, 1868), *A. flavicollis*, *A. speciosus* (Temminck, 1844) and *A. sylvaticus* are

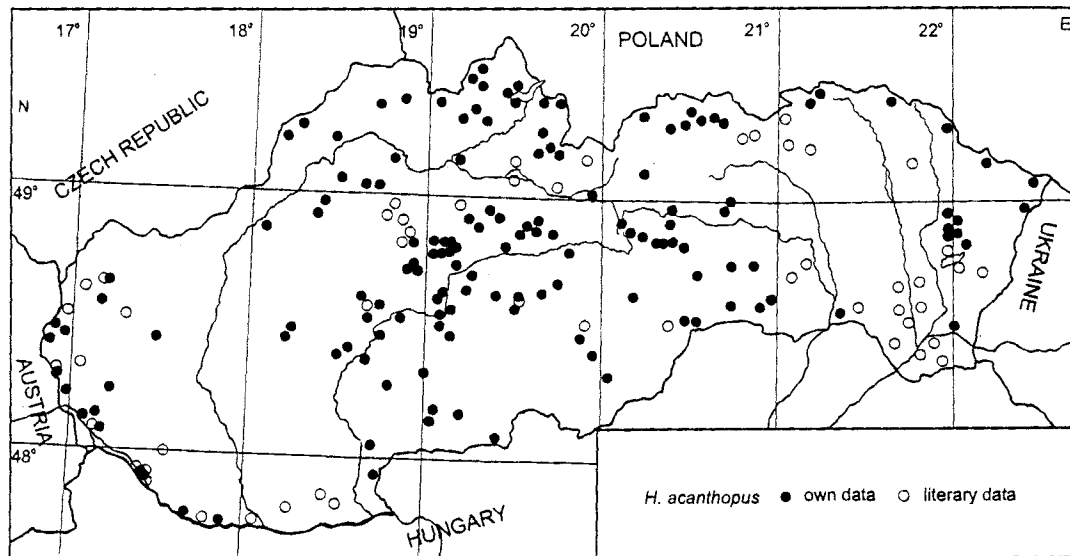


Fig. 1. Occurrence of *Hoplopleura acanthopus* in Slovakia.

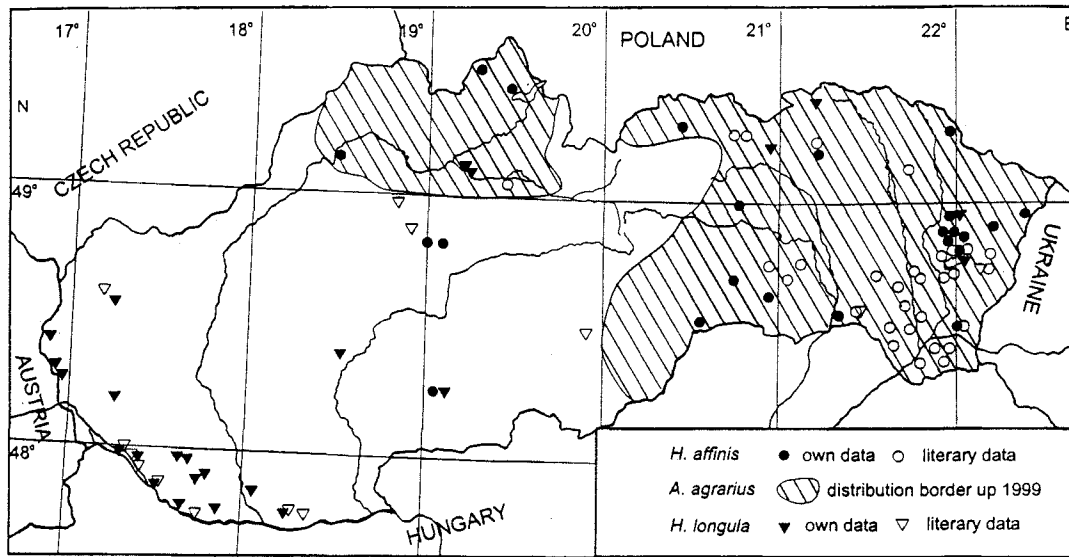


Fig. 2. Occurrence of *Hoplopleura affinis* and *H. longula* in Slovakia.

its main hosts (DURDEN & MUSSER, 1994). A total of 1,067 *H. affinis* individuals were present in our material. Among them 1,032 (96.7%) individuals were found on *A. agrarius*, 24 (2.2%) on *S. araneus*, 7 (0.7%) on *A. flavicollis* and 2 (0.2%) on both *A. sylvaticus* and *C. glareolus*. Based on our material and other studies (SMETANA, 1962; MRČIAK 1967, 1968; CYPRICH et al., 1976; KOVÁČIK, 1984; AMBROS et al., 1985; FRIČOVÁ & STANKO, 1993; FRIČOVÁ, 1998), *A. agrarius* is the main host of *H. affinis* in Slovakia. *H. affinis* also occurs on other species of the genus *Apodemus* and occasionally on other small mammal species. In Slovakia, *H. affinis* is abundant in areas inhabited by *A. agrarius* (this rodent expands from East to West and from North to South). *H. affinis* occurs only sporadically in other areas (Fig. 2).

Hoplopleura captiosa Johnson, 1960 probably has a cosmopolitan distribution, *Mus booduga* (Gray, 1837), *M. caroli* Bonhote, 1902, *M. spretus* Lataste, 1883 and *M. musculus* being its main hosts (DURDEN & MUSSER, 1994). The occurrence of this louse on *M. spicilegus* in Rumania and Hungary was recorded by WEGNER (1970) and PIOTROWSKI (1970), respectively. Occasionally it occurs on *M. arvalis* and *A. sylvaticus* (WEGNER, 1972; HAITLINGER, 1977). Only four females of *H. captiosa* were found in our material. However, considering the probable distribution of its main host, *M. musculus*, we predict this louse species occurs

throughout Slovakia. This is the first record of *H. captiosa* in Slovakia.

Hoplopleura edentula Fahrenholz, 1916 is distributed in Eurasia, its main hosts being *Clethrionomys glareolus*, *C. rufocanus* (Sundevall, 1846), *C. rutilus* (Pallas, 1779), *Eothenomys melanogaster* (Milne-Edwards, 1871) (DURDEN & MUSSER, 1994). Our material includes 7,372 *H. edentula* individuals, among which 7,167 (97.2%) were found on *C. glareolus*, 76 (1.0%) on *A. flavicollis* and 55 (0.8%) on *S. araneus*. The rest (0.3–0.01%) were collected on other small mammals (*S. minutus* – 21, *S. alpinus* – 13, *A. sylvaticus* – 11, *M. agrestis* – 9, *M. subterraneus* – 7, *N. fodiens* – 5, *N. anomalus* – 4, *M. tatraicus* – 2, *A. agrarius* and *M. musculus* – 1 each). As indicated by our data and published papers (ŠTEFAN et al., 1981; KOVÁČIK 1983, 1984, 1985, 1986, 1989; DUDICH et al., 1987; DUDICH, 1989; FRIČOVÁ, 1995b; STANKO & FRIČOVÁ, 1996 etc.), *C. glareolus* is the main host of *H. edentula*, while other small mammals are only occasional hosts. According to BEAUCOURNU (1968) and MAHNERT (1971), *H. edentula* is a boreoalpine species. However, our data and those of other authors (KOVÁČIK & DUDICH, 1990; FRIČOVÁ & STANKO, 1994; FRIČOVÁ, 1998) suggest that *H. edentula* is not a boreoalpine species because it frequently occurs in Slovakia, both in montane, submontane areas and in lowlands (Fig. 3).

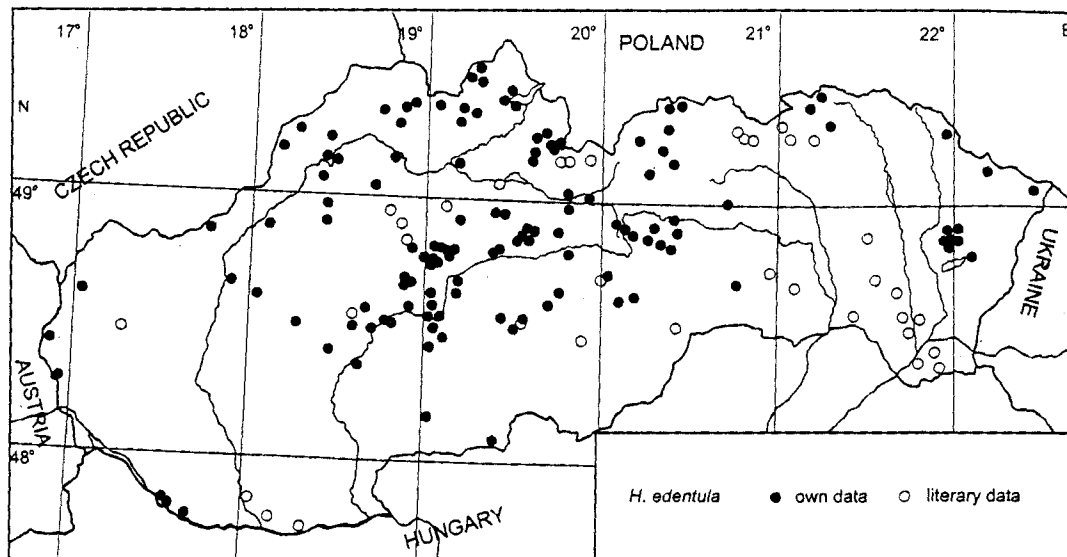


Fig. 3. Occurrence of *Hoplopleura edentula* in Slovakia.

Hoplopleura longula (Neumann, 1909) is distributed in Eurasia, *Micromys minutus* being its main host (DURDEN & MUSSER, 1994), but it occasionally occurs on other small mammals (WEGNER, 1972; KRÍŠTOFÍK & LYSÝ, 1992). Our material includes 473 individuals, among which 471 (99.6%) were collected from *M. minutus* and 2 (0.4%) from *S. araneus*. This species has been considered to be rare in Slovakia (SMETANA, 1965), but our data show its relative frequent occurrence throughout Slovakia, particularly in lowlands and basins (Fig. 2).

Schizophthirus dyromydis Blagoveshtchensky, 1965 was found in Kazakhstan on *Dryomys nitedula* by BLAGOVESHCHENSKIĀ (1965), later it was also found in Poland (WEGNER, 1972). Our material includes 6 individuals collected on *M. avellanarius*. *S. dyromydis* seems to be relatively rare, this is its the first record in Slovakia.

Schizophthirus pleurophaeus (Burmeister, 1839) is distributed in Europe and Morocco, *D. nitedula*, *M. avellanarius*, *Myoxus glis* and *Eliomys quercinus* Linnaeus, 1758 being its main hosts (DURDEN & MUSSER, 1994). In Slovakia, JURÍK (1957) found this louse on *E. quercinus* and SMETANA (1965) on *M. avellanarius*. It is obviously a rare species, absent from our material.

Schizophthirus sicistae Blagoveshtchensky, 1965 was found in Mongolia, Norway, Russia and Ukraine. *Sicista betulina* and *S. subtilis* (Pallas, 1773) are its main hosts (DURDEN & MUSSER,

1994). It is rare in Slovakia and was found on *S. betulina* (FRÍČOVÁ, 1995a). The species is absent from our material.

Neohaematopinus sciuri Jancke, 1932 – *Sciurus carolinensis* Gmelin, 1788 and *S. vulgaris* are its main hosts. Originally it was distributed in the Holarctic region, but was later introduced with *S. carolinensis* to South Africa, Australia and other areas (DURDEN & MUSSER, 1994). Our material includes only 3 individuals found on *S. vulgaris*. Although the occurrence of this species is mentioned only by CYPRICH et al. (1999), it probably occurs sporadically in Slovakia.

Acknowledgements

The authors thank to M. AMBROS, D. CYPRICH, R. JUREČEK, S. KALÚZ, M. KIEFER, E. KOCIANOVÁ, J. LYSÝ, M. STANKO, P. ŠTEFAN, who kindly supplied the material of lice, and to A. ŠTOLLMANN, J. KOVÁČIK and M. AMBROS, who collaborated in field work and ectoparasite collection. Some of the material presented in this study was taken from the collections of M. MRČIAK. Special thanks go to the Slovak Grant Agency for Science VEGA which supported financially a part of this study by grant Nr. 2/5021/98.

References

- AMBROS, M., DUDICH, A., KOVÁČIK, J. & ŠTOLLMANN, A. 1985. Ektoparazity (Acarina, Anoplura,

- Siphonaptera) mikromamalií (Insectivora, Rodentia) Východoslovenskej nížiny. Zbor. Vých.-slov. Múz., Ser. A **26**: 127-157.
- BEAUCOURNU, J. -C. 1968. Les Anoploures de Lagomorphes, Rongeurs et Insectivores dans la Région Paléarctique Occidentale et en particulier en France. Ann. Parasitol. hum. comp. **43**: 14-271.
- BLAGOVESHCHENSKIĪ, D. I. 1965. Novye vidy vseĭ (Siphunculata) parazitiruyushchikh na gryzunakh. I. Ent. Obzr. **44**: 151-165.
- CYPRICH, D., HUDÁKOVÁ, A. & KIEFER, M. 1976. Ixodidae, Anoplura and Siphonaptera small ground mammals of the environment of the retention reservoir Zemplínska Širava after irrigation. Acta Fac. Rer. natur. Univ. Comen., Zool. **20**: 89-96.
- CYPRICH, D., LUKÁŠ, J., FENĎA, P. & KRUMPÁL, M. 1999. Ektoparazity (Mesostigmata, Ixodidae, Anoplura, Siphonaptera) veverice obyčajnej (*Sciurus vulgaris* Linnaeus, 1758) a jej hniezd z územia Slovenska. Folia faun. Slov. **4**: 65-74.
- DUDICH, A. 1989. K poznaniu ektoparazitov (Ixodidae, Trombiculidae, Anoplura) drobných cicavcov zo Slánskych vrchov, pp. 135-150. In: XII. Východoslovenský TOP, Prehľad odborných výsledkov, Prešov.
- DUDICH, A., AMBROS, M., ŠTOLLMANN, A. & KOVÁČIK, J. 1987. Ektoparazitické článkonožce drobných zemných cicavcov chránenej krajinej oblasti Slovenský kras. 1. Plešivecká planina a Koniar. Ochrana Prírody **8**: 101-122.
- DURDEN, L. A. & MUSSER, G. G. 1994. The sucking lice (Insecta, Anoplura) of the world: a taxonomic checklist with records of mammalian hosts and geographical distributions. Bull. Amer. Mus. natur. Hist. **218**: 1-90.
- FRIČOVÁ, J. 1995a. A specimen of *Schizophthirus sicistae* (Anoplura, Hoplopleuridae) collected in Slovakia. Biologia, Bratislava **50**: 460.
- FRIČOVÁ, J. 1995b. Vši (Anoplura) drobných cicavcov východnej časti Volovských vrchov (Slovenské rudohorie). Natura carpatica **36**: 71-76.
- FRIČOVÁ, J. 1998. Vši (Anoplura) drobných cicavcov (Insectivora, Rodentia) južnej časti Východoslovenskej nížiny. Natura carpatica **39**: 103-110.
- FRIČOVÁ, J. & STANKO, M. 1993. Príspevok k poznaniu vší (Anoplura) drobných cicavcov Košickej zoologickej záhrady. Zbor. Vých.-slov. Múz., Ser. A **24**: 145-150.
- FRIČOVÁ, J. & STANKO, M. 1994. Ektoparazity drobných cicavcov (Insectivora, Rodentia) oblasti dolného toku Ondavy (Východoslovenská nížina). Zbor. Vých.-slov. Múz., Ser. A **25**: 97-104.
- HATLINGER, R. 1977. Contribution to the knowledge of Siphonaptera and Anoplura fauna of small mammals in Bulgaria. Bull. ent. pol. **47**: 711-718.
- JURÍK, M. 1957. Zpráva o štúdiu ektoparazitov *Eliomys quercinus* (L.) a *Glis glis* (L.). Biológia, Bratislava **12**: 18-28.
- KOVÁČIK, J. 1983. Kliešte (Ixodidae), zamatkovce (Trombiculidae) a vši (Anoplura) parazitujúce na drobných zemných cicavcoch žijúcich v Lubochianskej doline vo Veľkej Fatre (Západné Karpaty). Ochrana Prírody **4**: 213-221.
- KOVÁČIK, J. 1984. Ticks (Ixodidae), larval trombiculids (Trombiculida) and lice (Anoplura) from small mammals in the Čergov Mountains (Western Carpathians, Czechoslovakia). Misc. zool. hung. **2**: 39-42.
- KOVÁČIK, J. 1985. Príspevok k faune kliešťov (Ixodidae), trombikúl (Trombiculidae) a vší (Anoplura) chránenej krajinej oblasti Poľana. Biológia, Bratislava **40**: 1087-1090.
- KOVÁČIK, J. 1986. Kliešte (Ixodoidea), roztoče čelade Trombiculidae a vši (Anoplura) drobných zemných cicavcov lesných ekosystémov chránenej krajinej oblasti Muránska planina. Ochrana Prírody **7**: 187-193.
- KOVÁČIK, J. 1989. Príspevok k poznaniu ektoparazitov drobných zemných cicavcov Západných Tatier. 3. Ixodoidea, Trombiculidae, Anoplura. Stredné Slovensko - Prírodné Vedy **8**: 221-228.
- KOVÁČIK, J. & DUDICH, A. 1990. Ektoparazitofauna drobných zemných cicavcov (Insectivora, Rodentia) južnej časti Podunajskej nížiny so zreteľom na Žitný ostrov. 2. Ixodidae, Trombiculidae, Anoplura. Spravodaj Žitnoostrovského múzea Dunajská Streda **14**: 51-74.
- KRISTOFÍK, J. & LYSÝ, J. 1992. Seasonal dynamics of sucking lice (Anoplura) in small mammals (Insectivora, Rodentia) in the natural foci of infections in south-west Slovakia. Biológia, Bratislava **47**: 605-617.
- KRISTOFÍK, J. & DUDICH, A. 2000. Sucking lice of the *Polyplax* genus (Phthiraptera) on small mammals (Insectivora, Rodentia) in Slovakia. Biologia, Bratislava **55**: 133-142.
- MAHNERT, V. 1971. Parasitologische Untersuchungen an alpinen Kleinsäugetern: Anoplura (Insecta). Mitt. Schweiz. ent. Gesell. **44**: 333-341.
- MRCIAK, M. 1967. Acari, Anoplura a Aphaniptera Blatenskej nížiny pod Vihorlatom. Acta Fac. Rer. natur. Univ. Comen., Zool. **12**: 19-27.
- MRCIAK, M. 1968. Príspevok k ektoparazitofaune malých cicavcov v širšej oblasti vodného diela "Liptovská Mara" pred zavodnením. Acta Fac. Rer. natur. Univ. Comen., Zool. **14**: 33-43.
- PIOTROWSKI, F. 1970. Lice (Phthiraptera) of mammals in Hungary. Parasit. hung. **3**: 97-118.
- SMETANA, A. 1962. Beitrag zur Kenntnis der Biologie der Mitteleuropäischen Kleinsäugerläuse (Anoplura). Českoslov. Parasit. **9**: 375-411.
- SMETANA, A. 1965. Vši z území Československa. Acta Rer. natur. Mus. nat. slov. Bratislava **11** (1): 30-83.
- STANKO, M. & FRIČOVÁ, J. 1996. Príspevok k poznaniu fauny drobných cicavcov (Insectivora, Rodentia) a ich ektoparazitov v okolí prírodnej pamiatky Plavečské štrkoviská (Spišsko-šarišské medzihorie). Ochrana Prírody **14**: 143-151.
- ŠTEFAN, P., DUDICH, A. & ŠTOLLMANN, A. 1981. Príspevok k poznaniu vší (Anoplura) drobných

zemných cicavcov projektovanej štátnej prírodnej rezervácie Ivachnovský luh. Vlastivedný Sborník Liptov 6: 295-301.

WEGNER, Z. 1970. Lice (Anoplura) of small mammals caught in Dobrogea (Roumania). Soc. Stiin. Biol., Com. zool.: 305-314.

WEGNER, Z. 1972. Wszy - Anoplura. Klucze do oznaczania owadów Polski, część 16. Państwowe Wydawnictwo Naukowe, Warszawa, 89 pp.

Received April 11, 2000
Accepted June 29, 2000

Appendix 1. List of the examined material.

E. nitzschi. 090 (numerical codes of orographical units of the Databank of the fauna of Slovakia) Malé Karpaty Mts - 7 ♂♂, 4 ♀♀, 23 Aug., 1995, Pezinok, Baba col (48°23'N, 17°17'E) from *S. vulgaris* (leg. J. Krištofik);

H. acanthopus. 010 Veporské vrchy hills - 3 ♂♂, 11 ♀♀, 28 Oct., 1980, Bacúch, Malozelenský potok brook (48°49' N, 19°50' E), 3 ♂♂, 1 ♀, 16 June, 1981, 4 ♂♂, 8 ♀♀, 17 June, 1981, 4 ♂♂, 5 ♀♀, 18 June, 1981 all from *M. subterraneus*, 7 ♂♂, 9 ♀♀, 16 June, 1981, 29 ♂♂, 39 ♀♀, 11 nymphs, 17 June, 1981, 3 ♂♂, 6 ♀♀, 18 June, 1981, Dobroč, Dobročský prales primeval forest (48°41' N, 19°41' E), 1 ♂, 16 June, 1981, 11 ♂♂, 10 ♀♀, 2 nymphs, 17 June, 1981, 4 ♂♂, 4 ♀♀, 1 nymph, Sihla, Vrchslatina Nature reserve (48°39' N, 19°37' E) all from *M. agrestis* (all leg. A. Dudich, A. Štollmann); 022 Slovenský raj Mts - 9 ♂♂, 35 ♀♀, 23 March, 1977, Stratená, Stratená dolina valley (48°54' N, 20°18' E), 1 ♂, 8 ♀♀ from *M. arvalis*, 1 ♀ from *M. subterraneus*, 20 May, 1977, Dedinky, Glac plateau (48°55' N, 20°24' E) (leg. D. Cyprich, M. Kiefer), 13 ♂♂, 21 ♀♀, 22 May, 1984 from *M. agrestis*, 1 ♂, 3 ♀♀, 23 May, 1984 from *C. glareolus*, Stratená, Veľké Zajfy valley (48° 53' N, 20° 21' E), 2 ♂♂, 9 ♀♀, 24 Apr., 1986, 1 ♀, 25 Apr., 1986, Smižany, an area between Čingov settlement and the Lesnica brook mouthing (48°56' N, 20°29' E) from *M. subterraneus*; 040 Revúcka vrchovina highlands - 2 ♂♂, 5 ♀♀, 1 nymph, 23 July, 1981, Lubeňák, Podhora locality the Muráň brook alluvium (48°40' N, 20°10' E), 29 ♂♂, 44 ♀♀, 3 nymphs, 8 March, 1983, Selce, Selčiansky potok brook (48°27' N, 19°52' E) from *M. arvalis*; 060 Slovenský kras Mts - 2 ♂♂, 4 ♀♀, Hrhov, Hrhovské jazerá lakes, 1 ♀, Drienovec, oak forest, (48°37' N, 20°57' E), 16 Apr., 1982 from *M. arvalis*, 1 ♂, 1 ♀, Silická Jablonica, beech forest (48°34' N, 20°37' E) from *A. flavicollis*, 59 ♂♂, 85 ♀♀, 50 nymphs, Silica, Silická planina plateau (48°33' N, 20°32' E) from *M. arvalis*, all 31 Aug., 1983; 070 Volovské vrchy hills - 4 ♂♂, 8 ♀♀, 7 June, 1983, Štós, Čierna Moldava brook (48°41' N, 20°46' E), 7 ♂♂, 13 ♀♀, 7 nymphs, 9 June, 1983, Vyšný Medzev, Hummel valley (48°44' N, 20°54' E) from *M. agrestis*, 1 ♀, 23 May, 1984, Mlynky, Havrania dolina valley (48°52' N, 20°26' E), 2 ♂♂, 3 ♀♀, 25 May, 1984, 3 ♂♂, 13 ♀♀, 1 nymph, 26 May, 1984, Gemerská Poloma, Podsúľová locality (48°47' N, 20°29' E) from *M. subterraneus*; 110 Tribeč Mts - 2 ♂♂, 2 ♀♀, 5 nymphs from *M. arvalis*, 70 ♂♂, 108 ♀♀, 81 nymphs, 13 March, 1981, 29 ♂♂, 77 ♀♀, 19 March, 1981, Krnča, Dršňa brook, at foot of the Mišov hill (48°31' N, 18°18' E), 1 ♂,

7 ♀♀, 17 March, 1981, 1 ♀, 18 Aug., 1981 all from *M. subterraneus*, 1 ♀, 18 Aug., 1981 from *M. arvalis*, Solčany, Dekanova chata chalet (48°29' N, 18°15' E); 120 Strážovské vrchy hills - 14 ♂♂, 27 ♀♀, 12 July, 1983, 1 ♀, 14 July, 1983 from *M. subterraneus*, 1 ♀, 12 July, 1983 from *C. glareolus*, Priedhorie, Dobusek valley, 1 ♂, 1 ♀, 13 Apr., 1984, Zliechov, Strážov hill (48°58' N, 18°28' E) from *M. arvalis*, 1 ♂, 2 ♀♀, 20 Apr., 1984, Zemianska Závada (49°04' N, 18°31' E) from *M. subterraneus* (all leg. A. Dudich, A. Štollmann), 1 ♂, 1 ♀, 5 July, 1993 from *A. flavicollis*, 1 ♂, 5 July, 1993, 1 ♀, 6 July, 1993 from *M. arvalis*, Opatová, oak forest (48°54' N, 18°06' E) (leg. M. Ambros); 140 Malá Fatra Mts - 6 ♂♂, 15 ♀♀, 10 Apr., 1984 from *S. alpinus*, 91 ♂♂, 161 ♀♀, 4 nymphs, 10 Apr., 1984, 68 ♂♂, 167 ♀♀, 6 nymphs, 11 Apr., 1984, 1 ♂, 1 ♀, 12 Apr., 1984, 4 ♂♂, 8 ♀♀, 13 Apr., 1984, Kunerad, Svitáčova dolina valley, Bystrička brook (49°05' N, 18°46' E), 6 ♀♀, 18 July, 1984, 2 ♀♀, 20 July, 1984 all from *M. subterraneus*, 6 ♀♀, 17 July, 1984 from *M. arvalis*, Kunerad, at foot of the Veľká Lúka hill (49°05' N, 18°49' E); 150 Veľká Fatra Mts - 6 ♂♂, 16 ♀♀, 21 Aug., 1979, 1 ♀, 22 Aug., 1979, Liptovská Osada, Vyšná Matejková settlement (48°49' N, 19°14' E) from *M. subterraneus*, 1 ♀, 28 Aug., 1979 from *C. glareolus*, 2 ♂♂, 28 Aug., 1979 from *M. subterraneus*, Dolný Harmanec, Bystrická dolina valley (48°49' N, 19°04' E), 3 ♂♂, 3 ♀♀, 20 Aug., 1980 from *C. glareolus*, 4 ♀♀, 21 Aug., 1980 from *M. subterraneus*, Čremošné, Žarnovická dolina valley (48°51' N, 18°55' E), 1 ♀, 3 Sept., 1980, Dolná Turecká, at foot of the Majerova skala hill (48°51' N, 19°05' E) from *A. flavicollis*, 1 ♂, 2 ♀♀, 5 Sept., 1980, Horná Turecká, Malá Ramžina locality (48°52' N, 19°04' E) from *S. araneus* (all leg. A. Dudich, A. Štollmann), 2 ♂♂, 1 ♀, 31 July, 1992, 2 ♂♂, 3 ♀♀, 1 Aug., 1992, 10 ♂♂, 14 ♀♀, 2 nymphs, 1992 from *M. agrestis*, 2 ♂♂, 1 Aug., 1992 from *A. flavicollis*, Stankovany, Šíp hill (49°10' N, 19°11' E) (leg. J. Krištofik); 160 Starohorské vrchy hills - 5 ♂♂, 16 ♀♀, 3 nymphs, 18 May, 1977, 1 ♀, 13 July, 1977, Staré Hory, Zelená dolina valley (48°50' N, 19°07' E) from *M. arvalis*, 2 ♂♂, 3 ♀♀, 11 May, 1979, Polkanová, Zlatý potok brook, (48°49' N, 19°06' E) from *C. glareolus*, 1 ♀, 17 Sept., 1980 from *A. flavicollis*, 1 ♂, 11 ♀♀, 13 Aug., 1981 from *M. subterraneus*, Harmanec, Cenovo valley (48°47' N, 19°04' E), 1 ♀, 29 March, 1983, Staré Hory, Richtárová dolina valley (48°50' N, 19°08' E); 181 Západné Tatry Mts - 2 ♀♀, 9 Aug., 1977 all from *C. glareolus*, 1 ♂, 1 ♀, 10 Aug., 1977 from *M. tatricus*, Zuberec, Kozinec hill (49°15' N, 19°38' E)

(all leg. A. Dudich, A. Štollmann), 8 ♂♂, 17 ♀♀ from *M. subterraneus*, 3 ♂♂, 10 ♀♀, 1 nymph from *M. arvalis*, 4 ♂♂, 5 ♀♀ from *C. glareolus*, 4 ♂♂, 7 ♀♀ from *Microtus* sp., 1 ♀ from *A. flavicollis*, 24 Aug., 1977, 3 ♀♀, 25 Aug., 1977 from *C. glareolus*, 2 ♂♂, 4 ♀♀, 24 March, 1978, 1 ♀, 8 July, 1978 from *M. arvalis*, 2 ♀♀, 8 July, 1978 from *Ch. nivalis*, Zuberec, Roháčska dolina valley, Adamcuľa locality (49°13' N, 19°44' E), 3 ♂♂, 1 ♀, 28 Aug., 1977, Zuberec, Smutná dolina valley (49°12' N, 19°45' E) from *M. agrestis* (leg. E. Kocianová), 1 ♀, 11 May, 1993, 3 ♂♂, 8 ♀♀, 20 Aug., 1993 from *M. subterraneus*, 1 ♂, 5 ♀♀ from *M. tatricus*, 1 ♀ from *M. agrestis*, 19 Aug., 1993, 1 ♀, 28 Oct., 1993 from *M. tatricus*, Jalovec, Bobrovecká dolina valley, Sivý vrch National nature reserve (49°13' N, 19°39' E) (leg. M. Ambros); 190 Nízke Tatry Mts - 5 ♂♂, 16 ♀♀, 30 Aug., 1978, Liptovská Osada, Hiadel'ské sedlo col (48°52' N, 19°17' E), 2 ♂♂, 1 ♀ from *M. agrestis*, 4 ♂♂, 10 ♀♀ from *M. arvalis*, 6 May, 1980, Partizánska Ľupča, Magurka settlement, Ďurková brook (48°57' N, 19°26' E), 27 ♂♂, 50 ♀♀, 10 nymphs, 9 Sept., 1980, 6 ♀♀, 10 Sept., 1980, 22 ♂♂, 23 ♀♀, 5 nymphs, 26 May, 1981, 21 ♂♂, 45 ♀♀, 2 nymphs, 27 May, 1981, 12 ♂♂, 15 ♀♀, 1 nymph, 28 May, 1981 from *M. subterraneus*, 4 ♂♂, 2 ♀♀, 26 May, 1981, 26 ♂♂, 54 ♀♀, 6 nymphs, 27 May, 1981 from *M. agrestis*, 38 ♂♂, 59 ♀♀, 14 nymphs, 26 May, 1981, 67 ♂♂, 108 ♀♀, 30 nymphs, 28 May, 1981 from *M. tatricus*, 1 ♂, 2 ♀♀, from *A. flavicollis*, 9 ♂♂, 26 ♀♀, 1 nymph from *C. glareolus*, 1 ♂ from *Ch. nivalis*, 27 May, 1981, Partizánska Ľupča, Oružná valley, Solisko hill (48°57' N, 19°28' E), 12 ♂♂, 43 ♀♀, 2 nymphs, 10 Aug., 1980, 3 ♂♂, 5 ♀♀, 1 nymph, 12 Aug., 1982, Pusté Pole, Hnilec river spring (48°54' N, 20°12' E), 1 ♂, 1 ♀, 7 Sept., 1982 all from *M. subterraneus*, 8 ♂♂, 4 ♀♀, 9 Sept., 1982 from *M. agrestis*, Horná Lehota, Chopok hill, Kosodrevina cableway station (48°56' N, 19°36' E), 32 ♂♂, 47 ♀♀, 9 Sept., 1982 from *M. agrestis*, 5 ♂♂, 8 ♀♀ from *S. minutus*, 1 ♂, 1 ♀ from *S. araneus*, 3 ♀♀ from *M. subterraneus*, 19 Apr., 1983, Dolná Lehota, Vajskovská dolina valley (48°54' N, 19°33' E), 6 ♂♂, 18 ♀♀, 7 Sept., 1982, 8 ♂♂, 9 ♀♀, 5 nymphs, 9 Sept., 1982 from *Ch. nivalis*, 9 ♂♂, 17 ♀♀, 7 Sept., 1982, 14 ♂♂, 17 ♀♀, 9 Sept., 1982 from *M. subterraneus*, 16 ♂♂, 32 ♀♀, 2 nymphs, 7 Sept., 1982, 11 ♂♂, 15 ♀♀, 9 Sept., 1982 from *M. tatricus*, Dolná Lehota, Kotlíská hill (48°56' N, 19°31' E), 2 ♂♂, 3 ♀♀, 9 Sept., 1982, Horná Lehota, Tále locality (48°55' N, 19°36' E) from *M. arvalis*, 1 ♂, 10 Sept., 1983, Dolná Lehota, at foot of the Pálenica hill (48°55' N, 19°35' E) from *M. agrestis*, 1 ♂, 22 Sept., 1983, 1 ♂, 1 ♀, 27 Sept., 1983, Jarabá, Kunštova dolina valley (48°01' N, 19°43' E), 16 ♂♂, 39 ♀♀, 1 nymph, 23 Sept., 1983, 5 ♂♂, 14 ♀♀, 8 nymphs, 25 Sept., 1983, 1 ♂, 8 ♀♀, 27 Aug., 1983 all from *M. subterraneus*, 2 ♂♂, 3 ♀♀, 23 Sept., 1983, 23 ♂♂, 22 ♀♀, 25 Sept., 1983, 22 ♂♂, 25 ♀♀, 27 Aug., 1983 from *M. agrestis*, 3 ♀♀, 27 Sept., 1983 from *C. glareolus*, Liptovská Teplička, Veľký Brunov valley (48°55' N, 20°07' E), 11 ♂♂, 26 ♀♀, 30 May, 1984, Čierny Váh, Ipolitica brook (49°00' N, 19°54' E); 200 Kozie chrbty Mts - 12 ♂♂, 38 ♀♀, 2 nymphs, 24 Apr., 1982 all from *M. subterraneus*, 7 ♂♂, 23 ♀♀, 1 nymph, 27 May, 1984 from *M. agrestis*, Východná, Čierna dolina valley (49°02' N, 19°53' E); 252 Popradská kotlina basin - 4 ♂♂, 11 ♀♀, 26 Sept., 1983, Veľký Slavkov, pastures, (49°14' N, 20°17' E); 220 Žilinská kotlina basin - 1 ♂, 1 ♀, 26 Apr., 1984, Zlatné, the Váh river alluvium (48°12' N, 19°53' E) from *M. subterraneus* (all leg. A. Dudich, A. Štollmann); 260 Hornádska kotlina basin - 3 ♀♀ from *M. arvalis*, 18 ♂♂, 26 ♀♀ from *M. subterraneus*, 12 May, 1966, Spišské Podhradie, Mokriny locality (49°01' N, 20°46' E) (leg. M. Mrciak), 6 ♂♂, 17 ♀♀, 12 May, 1981, 11 ♂♂, 8 ♀♀, 13 May, 1981 from *M. arvalis*, 1 ♂, 4 ♀♀, 13 May, 1981 from *S. araneus*, Hrabušice, Hrabušické rašelinisko peat bog (48°58' N, 20°26' E), 38 ♂♂, 40 ♀♀ from *C. glareolus*, 5 ♀♀ from *M. minutus*, 12 May, 1981, 70 ♂♂, 99 ♀♀, 18 nymphs, 12 May, 1981, 9 ♀♀, 15 May, 1981, 24 ♂♂, 53 ♀♀, 14 May, 1981 from *M. arvalis*, Baldovce, Baldovské rašelinisko peat bog (49°00' N, 20°42' E); 270 Horehronské podolie basin - 2 ♂♂, 12 May, 1982, Predajná, Veporná valley (48°48' N, 19°28' E) from *M. agrestis*; 280 Vtáčnik Mts - 10 ♂♂, 9 ♀♀, 11 Oct., 1979, Bystričany, Bystričianska dolina valley (48°37' N, 18°36' E), 1 ♂, 3 ♀♀, 11 March, 1982, Ostrý Grúň, Pokutská dolina valley (48°35' N, 18°41' E), 9 ♂♂, 10 ♀♀, 11 March, 1980 all from *M. subterraneus*, 9 ♂♂, 6 ♀♀, 1 nymph, 12 March, 1980 from *S. araneus*, Nová Lehota, Kľakovská dolina valley (48°39' N, 18°42' E); 290 Pohronský Inovec Mts - 1 ♀, 7 Oct., 1980, Obyčká Huta, Osná dolina valley (48°27' N, 18°31' E), 21 ♂♂, 37 ♀♀, 14 nymphs, 22 March, 1983, Veľká Lehota, Žitava brook (48°29' N, 18°32' E); 300 Štiavnické vrchy hills - 1 ♀, 26 Oct., 1976 all from *M. arvalis*, 1 ♂, 6 ♀♀, 16 May, 1978, Krupina, Krupinica brook, Mäsiarsky bok National nature reserve (48°24' N, 19°06' E), 2 ♂♂, 5 ♀♀, 23 March, 1983, Brehy, Obecný potok brook (48°23' N, 18°42' E), 10 ♂♂, 17 ♀♀, 21 March, 1984, Jabložovce, Škripce settlement (48°20' N, 18°48' E) all from *M. subterraneus*; 310 Kremnické vrchy hills - 2 ♀♀, 24 March, 1977 from *S. araneus*, 20 ♂♂, 49 ♀♀, 8 nymphs, 25 May, 1977, 25 ♂♂, 97 ♀♀, 6 nymphs, 26 May, 1977, 20 ♂♂, 57 ♀♀, 1 nymph, 27 May, 1977, 1 ♂, 28 May, 1977, 2 ♂♂, 3 ♀♀, 1 Sept., 1977, 2 ♂♂, 3 ♀♀, 2 Sept., 1977, 26 ♀♀, 27 Apr., 1978, 7 ♂♂, 23 ♀♀, 28 Apr., 1978 from *M. subterraneus*, 1 ♀, 25 May, 1977, 1 ♀, 27 May, 1977 from *A. flavicollis*, 2 ♂♂, 2 ♀♀, 26 May, 1977, 7 ♂♂, 10 ♀♀, 27 May, 1977 from *C. glareolus*, Badín, Badínsky prales primeval forest (48°41' N, 19°03' E), 10 ♂♂, 26 ♀♀, 1 nymph from *M. subterraneus*, 1 ♀ from *C. glareolus*, 1 ♂ from *S. alpinus*, 10 July, 1979, Horný Turček, Mokrá dolina valley (48°46' N, 18°59' E), 1 ♀ from *C. glareolus*, 4 ♀♀ from *M. subterraneus*, 18 Nov., 1980, Horný Turček, Krahulská dolina valley (48°45' N, 18°57' E), 8 ♂♂, 21 ♀♀, 6 May, 1981, Horný Turček, at foot of the Kordické sedlo col (48°47' N, 19°00' E) from *M. subterraneus*; 320 Poľana Mts - 2 ♀♀, 21 Sept., 1978, Očová, Kyslinky settlement, Pod Dudášom Nature reserve (48°39' N, 19°26' E), 25 ♂♂, 52 ♀♀, 22 nymphs, 26 May, 1987, 9 ♂♂, 13 ♀♀, 28 May, 1987, 1 ♂, 5 ♀♀, 17 Oct., 1987 all from *M. agrestis*, 2 ♀♀, 26 May, 1987 from *C. glareolus*, 1 ♂, 7 ♀♀, 1 nymph, 26 May, 1987, 7 ♂♂, 16 ♀♀,

27 May, 1987, 4 ♂♂, 4 ♀♀, 7 July, 1987, 3 ♂♂, 4 ♀♀, 8 July, 1987 from *M. subterraneus*, Hriňová, Hukavy valley, Predná Poľana hill (48°37' N, 19°32' E), 4 ♂♂, 8 ♀♀, 2 nymphs, 20 Jan., 1988, Hriňová, Predná Poľana hill, Zadná Poľana National nature reserve (48°37' N, 19°29' E) from *M. agrestis*; **340** Javorie Mts - 5 ♂♂, 5 ♀♀, 2 Nov., 1983, 1 ♀, 3 Nov., 1983 from *M. arvalis*, 1 ♂, 5 ♀♀, 4 Nov., 1983 from *M. subterraneus*, Michalková, Burzovo valley (48°32' N, 19°08' E), 1 ♀, 13 Dec., 1985, 1 ♂, 25 Dec., 1985 from *C. glareolus*, 1 ♂, 6 ♀♀, 16 Dec., 1985 from *M. arvalis*, Zvolen, Veľká Stráž (48°34' N, 19°06' E); **350** Krupinská planina plateau - 1 ♂, 2 ♀♀, 15 Apr., 1976, Drienovo, meadows at the Litava brook (48°14' N, 19°04' E), 7 ♂♂, 1 ♀, 9 March, 1977, Beluja, Drienovský Mlyn locality (48°12' N, 19°04' E), 1 ♂, 1 ♀, 22 Nov., 1986, Čebovce, Krehora hill (48°13' N, 19°13' E) from *M. arvalis*, 9 ♂♂, 6 ♀♀, 12 Aug., 1976, Beluja, Drienovský Mlyn locality from *A. flavicollis*; **360** Zvolenská kotlina basin - 20 ♂♂, 27 ♀♀, 2 nymphs, 23 March, 1977, 9 ♂♂, 9 ♀♀, 2 nymphs, 24 March, 1977, 3 ♂♂, 9 ♀♀, 1 nymph, 11 June, 1982 from *M. arvalis*, 1 ♂, 7 ♀♀ from *C. glareolus*, 1 ♀ from *M. musculus*, 11 June 1982, Badín, the Hron river aluvium (48°40' N, 19°07' E), 3 ♀♀, 26 Apr., 1977, Zvolen, arable land (48°35' N, 19°09' E) from *M. arvalis*, 1 ♂, 1 ♀, 23 Apr., 1977, Rudlová, Rudlovský potok brook (48°44' N, 19°14' E) from *A. sylvaticus*, 4 ♂♂, 10 ♀♀, 1 nymph from *M. arvalis*, 1 ♀ from *C. glareolus*, 11 June, 1982, Šalková, Plavno National nature reserve (48°44' N, 19°15' E), 1 ♀, 22 June, 1982, Dolná Mičiná, Mičinské traventíny National nature monument (48°40' N, 19°09' E) from *M. arvalis*, 5 ♀♀, 16 Dec., 1985, 2 ♀♀, 19 Dec., 1985, Zvolen, Tepličky-Bariny locality (48°35' N, 19°07' E) from *C. glareolus*; **380** Žiarska kotlina basin - 5 ♂♂, 4 ♀♀, 10 March, 1982, 1 ♀, 24 March, 1986, 1 ♀, 26 March, 1986, 5 ♂♂, 7 ♀♀, 27 March, 1986 from *C. glareolus*, 1 ♀, 10 March, 1982 from *S. araneus*, 3 ♂♂, 16 ♀♀, 25 March, 1986, Revištské Podzámčie, alder stand near the Revištský rybník fishpond (48°31' N, 18°43' E), 4 ♂♂, 10 ♀♀, 3 June, 1986, Horné Opatovce (48°31' N, 18°43' E) all from *M. subterraneus*; **391** Ipeľská kotlina basin - 2 ♀♀, 15 Oct., 1983, Kiarov, Kiarovský močiar Nature reserve (48°06' N, 19°26' E) from *M. arvalis*; **393** Rimavská kotlina basin - 1 ♀, 24 Nov., 1982, Veľký Blh, Peseta gamekeeper's cottage (48°25' N, 20°01' E) from *A. flavicollis*, 3 ♀♀, 21 March, 1984, Rimavská Sobota, Kurinecká dubina National nature reserve (48°20' N, 20°01' E); **400** Košická kotlina basin - 1 ♂, 17 Apr., 1982, Debrač, Hatiny settlement (48°39' N, 21°00' E) (all leg. A. Dudich, A. Štollmann), 1 ♀, 26 Oct., 1995, Skároš, ruderalized site (48°35' N, 21°23' E) all from *C. glareolus* (leg. E. Kocianová); **470** Javorníky Mts - 5 ♂♂, 9 ♀♀, 1 nymph, 6 Apr., 1983, Horná Mariková, at foot of the Malý Javorník (48°18' N, 18°18' E), 1 ♀, 12 May, 1983, Petrovice, Krížová settlement (48°18' N, 18°31' E), 1 ♀, 28 June, 1983, Lazy pod Makytou (48°14' N, 18°13' E) from *M. subterraneus*, 1 ♀, 12 Sept., 1983, Ochodnica, U Klínka settlement (49°20' N, 18°46' E) from *C. glareolus*; **530** Kysucké Beskydy Mts - 3 ♂♂, 5 ♀♀, 14 July, 1977, 3 ♂♂, 6 ♀♀, 16 July, 1977 from *M. subterraneus*, 1 ♀, 14 July, 1977 from *M. agrestis*, 3 ♂♂, 6 ♀♀, 5 Oct., 1977 from *M. arvalis*, Klubina, Klubinská dolina valley (49°24' N, 18°58' E); **550** Oravské Beskydy Mts - 5 ♂♂, 13 ♀♀, 29 March, 1977, 20 ♂♂, 34 ♀♀, 1 nymph, 17 May, 1977, 21 ♂♂, 39 ♀♀, 14 July, 1977 from *M. agrestis*, 1 ♂, 1 ♀, 17 May, 1977 from *C. glareolus*, 1 ♂, 3 ♀♀, 17 May, 1977 from *M. subterraneus*, 1 ♀, 13 July, 1977 from *S. alpinus*, 21 ♂♂, 13 ♀♀, 2 nymphs, 14 July, 1977 from *M. arvalis*, Vychylovka, Chmúrovia settlement (49°22' N, 19°04' E), 5 ♂♂, 17 ♀♀, 16 Aug., 1978, 12 ♂♂, 27 ♀♀, 18 Aug., 1978 from *M. subterraneus*, 28 ♂♂, 35 ♀♀, 16 Aug., 1978, 32 ♂♂, 84 ♀♀, 1 nymph, 18 Aug., 1978 from *M. agrestis*, 1 ♀ from *A. flavicollis*, 1 ♀ from *N. fodiens*, 1 ♂, 1 ♀ from *D. nitedula*, 16 Aug., 1978, 5 ♀♀ from *S. araneus*, 6 ♀♀ from *C. glareolus*, 18 Aug., 1978, Mutné, Bystrá dolina valley, Mutnianska Píla Nature reserve (49°29' N, 19°17' E), 8 ♂♂, 9 ♀♀ from *A. terrestris*, 1 ♂ from *A. flavicollis*, 14 Sept., 1978, 7 ♂♂, 18 ♀♀, 14 Sept., 1981, 1 ♀, 22 May, 1980, 1 ♀, 23 May, 1980 from *C. glareolus*, 10 ♂♂, 14 ♀♀, 14 Sept., 1978, 1 ♀, 15 Sept., 1978 from *S. araneus*, 23 ♂♂, 38 ♀♀, 14 Sept., 1978, 1 ♀, 15 Sept., 1978, 11 ♂♂, 27 ♀♀, 4 nymphs, 20 May, 1980, 2 ♂♂, 3 ♀♀, 21 May, 1980, 20 ♂♂, 34 ♀♀, 22 May, 1980 from *M. agrestis*, 2 ♀♀, 14 Sept., 1978, 2 ♂♂, 6 ♀♀, 15 Sept., 1978, 37 ♂♂, 51 ♀♀, 14 nymphs, 20 May, 1980, 7 ♂♂, 23 ♀♀, 1 nymph, 21 May, 1980, 2 ♂♂, 7 ♀♀, 22 May, 1980 from *M. subterraneus*, Mutné, Zlatná dolina valley, Ráztoka brook, Riečka brook (49°30' N, 19°16' E); **560** Podbeskydská brázda basin - 36 ♂♂, 33 ♀♀, 33 nymphs, 1 Apr., 1980, Beňadovo, Beňadovské rašelinisko Nature reserve (49°26' N, 19°20' E); **580** Oravská Magura Mts - 4 ♂♂, 1 ♀, 1 nymph, 2 June, 1981 all from *M. agrestis*, 8 ♂♂, 24 ♀♀, 1 nymph, 2 June, 1981, 52 ♂♂, 100 ♀♀, 3 June, 1981, 1 ♂, 4 June, 1981 from *M. subterraneus*, Oravská Lesná, Paráč hill (49°31' N, 19°14' E), 1 ♂, 1 ♀ from *M. agrestis*, 9 ♂♂, 16 ♀♀ from *M. subterraneus*, Hruštín, Feráčova settlement (49°18' N, 19°16' E), 5 ♂♂, 14 ♀♀ from *M. subterraneus*, 3 ♂♂, 7 ♀♀, 3 nymphs from *M. agrestis*, Lomná, Jasienska gamekeeper's cottage (49°20' N, 19°16' E), all 25 May, 1983; **630** Oravská kotlina basin - 9 ♂♂, 58 ♀♀ from *M. arvalis*, 12 ♂♂, 39 ♀♀ from *M. agrestis*, 12 Apr., 1978, Suchá Hora, Rudné Nature reserve (49°24' N, 19°47' E), 34 ♂♂, 78 ♀♀ from *M. agrestis*, 5 ♂♂, 5 ♀♀ from *C. glareolus*, 1 ♀ from *N. anomalus*, 2 ♀♀ from *A. flavicollis*, 1 Apr., 1980, 14 ♂♂, 16 ♀♀, 3 nymphs from *M. arvalis*, 3 ♂♂, 3 ♀♀ from *M. agrestis*, 18 June, 1980, Námestovo, Skalka locality (49°24' N, 19°28' E), 7 ♀♀ from *M. arvalis*, 1 ♂, 6 ♀♀ from *C. glareolus*, 3 ♂♂, 5 ♀♀ from *M. agrestis*, 1 Apr., 1980, Klin, mouth the Polhoranka brook (49°26' N, 19°31' E), 8 ♂♂, 15 ♀♀, 2 nymphs, Klin, Klinské rašelinisko Nature reserve (49°26' N, 19°30' E), 45 ♂♂, 48 ♀♀, 4 nymphs, Vavrečka, alder stand near the Oravská priehrada barrage (49°23' N, 19°28' E), all 18 June, 1980, 4 ♂♂, 4 ♀♀, 23 Sept., 1980, 3 ♂♂, 18 ♀♀, 24 Sept., 1980, Trstená, Medvedia hora locality, Jelešňa National nature reserve all from *M. agrestis* (all leg. A. Dudich, A.

Stollmann); **660** Spišská Magura Mts – 2 ♂♂, 5 ♀♀, 4 Apr., 1964, 8 ♂♂, 8 ♀♀, 1 nymph, 3 June, 1964, 6 ♂♂, 5 ♀♀, 4 nymphs, 5 June, 1964, 2 ♂♂, 5 ♀♀, 6 June, 1964, 1 ♂, 2 ♀♀, 7 June, 1964, 13 ♂♂, 21 ♀♀, 30 March, 1966, 10 ♂♂, 5 ♀♀, 3 nymphs, 12 May, 1966, 2 ♂♂, 6 ♀♀, 13 May, 1966, 4 ♂♂, 11 ♀♀, 27 June, 1966, 24 ♂♂, 17 ♀♀, 7 nymphs, 24 Sept., 1966 from *M. arvalis*, 1 ♀, 9 Oct., 1964, 3 ♂♂, 1 ♀, 30 March, 1966 from *C. glareolus*, 2 ♀♀, 13 May, 1966, 1 ♀, 21 Oct., 1966 from *M. subterraneus*, Toporec, Toporský potok brook (49° 17' N, 20° 28' E), 46 ♂♂, 92 ♀♀, 62 nymphs, 5. June, 1964 from *M. arvalis*, 1 ♀, 12 Nov., 1964 from *M. subterraneus*, Vyšné Ružbachy, Barinkova poľana locality (49°20' N, 20°34' E), 7 ♂♂, 10 ♀♀, 29 March, 1966, Kamienka, Kamienka brook (49°20' N, 20°36' E), 6 ♂♂, 6 ♀♀, 19 May, 1966 all from *M. arvalis*, 12 ♂♂, 8 ♀♀, 28 June, 1966 from *M. agrestis*, Hniezdne, Čierny potok brook (49°19' N, 20°38' E), 76 ♂♂, 197 ♀♀, 255 nymphs, 23 Oct., 1966, Osturňa, Osturňanské lúky meadows (49°20' N, 20°13' E); **690** Spišsko-šarišské medzihorie Mts – 2 ♂♂, 7 ♀♀, 25 Sept., 1964, Stará Ľubovňa, meadows along the Poprad river (49°19' N, 20°44' E) all from *M. arvalis* (leg. M. Mrciak), 3 ♂♂, 1 ♀, 25 March, 1975, Stará Ľubovňa, Podsádek locality (49°19' N, 20°43' E) from *S. araneus*; **710** Vihorlat Mts – 4 ♀♀, 11 Nov., 1976, Kamienka, Rika brook (48°54' N, 22°03' E), 1 ♂ 1 ♀ all from *M. arvalis*, 1 ♂, 1 ♀ from *C. glareolus*, 14 Nov., 1976, 1 ♂, 16 Nov., 1976 from *M. subterraneus*, Zemplínske Hámre, Podstavka Nature reserve (48°56' N, 22°10' E), 1 ♀ from *M. arvalis*, 1 ♂, 1 ♀ from *A. agrestis*, 1 ♀ from *A. flavicollis*, Zemplínske Hámre, Hypkania peat bog (49°56' N, 22°10' E), 1 ♂, 1 ♀, 19 Apr., 1977 from *M. agrestis*, 4 ♂♂, 3 ♀♀, 28 Sept., 1977 *M. subterraneus*, Valaškovce settlement (48°54' N, 22°05' E) (all leg. A. Dudich, A. Štollmann); **720** Bukovské vrchy hill – 10 ♂♂, 25 ♀♀, 1 nymph, 28 Apr., 1978, 5 ♂♂, 15 ♀♀, 11 July, 1978, 4 ♂♂, 7 ♀♀, 24 July, 1978, 1 ♂, 27 July, 1978, 1 ♀, 30 Sept., 1978, 4 ♂♂, 18 ♀♀, 20 Aug., 1979, 1 ♀, 22 Aug., 1979, 2 ♂♂, 2 ♀♀, 10 Nov., 1979, Ulič, Mikošova dolina, valley (48°58' N, 22°28' E) (leg. M. Stanko), 1 ♂, 2 ♀♀ from *M. subterraneus*, 1 ♀ from *M. agrestis*, 30 July, 1978, Osadné, Udava National nature reserve (49°08' N, 22°14' E), 2 ♀♀, 17 Oct., 1978, 3 ♂♂, 5 ♀♀, 18 Oct., 1978, from *M. subterraneus*, 1 ♀ from *N. anomalus*, 1 ♀ from *C. glareolus*, 18 Oct., 1978, Nová Sedlica, Rika brook, Stučica National nature reserve (49°05' N, 22°08' E); **730** Busov Mts – 8 ♂♂, 10 ♀♀ from *C. glareolus*, Becherov, Becherovská tisina National nature reserve (49°27' N, 21°17' E), 1 ♂, 6 ♀♀ from *M. subterraneus*, Stebnická Huta, Hutisko settlement, Borsučina locality (49°24' N, 21°15' E), all 13 Sept., 1979; **750** Laborecká vrchovina highlands – 2 ♂♂, 5 ♀♀ from *M. arvalis*, 2 ♀♀ from *C. glareolus*, 6 ♂♂, 29 ♀♀ from *M. subterraneus*, 13 Oct., 1978, 2 ♀♀ from *S. araneus*, 1 ♂, 1 ♀ from *C. glareolus*, 2 ♂♂, 11 ♀♀ from *M. subterraneus*, 14 Oct., 1978, 4 ♂♂, 9 ♀♀, 15 Oct., 1978, Palota, Palotské jedliny National nature reserve (49°16' N, 21°44' E), 7 ♂♂, 28 ♀♀, 19 Sept., 1979 Nižný Komárnik, Komárnická dolina valley (49°23' N, 21°44' E) from *M. subterraneus*; **760** Beskydské pred-

horie Mts – 1 ♀, 28 Sept., 1977, Kamenica nad Cirochou, the Cirocha river alluvium (48°56' N, 22°00' E) from *M. arvalis*, 1 ♂, 1 nymph, 1 Aug., 1978, Kamienka (48°54' N, 22°00' E) from *M. subterraneus* (all leg. A. Dudich, A. Štollmann); **770** Borská nížina lowland – 1 ♀, 15 Feb., 1978, Lakšárska Nová Ves, Borická locality (48°35' N, 17°11' E) from *M. minutus* (leg. P. Štefan), 5 ♂♂, 7 ♀♀, 5 Oct. 1978, 5 ♂♂, 10 ♀♀, 6 Oct., 1978, 9 ♂♂, 4 ♀♀, 21 Oct., 1978, 9 ♂♂, 17 ♀♀, 31 Oct., 1978 from *M. arvalis*, 1 ♀, 6 Oct., 1978 from *C. glareolus*, Devínska Nová Ves, forest steppe (48°12' N, 17°00' E) (leg. S. Kalúz), 1 ♂, 2 ♀♀, 13 Feb., 1987, 1 ♀, 10 Apr., 1987, 1 ♀, 29 July, 1988 from *C. glareolus*, 8 nymphs, 13 Feb., 1987, 3 ♂♂, 6 ♀♀, 1 nymph, 6 Dec., 1987, 2 ♂♂, 1 ♀, 24 June, 1988, 103 ♂♂, 155 ♀♀, 177 nymphs, 27 July, 1988, 1 ♂, 4 ♀♀, 29 July, 1988, 1 ♂, 18 Nov., 1988 from *M. arvalis*, 1 ♂, 19 Oct., 1988 from *A. flavicollis*, Šaštín-Stráže, Novosady locality (48°39' N, 17°09' E) (leg. J. Lysý), 4 ♂♂, 6 ♀♀, 22 Jan., 1992, 1 ♂, 2 ♀♀, 17 March, 1992, 6 ♂♂, 7 ♀♀, 3 nymphs, 16 June, 1992, 11 ♂♂, 15 ♀♀, 17 June, 1992, 2 ♂♂, 3 ♀♀, 22 Oct., 1992, Vysoká pri Morave, Mäsiarky locality (48°18' N, 16°57' E), 1 ♀, 9 Dec., 1993, Gajary, Hamaty locality (48°30' N, 16°56' E) from *M. arvalis* (leg. J. Krištofík), 2 ♀♀, 31 Oct., 1997, Jakubov, Jakubovské rybníky fishpond (48°25' N, 16°58' E) from *A. terrestris* (leg. R. Jureček), 1 ♀, 23 Jan., 1998, Suchohrad, Karlov Dvor locality (48°25' N, 16°54' E), 2 ♀♀, 3 Sept., 1998, 4 ♀♀, 18 May, 1999, 2 ♂♂, 2 ♀♀, 16 June, 1999, 10 ♂♂, 10 ♀♀, 21 July, 1999, 4 ♂♂, 28 ♀♀, 17 Aug., 1999, Zohor Piesky locality (48°18' N, 16°58' E) (leg. J. Krištofík); **790** Podunajská rovina plain – 2 ♀♀, 12 Sept., 1978, Bratislava-Petržalka, Zrkadlový háj locality (48°07' N, 17°12' E), 1 ♀, 14 Sept., 1978, 4 ♀♀, 10 Oct., 1978, 1 nymph, 15 Nov., 1978 all from *M. arvalis*, 1 ♀, 13 Oct., 1978 from *C. glareolus*, Rusovce, floodplain forest (48°03' N, 17°09' E), 4 ♀♀, 26 Oct., 1978, Svätý Jur, Panonský háj wood (48°13' N, 17°14' E) (leg. S. Kalúz), 1 ♂, 1 ♀, 13 Oct., 1979, Bratislava-Kopáč, Ostrov Kopáč Nature reserve (48°06' N, 17°10' E) (leg. M. Stanko), 1 ♀, 12 May, 1987, 2 ♂♂, 7 Apr., 1988, Gabčíkovo, Malé Vranie locality (47°51' N, 17°33' E) from *C. glareolus*, 2 ♂♂, 9 ♀♀, 10 Feb., 1987, Bratislava-Kopáč, Ostrov Kopáč Nature reserve from *M. arvalis* (leg. J. Lysý), 1 ♂, 2 ♀♀, 19 March, 1991, 1 ♀, 1 nymph, 18 Sept., 1991 from *S. araneus*, 2 ♂♂, 1 ♀, 16 Apr., 1991, 2 ♀♀, 2 nymphs, 17 Apr., 1991, 4 ♂♂, 5 ♀♀, 16 July, 1991, 1 ♂, 1 ♀, 18 Sept., 1991, 2 ♀♀, 15 Oct., 1991, 3 ♂♂, 1 ♀, 16 Oct., 1991 from *M. oecconomus*, 1 ♀, 16 July, 1991, 1 ♂, 17 July, 1991 from *A. terrestris*, 2 ♂♂, 2 ♀♀, 18 Sept., 1991, 2 ♂♂, 2 ♀♀, 16 Oct., 1991 from *M. arvalis*, Gabčíkovo, Malé Vranie locality, 7 ♂♂, 4 ♀♀, 3 nymphs, 10 March, 1992, 2 ♂♂, 6 ♀♀, 17 June, 1992 from *M. arvalis*, 2 ♂♂, 6 ♀♀ from *M. oecconomus*, Medvedov, Čobánsky chrbát locality (47°49' N, 17°42' E), 1 ♀, 10 Feb., 1993, Gabčíkovo, Dekan gamekeeper's cottage (47°53' N, 17°31' E), 1 ♀, 16 June, 1998 Veľké Kosihy, Trstiny locality (47°47' N, 17°52' E) all from *M. oecconomus*, 4 ♂♂, 2 ♀♀, 2 nymphs, 8 June, 1995, Bratislava-Podunajské Biskupice, Tretí

diel locality (48°07' N, 17°17' E) from *Cricetus cricetus*; **801** Trnavská pahorkatina hill-country - 6 ♂♂, 9 ♀♀, 17 June, 1997, 17 ♂♂, 26 ♀♀, 1 nymph, 21 Oct., 1997, 2 ♂♂, 5 ♀♀, 22 Oct., 1997 from *M. arvalis*, 1 ♀, 22 Oct., 1997 from *C. glareolus*, Dlhá, Sušiansky háj wood (48° 22' N, 17°30' E) (all leg. J. Krištofik); **805** Ipelská pahorkatina hilly-country - 4 ♀♀, 6 Sept., 1966, Sikenica, Perec brook (48°05' N, 18°43' E) from *A. flavicollis*, 3 ♂♂, 4 ♀♀, 1 Dec., 1966, Pastovce, the Ipeľ river alluvium (47°58' N, 18°5' E) (leg. M. Mrciak); **810** Východoslovenská pahorkatina hilly-country - 2 ♂♂, 3 ♀♀, 2 nymphs, 24 Sept., 1977, Kusín, pastures (48°49' N, 22°04' E); **820** Východoslovenská rovina plain - 5 ♂♂, 11 ♀♀, 17 Oct., 1979, Čičarovce, Bešiansky polder locality (48°31' N, 22°02' E) all from *M. arvalis* (leg. A. Dudich, A. Štollmann).

H. affinis. **060** Slovenský kras Mts - 1 ♂, 1 ♀, 30 Aug., 1983, 4 ♀♀, 31 Aug., 1983, Silická Jablonica, beech forest; **070** Volovské vrchy hill - 1 ♀, 7 June, 1983, Vyšný Medzev, Hummel valley all from *A. agrarius*; **150** Veľká Fatra Mts - 4 ♂♂, 19 ♀♀, 29 Aug., 1979, Dolný Harmanec, Bystrická dolina valley from *S. araneus*; **160** Starohorské vrchy hills - 4 ♀♀, 18 March, 1977, Staré Hory, Zelená dolina valley from *A. flavicollis* (all leg. A. Dudich, A. Štollmann); **260** Hornádska kotlina basin - 1 ♀, 12 May, 1966, Spišské Podhradie, Mokriný locality from *A. sylvaticus* (leg. M. Mrciak); **350** Krupinská planina plateau - 1 ♀, 8 March, 1977, Beluja, Drienovský Mlyn locality from *A. flavicollis*; **400** Košická kotlina basin - 7 ♂♂, 19 ♀♀, 17 Apr., 1982, 4 ♂♂, 15 ♀♀, 18 Apr., 1982, Debrať, Hatiny settlement (all leg. A. Dudich, A. Štollmann), 1 ♀, 26 Oct., 1995, Skároš, ruderalized site (leg. E. Kocianová); **490** Považské podolie basin - 1 ♀, 11 May, 1983, 1 ♂, 5 ♀♀, 12 May, 1983, Predmier, the Váh river alluvium; **550** Oravské Beskydy Mts - 5 ♀♀, 14 Sept., 1978, Mutné, Zlatná dolina valley, Ráztoka brook, Riečka brook; **620** Čergov Mts - 2 ♀♀, 26 Aug., 1980, Hertník, at foot of the Čergov hill (49°12' N, 21°01' E); **630** Oravská kotlina basin - 1 ♂, 4 ♀♀, 18 June, 1980, Námestovo, Skalka locality all from *A. agrarius* (all leg. A. Dudich, A. Štollmann); **660** Spišská Magura Mts - 1 ♀, 21 Oct., 1966, Toporec, Toporský potok brook from *A. sylvaticus* (leg. M. Mrciak); **710** Vihorlat Mts - 10 ♂♂, 18 ♀♀, 11 Nov., 1976, 4 ♂♂, 15 ♀♀, 12 Nov., 1976, 1 ♀, 15 Nov., 1976, 1 ♀, 11 Oct., 1978, 2 ♀♀, 13 Oct., 1978 all from *A. agrarius*, 1 ♀, 12 Nov., 1976 from *C. glareolus* 1 ♀, 11 Oct., 1978 from *S. araneus*, Kamienka, Rika brook, 8 ♂♂, 18 ♀♀, 14 Nov., 1976, 1 ♂, 1 ♀, 15 Nov., 1976, 1 ♀, 16 Nov., 1976, Zemplínske Hámre, Podstavka Nature reserve, 2 ♂♂, 8 ♀♀, 11 Nov., 1976, 2 ♀♀, 14 Apr. 1977, 5 ♂♂, 19 ♀♀, 22 Sept., 1977, Kamienka, Suchý potok brook, 18 ♂♂, 31 ♀♀, 28 Sept., 1977, Jovsa, Jovsiansky potok brook all from *A. agrarius*, 1 ♀, 14 June, 1977, Zemplínske Hámre, Hypkánia peat bog from *C. glareolus* (all leg. A. Dudich, A. Štollmann); **720** Bukovské vrchy hills - 1 ♀, 23 Dec., 1978, 5 ♂♂, 5 ♀♀, 27 Sept., 1979 from *A. agrarius*, 2 ♀♀, 22 Aug., 1979, from *A. flavicollis*, Ulič, Mikošova valley (leg. M. Stanko); **750** Laborecká vrchovina highlands - 2 ♂♂, 1 ♀, 15 Oct., 1978, Palota, Palotské jedľiny Na-

tional nature reserve; **760** Beskydské predhorie Mts - 2 ♂♂, 5 ♀♀, 28 Sept., 1977, 2 ♂♂, 12 ♀♀, 2 nymphs, 29 Sept., 1977, 2 ♂♂, 4 ♀♀, 2 Aug., 1978, Kamenica nad Cirocou, the Cirocha river alluvium; **810** Východoslovenská pahorkatina hill-country - 3 ♂♂, 9 ♀♀, 22 Sept., 1977, 19 ♂♂, 23 ♀♀, 24 Sept., 1977, Kusín, pastures; **820** Východoslovenská rovina plain - 215 ♂♂, 479 ♀♀, 16 Oct., 1979, Čičarovce, Bešiansky polder locality all from *A. agrarius* (all leg. A. Dudich, A. Štollmann).

H. captiosa. **090** Malé Karpaty Mts - 4 ♀♀, 6 June, 1993, Bratislava, zoological garden (48°10' N, 17°05' E) from *M. musculus* (leg. J. Krištofik);

H. edentula. **010** Veporské vrchy hills - 4 ♂♂, 9 ♀♀, 28 Oct., 1980, from *C. glareolus*, 4 ♀♀, 28 Oct., 1980, from *N. anomalus*, Bacúch, Malozelenský potok brook, 11 ♂♂, 18 ♀♀, 2 nymphs, 16 June, 1981, 14 ♂♂, 23 ♀♀, 17 June, 1981, 9 ♂♂, 30 ♀♀, 1 nymph, 18 June, 1981 from *C. glareolus*, 1 ♀, 17 June, 1981 from *S. araneus*, Dobroč, Dobročský prales primaval forest, 18 ♂♂, 47 ♀♀, 16 June, 1981, 22 ♂♂, 35 ♀♀, 3 nymphs, 17 June, 1981, 12 ♂♂, 18 ♀♀, 5 nymphs, Sihla, Vrchslatiná Nature reserve; **021** Muránska planina plateau - 4 ♂♂, 13 ♀♀, 2 July, 1986, 3 ♂♂, 5 ♀♀, 3 July, 1986, Murán, Hrdzavá dolina valley, (48°45' N, 20°01' E) (all leg. A. Dudich, A. Štollmann); **022** Slovenský raj Mts - 2 ♂♂, 4 ♀♀, 7 Dec., 1976, 3 ♂♂, 14 ♀♀, 8 Dec., 1976 all from *C. glareolus*, 1 ♀ from *A. flavicollis*, Dedinky (48°52' N, 20°23' E), 5 ♂♂, 5 ♀♀, 6 nymphs, 3 Feb., 1977, 1 ♂, 2 ♀♀, 4 Feb., 1977, 1 ♂, 3 ♀♀, 6 Feb., 1977, Vernár, Veľká Biela voda valley (48°57' N, 20°21' E), 1 ♂, 6 Dec., 1977, 2 ♂♂, 6 ♀♀, 1 nymph, 7 Dec., 1977, Čingov (48°56' N, 20°29' E) (leg. D. Cyprič, M. Kiefer), 3 ♂♂, 4 ♀♀, 23 May, 1985, Stratená, Veľké Zajfy valley; **040** Revúcka vrchovina highlands - 4 ♀♀, 7 Aug., 1980, Jeľšava, Hrádok settlement (48° 40' N, 20° 18' E), 4 ♀♀, 1 nymph, 14 Sept., 1982, Nadraž, Turčok brook (48°37' N, 20°10' E); **070** Volovské vrchy hills - 8 ♂♂, 15 ♀♀, 7 June, 1983, 1 ♀, 9 June, 1983, Vyšný Medzev, Hummel valley, 8 ♂♂, 35 ♀♀, 7 June, 1983, 1 ♂, 3 ♀♀, Mlynky, Havrania dolina valley; **100** Považský Inovec Mts - 4 ♂♂, 9 ♀♀, 21 June, 1983 all from *C. glareolus*, 2 ♀♀, 21 June, 1983 from *N. fodiens*, Hrádok, Hrádocká dolina valley (48°41' N, 17°58' E), 1 ♂, 1 ♀, 11 Oct., 1983, 7 ♂♂, 25 ♀♀, 13 Oct., 1983 from *C. glareolus*, 2 ♀♀, 13 Oct., 1983 from *A. flavicollis*, Nemečky, Chotina brook (48°44' N, 18°03' E); **110** Tribeč Mts - 1 ♀, 1 nymph, 17 March, 1981, Krnča, Dršňa brook, at foot of the Mišov vrch hill; **120** Strážovské vrchy hills - 5 ♂♂, 25 ♀♀, 12 July, 1983, 1 ♀, 14 July, 1983, Priedhorie, Dobusek valley, 1 ♀, 13 July, 1983, 6 ♀♀, 14 July, 1983, Zemianska Závada, 9 ♂♂, 14 ♀♀, 12 Apr., 1984, Zliechov, Strážov hill; **140** Malá Fatra Mts - 16 ♂♂, 44 ♀♀, 10 Apr., 1984, 6 ♂♂, 8 ♀♀, 11 Apr., 1984, 3 ♀♀, 12 Apr., 1984, Kunerad, Svitáčova dolina valley, Bystrička brook all from *C. glareolus*; **150** Veľká Fatra Mts - 1 ♀, 21 Aug., 1979 from *S. araneus*, 6 ♂♂, 17 ♀♀, 1 nymph, 21 Aug., 1979, 1 ♂, 4 ♀♀, 22 Aug., 1979, Liptovská O-sada, Vyšná Matejková settlement, 7 ♂♂, 8 ♀♀, 28 Aug., 1979, 1 ♀, 29 Aug., 1980, Dolný Harmanec, Bystrická dolina valley, 28 ♂♂, 44 ♀♀, 20 Aug., 1980, 4 ♂♂, 5 ♀♀,

21 Aug., 1980, Čremošné, Žarnovická dolina valley, 1 ♂, 1 ♀, 20 Sept., 1980, Horný Harmanec, Čierna dolina valley (48°49' N, 19°01' E), 15 ♂♂, 29 ♀♀, 3 Sept., 1980, Dolná Turecká, at foot of the Majerova skala hill, 1 ♀, 3 Sept., 1980, Horná Turecká, Malá Ramziná locality (all leg. A. Dudich, A. Štollmann), 1 ♂, 1 ♀, 9 May, 1992, 3 ♂♂, 7 ♀♀, 31 July, 1992, 2 ♂♂, 10 ♀♀, 9 Aug., 1996, 1 ♀, 20 Aug., 1996, 1 ♂, 12 Sept., 1996 all from *C. glareolus*, 1 ♂, 2 ♀♀, 31 July, 1992 from *S. araneus*, Stankovany, Šíp hill (leg. J. Krištofik); **160** Starohorské vrchy hills - 1 ♂, 3 ♀♀, 18 May, 1977, 1 ♀, 17 March, 1977, 2 ♂♂, 8 ♀♀, 14 July, 1977, 6 ♂♂, 26 ♀♀, 7 Sept., 1977, Staré Hory, Zelená dolina valley, 3 ♂♂, 4 ♀♀, 3 Aug., 1977, 21 ♂♂, 53 ♀♀, 1 nymph, 18 Nov., 1977, 3 ♀♀, 3 Dec., 1977, 17 ♀♀, 29 Aug., 1978, 13 ♂♂, 84 ♀♀, 1 nymph, 30 Aug., 1978, 29 ♂♂, 34 ♀♀, 8 Nov., 1978, 7 ♂♂, 35 ♀♀, 7 nymphs, 28 July, 1981, 10 ♂♂, 26 ♀♀, 1 nymph, 30 July, 1981, 15 ♂♂, 37 ♀♀, 29 March, 1983 all from *C. glareolus*, 1 ♀, 29 Aug., 1978, from *A. flavicollis*, Staré Hory, Richtárová dolina valley, 7 ♂♂, 11 ♀♀, 21 Sept., 1980, 3 ♂♂, 4 ♀♀, 7 Sept., 1981, Harmanec, Cenovo valley, 4 ♂♂, 20 ♀♀, Harmanec, Papermill (48°48' N, 19°05' E); **181** Západné Tatry Mts - 2 ♂♂, 13 ♀♀, 4 May, 1977, 1 ♀, 5 May, 1977 all from *C. glareolus*, 1 ♀, 5 May, 1977 from *M. tatricus*, Zuberec, Pribisko locality (49°14' N, 19°38' E), 2 ♀♀, 24 May, 1978, 11 ♂♂, 9 ♀♀, 9 Aug., 1977, 2 ♂♂, 1 ♀, 10 Aug., 1977, Zuberec, Kozinec hill (49°15' N, 19°38' E) (all leg. A. Dudich, A. Štollmann), 7 ♂♂, 18 ♀♀, 24 Aug., 1977, 6 ♂♂, 7 ♀♀, 25 Aug., 1977, 4 ♀♀, 11 July, 1978, 6 ♀♀, 12 Aug., 1978, Zuberec, Roháčska dolina valley, Adamcula locality, 4 ♂♂, 16 ♀♀, 27 Aug., 1977, 11 ♂♂, 30 ♀♀, 1 nymph, 28 Aug., 1977, Zuberec, Roháčska dolina valley, Tatliakovo pleso mountain lake (49°13' N, 19°45' E), 1 ♂, 8 ♀♀, 14 July, 1978, 1 ♀, 17 July, 1978, Zuberec, Rákoň hill (49°13' N, 19°44' E), 1 ♂, 1 ♀, 15 Aug., 1978, Zuberec, Suchá dolina valley (49°14' N, 19°38' E) (leg. E. Kocianová), 5 ♂♂, 8 ♀♀, 19 Aug., 1993, 1 ♂, 1 ♀, 20 Aug., 1993, 2 ♀♀, 28 Oct., 1993, Jalovec, Bobrovecká dolina valley, Sivý vrch National nature reserve all from *C. glareolus*, 1 ♀, 28 Oct., 1993, Jalovec, Jalovecká dolina valley (49°11' N, 19°38' E) from *M. agrestis* (leg. M. Ambros); **183** Belianske Tatry Mts - 3 ♂♂, 11 ♀♀, 24 June, 1987, 1 ♂, 4 ♀♀, 25 June 1987, 2 ♂♂, 20 ♀♀, 9 Aug., 1987, 12 ♂♂, 46 ♀♀, 10 Aug., 1987, Tatranská Javorina, Zadné Medodoly valley (49°14' N, 20°11' E); **190** Nízke Tatry Mts - 12 ♂♂, 39 ♀♀, 6 May, 1980, Partizánska Ľupča, Magurka settlement, Ďurková brook, 2 ♀♀, 26 May, 1981, 3 ♂♂, 14 ♀♀, 1 nymph, 27 May, 1981, 3 ♂♂, 4 ♀♀, 28 May, 1981 all from *C. glareolus*, 1 ♀, 26 May, 1981 from *N. fo-dians*, Partizánska Ľupča, Oružná dolina valley, Solisko hill, 30 ♂♂, 63 ♀♀, 10 Aug., 1982, 1 ♀, 12 Aug., 1982, Pusté Pole, Hnilec river spring, 1 ♂, 2 ♀♀, 7 Sept., 1982, Horná Lehota, Chopok hill, Kosodrevina cableway station, 1 ♂, 5 ♀♀, 9 Sept., 1982, Horná Lehota, Tále locality, 2 ♂♂, 18 ♀♀, 1 nymph, 7 Sept., 1982, 1 ♀, 9 Sept., 1982, 2 ♂♂, 3 ♀♀, 23 Sept., 1983, Dolná Lehota, Kotlíská hill, 3 ♂♂, 2 ♀♀, 1 nymph, 11 Sept., 1982, 26 ♂♂, 65 ♀♀, 1 nymph, 19 Apr., 1983, 3 ♂♂, 4 ♀♀, 21 Apr., 1983, Dolná Lehota, Vajskovská dolina valley, 18 ♂♂, 34 ♀♀, 20 Sept., 1983, 6 ♂♂, 24 ♀♀, 1 nymph, 21 Sept., 1983, 1 ♂, 6 ♀♀, 22 Sept., 1983, 7 ♂♂, 16 ♀♀, 23 Sept., 1983, Jarabá, Kunštova dolina valley, 6 ♂♂, 26 ♀♀, 22 Sept., 1983, Dolná Lehota, at foot of the Pálenica hill, 5 ♂♂, 11 ♀♀, 23 Sept., 1983, 17 ♂♂, 20 ♀♀, 3 nymphs, 25 Sept., 1983, 2 ♂♂, 2 ♀♀, 27 Sept., 1983, Liptovská Teplička, Veľký Brunov valley, 2 ♂♂, 3 ♀♀, 1 nymph, 29 May, 1984, 6 ♂♂, 15 ♀♀, 30 May, 1984, Čierny Váh, Ipolčica brook, 5 ♂♂, 9 ♀♀, 7 Oct., 1987, 2 ♂♂, 2 ♀♀, 10 Oct., 1987, Svarín, Svarínska dolina valley (49°00' N, 19°51' E) all from *C. glareolus*, 1 ♀, 31 Aug., 1978 from *A. flavicollis*, Liptovská Osada, Hiadkovské sedlo col, 1 ♂, 2 ♀♀ from *S. araneus*, 2 ♀♀ from *A. flavicollis*, 20 Sept., 1983, Jarabá, Kunštova dolina valley, 1 ♀, 25 Sept., 1983, Liptovská Teplička, Veľký Brunov valley from *S. araneus*; **200** Kozie chrbty Mts - 5 ♂♂, 8 ♀♀, 27 Apr., 1982, 13 ♂♂, 16 ♀♀, 27 May, 1984, Východná, Čierna dolina valley; **220** Žilinská kotlina basin - 1 ♂, 26 Apr., 1984, 2 ♂♂, 9 ♀♀, 27 Apr., 1984, Zlatné, the Váh river alluvium; **251** Liptovská kotlina basin - 1 ♀, 24 Apr., 1982, Hybe, Hybica brook (49°04' N, 19°52' E); **252** Popradská kotlina basin - 6 ♂♂, 7 ♀♀, 26 Sept., 1983, Veľký Slavkov, 2 ♂♂, 5 ♀♀, 3 May, 1988, Spišská Belá, Medvedisko locality, Čierna voda brook (49°11' N, 20°24' E), 2 ♂♂, 10 ♀♀, 1 nymph, 6 May, 1988, Šarpanec, Belianske lúky Nature reserve (49°11' N, 20°28' E) (all leg. A. Dudich, A. Štollmann); **260** Hornádska kotlina basin - 23 ♂♂, 55 ♀♀, 9 nymphs, 12 May, 1966, Spišské Podhradie, Mokryny locality (leg. M. Mrciak), 1 ♂, 5 ♀♀, 12 May, 1981, 4 ♀♀, 13 May, 1981, Hrabušice, Hrabušické rašelinisko peat bog; **270** Horehronské podolie basin - 7 ♂♂, 16 ♀♀, 1 nymph, 7 Dec., 1979, 1 ♂, 8 Dec., 1979, Predajná, Predajníanska slatina Nature reserve (49°48' N, 19°28' E), 1 ♂, 7 ♀♀, 11 May, 1982, 14 ♂♂, 29 ♀♀, 12 May, 1982, Predajná, Veporná valley all from *C. glareolus*, 1 ♀, 7 Dec., 1979, Predajná, Predajníanska slatina Nature reserve from *M. agrestis*; **280** Vtáčnik Mts - 41 ♂♂, 89 ♀♀, 3 nymphs, 11 March, 1980, 7 ♂♂, 12 ♀♀, 12 March, 1980 from *C. glareolus*, 2 ♂♂, 5 ♀♀, 11 March, 1980, 1 ♀, 12 March, 1980 from *S. araneus*, Nová Lehota, Klakovská dolina valley, 14 ♂♂, 29 ♀♀, 11 March, 1982, Ostrý Grúň, Pokútska dolina valley; **290** Pohronský Inovec Mts - 2 ♀♀, 22 March, 1983, Veľká Lehota, Žitava brook; **300** Štiavnické vrchy hills - 1 ♂, 5 ♀♀, 23 March, 1983, Brehy, Obecny potok brook, 2 ♂♂, 11 ♀♀, 3 Nov., 1983, Dobrá Niva, Bystrá dolina valley (49°23' N, 19°01' E); **310** Kremnické vrchy hills - 75 ♂♂, 219 ♀♀, 5 nymphs, 25 May, 1977, 117 ♂♂, 314 ♀♀, 8 nymphs, 26 May, 1977, 106 ♂♂, 255 ♀♀, 3 nymphs, 27 May, 1977, 2 ♂♂, 7 ♀♀, 28 May, 1977, 11 ♂♂, 36 ♀♀, 30 Aug., 1977, 5 ♀♀, 31 Aug., 1977, 24 ♂♂, 54 ♀♀, 9 nymphs, 1 Sept., 1977, 30 ♂♂, 46 ♀♀, 2 Sept., 1977, 1 ♀, 6 Dec., 1977, 1 ♀, 27 Apr., 1978, 2 ♀♀, 28 Apr., 1978, 3 ♂♂, 17 ♀♀, 26 Sept., 1978 all from *C. glareolus*, 3 ♂♂, 4 ♀♀, 25 May, 1977, 7 ♂♂, 15 ♀♀, 26 May, 1977, 3 ♂♂, 9 ♀♀, 27 May, 1977, 1 ♂, 31 Aug., 1977 from *A. flavicollis*, 2 ♂♂, 2 ♀♀, 26 May, 1977, 1 ♀, 27 May, 1978 from *S. minutus*, 4 ♀♀, 27 May, 1977, 1 ♀, 30 Aug., 1978 from *M. subterraneus*, 2 ♂♂, 2 ♀♀, 25 May,

1977 from *S. araneus*, 2 ♀♀, 25 May, 1977 from *N. fo-*
diens, Badin, Badínsky prales primeval forest, 8 ♂♂, 27
 ♀♀, 7 nymphs, 10 July, 1979, 27 ♂♂, 58 ♀♀, 18 Nov.,
 1980, Horný Turček, Mokrú dolina valley, 52 ♂♂, 90
 ♀♀, 1 nymph, 18 Nov., 1980, Horný Turček, Krahulská
 dolina valley, 17 ♂♂, 56 ♀♀, 2 nymphs, 6 May, 1981,
 Horný Turček, at foot of the Kordické sedlo col, 2 ♂♂,
 10 ♀♀, 14 Nov., 1986, Budča, Bienska dolina valley
 (48°36' N, 19°04' E), 1 ♂, 8 ♀♀, 6 Aug., 1987, 1 ♂, 1
 ♀, 24 Sept., 1987, 7 ♂♂, 14 ♀♀, 11 Nov., 1987, 8 ♀♀,
 12 Nov., 1987, 1 ♂, 6 ♀♀, 1 nymph, 13 Nov., 1987, 1
 ♂, 14 ♀♀, 12 Apr., 1988 all from *C. glareolus*, 5 ♂♂,
 6 ♀♀, 10 Apr., 1988 from *A. sylvaticus*, Kováčová, in-
 vestigation plots of Institute of Forest Ecology, Slovak
 Academy of Sciences (48°37' N, 19°06' E), 2 ♂♂, 8
 ♀♀, 4 June, Trnavá Hora, Ladno settlement (48°46' N,
 18°39' E) from *A. flavicollis*; **320** Poľana Mts – 5 ♂♂,
 10 ♀♀ from *C. glareolus*, 1 ♀ from *S. minutus*, 2 ♀♀,
 21 Sept., 1978 from *A. flavicollis*, 1 ♀, 22 Sept., 1978
 from *A. flavicollis*. Očová, Kyslinky settlement,
 Pod Dudášom Nature reserve, 2 ♂♂, 11 ♀♀, 1 nymph,
 11 Apr., 1980, Hriňová, Hukavy valley, Predná Poľana
 hill from *S. minutus*, 37 ♂♂, 85 ♀♀, 1 nymph, 26 May,
 1987, 1 ♂, 7 ♀♀, 27 May, 1987, 46 ♂♂, 64 ♀♀, 2 nymphs,
 28 May, 1987, 15 ♂♂, 29 ♀♀, 1 nymph, 29 May, 1987,
 3 ♂♂, 11 ♀♀, 7 July, 1987, 5 ♂♂, 14 ♀♀, 8 July, 1987,
 2 ♂♂, 9 ♀♀, 9 July, 1987, 3 ♂♂, 4 ♀♀, 15 Oct., 1987,
 7 ♂♂, 40 ♀♀, 17 Oct., 1987, 3 ♂♂, 4 ♀♀, 20 Jan., 1988
 from *C. glareolus*. 2 ♀♀, 26 May, 1987 from *M. sub-*
terraneus, Hriňová. Predná Poľana hill, Zadná Poľana
 National nature reserve; **340** Javorie Mts – 4 ♂♂, 11
 ♀♀, 2 nymphs, 2 Nov., 1983, 8 ♂♂, 28 ♀♀, 3 Nov., 1983,
 Michalková, Burzovo valley, 12 ♂♂, 33 ♀♀, 26 June,
 1986, Zvolen, Veľká Stráž hill; **350** Krupinská plani-
 na plateau – 1 ♀, 10 March, 1977, Beluja, Drienovský
 Mlyn locality; **360** Zvolenská kotlina basin – 10 ♂♂,
 15 ♀♀, 2 nymphs, 15 Oct., 1981, 8 ♂♂, 59 ♀♀, 6 Apr.,
 1982, Šalková, Plavno National nature reserve, 1 ♀, 11
 June, 1982, Badin, the Hron river alluvium, 4 ♂♂, 18
 ♀♀, 22 June, 1982, 1 ♀, 23 June, 1982, Dolná Mičíná,
 Mičinské traventíny National nature monument, 4 ♀♀,
 19 Dec., 1985, Zvolen, Tepličky-Bariny locality all from
C. glareolus, 2 ♂♂, 4 ♀♀, 22 June, 1982, Dolná Mičíná,
 Mičinské traventíny National nature monument, 1 ♂,
 1 ♀, 27 Nov., 1984, Slovenská Ľupča, Driekyňa brook
 (48°44' N, 19°14' E) from *S. araneus*, 1 ♀, 19 Dec.,
 1985, Zvolen, Tepličky-Bariny locality from *A. flavicol-*
lis; **380** Žiarska kotlina basin – 2 ♂♂, 6 ♀♀, 25 March,
 1986, Revištské Podzámčie, alder stand near the Re-
 vištský rybník fishpond, 10 ♂♂, 18 ♀♀, 10 July, 1986,
 Lovča, ruderalized site (48°34' N, 18°49' E) from *C.*
glareolus, 1 ♀, 4 June, 1986, Horné Opatovce from *A.*
flavicollis; **391** Ipelská kotlina basin – 1 ♀, 25 Oct.,
 1983, Kiarov, Kiarovský močiar Nature reserve; **460**
 Biele Karpaty Mts – 8 ♂♂, 59 ♀♀, 3 July, 1985, Nová
 Bošáca, Predpoloma settlement (48°55' N, 17°49' E);
470 Javorníky Mts – 2 ♀♀, 6 Apr., 1983, 4 ♂♂, 6 ♀♀,
 8 Apr., 1983, Horná Mariková, at foot of the Malý Ja-
 vorník hill, 2 ♂♂, 8 ♀♀, 11 May, 1983, 1 ♀, 12 May,
 1983, Petrovice, Križová settlement, 2 ♀♀, 28 June,
 1983, Lazy pod Makytou, 2 ♂♂, 2 ♀♀, 12 Sept., 1983,

2 ♂♂, 9 ♀♀, Ochodnica U Klinka settlement; **490** Po-
 važské podolie basin – 29 ♂♂, 82 ♀♀, 11 May, 1983, 2
 ♂♂, 5 ♀♀, 4 nymphs, Mikšová, the Váh river alluvium
 (49°12' N, 18°30' E), 6 ♂♂, 13 ♀♀, 11 May, 1983, 8
 ♂♂, 25 ♀♀, 12 May, 1983, Predmier, the Váh river al-
 luvium (49°12' N, 18°32' E), 2 ♂♂, 1 ♀, 24 Aug., 1983,
 Považská Bystrica, the Váh river alluvium (49°12' N,
 18°28' E); **530** Kysucké Beskydy Mts – 3 ♀♀, 12 July,
 1977, 2 ♂♂, 6 ♀♀, 2 nymphs, 14 July, 1977, Klubina,
 Klubinská dolina valley, 20 ♂♂, 61 ♀♀, 4 nymphs, 5
 Oct., 1977, Klubina, Kotliny settlement, Ráztoka val-
 ley (49°24' N, 18°58' E) all from *C. glareolus*; **540** Ky-
 sucká vrchovina highlands – 6 ♂♂, 16 ♀♀ from *C. gla-*
reolus, 1 ♂, 3 ♀♀ from *S. araneus*, 8 Nov., 1983, Povina,
 Tatárovcí settlement, Kamienska chalet valley (49°18'
 N, 18°53' E); **550** Oravské Beskydy Mts – 3 ♂♂, 7
 ♀♀, 29 March, 1977, 14 ♂♂, 29 ♀♀, 1 nymph, 17 May,
 1977, from *C. glareolus*, 3 ♂♂, 4 ♀♀, 29 March, 1977
 from *M. agrestis*, 2 ♀♀ from *A. flavicollis*, 1 ♀ from
M. musculus, Vychylovka, Chmúrovia settlement, 2 ♀♀
 from *C. glareolus*, 1 ♀ from *M. tatricus*, 20 May, 1980,
 2 ♂♂, 9 ♀♀, 15 Sept., 1978 from *S. araneus*, Mutné,
 Zlatná dolina valley, Ráztoka brook, Riečka brook, 1 ♂,
 2 ♀♀, 18 Aug., 1978, Mutné, Bystrá dolina valley, Mut-
 nianska Píla Nature reserve; **560** Podbeskydská brázda
 basin – 1 ♀, 18 June, 1980, Beňadovo, Beňadovské
 rašelinisko Nature reserve; **580** Oravská Magura Mts
 – 3 ♂♂, 5 ♀♀, 2 June, 1981, 16 ♂♂, 44 ♀♀, 1 nymph,
 3 June, 1981, Oravská Lesná, Paráč hill, 5 ♂♂, 13 ♀♀,
 19 Oct., 1982, 3 ♀♀, 21 Oct., 1982, Oravská Lesná,
 Brvník brook (49°21' N, 19°10' E), 5 ♂♂, 19 ♀♀, 25
 May, 1983, Lomná, Jasienka gamekeeper's cottage all
 from *C. glareolus*, 5 ♂♂, 8 ♀♀ from *S. alpinus*, 9 ♂♂,
 19 ♀♀ from *C. glareolus*, 25 May, 1983, Hruštín, Ferá-
 čova settlement; **600** Pieniny Mts – 13 ♂♂, 38 ♀♀, 22
 May, 1975, Lesnica, Prielom Dunajca National nature
 reserve (49°25' N, 20°26' E), 5 ♂♂, 6 ♀♀, 28 Apr., 1988,
 1 ♂, 4 ♀♀, 29 Apr., 1988, Červený Kláštor, Huty settle-
 ment (49°23' N, 20°25' E); **630** Oravská kotlina basin
 – 11 ♂♂, 16 ♀♀, Klin, mouth of the Polhoranka brook,
 7 ♂♂, 20 ♀♀, Námestovo, Skalka locality, 1 Apr., 1980,
 10 ♂♂, 41 ♀♀, 3 nymphs, 18 June, 1980, Vavrečka, alder
 stand near the Oravská priehrada barrage (all leg. A.
 Dudich, A. Štollmann); **660** Spišská Magura Mts – 8
 ♂♂, 12 ♀♀, 15 May, 1966, 31 ♂♂, 47 ♀♀, 3 nymphs,
 24. Sept., 1966, 1 ♂, 2 ♀♀, 21 Oct., 1966, Toporec,
 Toporský potok brook (leg. M. Mrciak), **710** Vihor-
 lat Mts – 2 ♂♂, 6 ♀♀, 11 Nov., 1976, Kamienska, Rika
 brook, 1 ♂, 3 ♀♀, 11 Nov., 1976, 2 ♂♂, 4 ♀♀, 12 Nov.,
 1976, 4 ♂♂, 18 ♀♀, 14 Apr., 1977, 43 ♂♂, 97 ♀♀, 7
 nymphs, 17 Apr., 1977, 1 ♀, 22 Sept., 1977, Kamienska,
 Suchý potok brook (48°53' N, 22°02' E), 5 ♂♂, 3 ♀♀,
 14 Nov., 1976, 2 ♂♂, 2 ♀♀, 15 Nov., 1976 all from *C.*
glareolus, 1 ♂, 14 Nov., 1976 from *S. minutus*, 1 ♀, 14
 Apr., 1977 from *A. flavicollis*, Zemplínske Hámre, Pod-
 stavka Nature reserve, 8 ♀♀, 14 Apr., 1977, 6 ♂♂, 23
 ♀♀, 9 June, 1977, 2 ♂♂, 6 ♀♀, 11 June, 1977, 1 ♂, 1 ♀,
 24 Sept., 1977, Jovsa, Jovsiansky potok brook (48°52'
 N, 22°06' E), 3 ♂♂, 5 ♀♀, 14 Apr., 1977, 2 ♀♀, 15 Apr.,
 1977, 1 ♂, 2 ♀♀, 17 Apr., 1977, 2 ♀♀, 28 Sept., 1977,
 Valaškovce settlement, 55 ♂♂, 176 ♀♀, 9 nymphs, 17

Apr., 1977, 16 ♀♀, 19 Apr., 1977, 12 ♂♂, 17 ♀♀, 20 Apr., 1977, 11 ♂♂, 46 ♀♀, 1 nymph, 14 June, 1977, 1 ♂, 13 ♀♀, 28 Sept., 1977, 3 ♀♀, 29 Sept., 1977 all from *C. glareolus*, 2 ♀♀, 17 Apr., 1977, 2 ♂♂, 3 ♀♀, 28 Sept., 1977 from *S. araneus*, 5 ♀♀, 29 Sept., 1977 from *A. flavicollis*, Zemplínske Hámre, Hypkania peat bog, 2 ♂♂, 4 ♀♀, 20 Apr., 1977, Zemplínske Hámre, Kotlík lake (48°56' N, 22°10' E); **720** Bukovské vrchy hills - 1 ♂, 1 ♀, 17 Oct., 1978, 3 ♀♀, 18 Oct., 1978 all from *C. glareolus*, 1 ♀, 18 Oct., 1978 from *S. araneus*, Nová Sedlica, Rika brook, Stučica National nature reserve, 6 ♂♂, 19 ♀♀, 30 July, 1977, Osadné, Udava National nature reserve; **730** Busov Mts - 14 ♂♂, 26 ♀♀, Becherov, Becherovská tisina National nature reserve, 18 ♂♂, 42 ♀♀, Stebnická Huta, Hutisko settlement, Borsučina locality, 13 Sept., 1979 all from *C. glareolus*; **740** Ondavská vrchovina highlands - 2 ♂♂, 1 ♀, 27 Aug., 1980 from *S. araneus*, 2 ♀♀, 28 Aug., 1980 from *C. glareolus*, Bardejovská Nová Ves, Salaš motel (48°18' N, 21°19' E); **750** Laborecká vrchovina highlands - 10 ♂♂, 30 ♀♀, 13 Oct., 1978, 26 ♂♂, 88 ♀♀, 14 Oct., 1978 all from *C. glareolus*, 1 ♀, 15 Oct., 1978 from *A. agrarius*, Palota, Palotské jedliny (all leg. A. Dudich, A. Štollmann); **770** Borská nížina lowland - 1 ♀, 10 Apr., 1987, Kuklov, Lipovec locality (48°38' N, 17°06' E) (leg. J. Lysý), 1 ♀, 21 Jan., 1992, 3 ♀♀, 22 Jan., 1992, 2 ♂♂, 6 ♀♀, 17 March, 1992, 1 ♂, 4 ♀♀, 21 July, 1992, 1 ♂, 8 ♀♀, 22 July 1992, 5 ♂♂, 10 ♀♀, 18 Aug., 1992, 1 ♂, 7 ♀♀, 22 Sept., 1992, 1 ♀, 21 Oct., 1992, Vysoká pri Morave, Mäsiarky locality, 1 ♀, 19 Jan., 1993, 2 ♂♂, 6 ♀♀, 4 nymphs, 20 July, 1993, 1 ♀, 21 Sept., 1993, Gajary, Hamaty locality (leg. J. Krištofik); **790** Podunajská rovina plain - 1 ♂, 3 ♀♀, 1 nymph, 6 Apr., 1987, 7 ♂♂, 8 ♀♀, 1 nymph, 12 May, 1987, 2 ♂♂, 3 ♀♀, 21 June, 1987, 1 ♂, 2 ♀♀, 22 June, 1987, 8 ♂♂, 11 ♀♀, 3 nymphs, 17 July, 1987, 1 ♀, 7 Dec., 1987, 4 ♂♂, 19 ♀♀, 1 nymph, 7 Apr., 1988, 2 ♂♂, 1 ♀, 1 nymph, 6 May, 1988, 9 ♀♀, 5 nymphs, 2 June, 1988, 2 ♂♂, 1 ♀, 7 July, 1988, Gabčíkovo, Malé Vranie locality (all leg. J. Lysý), 1 ♂, 1 ♀, nymph, 14 Jan., 1992, 2 ♀♀, 16 June, 1992, 1 ♀, 14 July, 1992, 1 ♀, 15 July, 1992, Medvedov, Čobánsky chrbát locality, 12 ♂♂, 55 ♀♀, 2 nymphs, 12 Jan., 1993, 19 ♂♂, 38 ♀♀, 7 nymphs, 13 Jan., 1993, 1 ♂, 8 June, 1993, 2 ♀♀, 11 Aug., 1993, Gabčíkovo, Dekan, gamekeeper's cottage (leg. J. Krištofik); **810** Východoslovenská pahorkatina hilly-country - 13 ♂♂, 18 ♀♀, 11 nymphs, 22 Sept., 1977, Kusín, pastures all from *C. glareolus* (leg. A. Dudich, A. Štollmann); **H. longula**. **150** Veľká Fatra Mts - 4 ♂♂, 5 Sept., 1992, 1 ♂, 4 Oct., 1992, Stankovany, Šíp hill, 27 ♂♂, 23 ♀♀, Stankovany, Močiar Nature reserve (49°09' N, 19°09' E) (leg. J. Krištofik); **290** Pohronský Inovec Mts - 5 ♂♂, 5 ♀♀, 22 March, 1983, Veľká Lehota, Žitava brook; **350** Krupinská planina plateau - 3 ♂♂, 10 March, 1977, Beluja, Drieňovský Mlyn locality all from

M. minutus; **620** Čergov Mts - 1 ♂, 1 ♀, 12 May, 1975, Kyjov, Minčol hill from *S. araneus*; **730** Busov Mts - 2 ♂♂, 1 ♀, 13 Sept., 1979, Stebnická Huta, Hutisko settlement, Borsučina locality; **760** Beskydské predhorie Mts - 2 ♂♂, 4 ♀♀, 29 Sept., 1977, Kamenica nad Cirochou, the Cirocha river alluvium (all leg. A. Dudich, A. Štollmann); **770** Borská nížina lowland - 9 ♂♂, 8 ♀♀, 15 Feb., 1978, Lakšárska Nová Ves, Borická locality (leg. P. Štefan), 6 ♂♂, 3 ♀♀, 23 Sept., 1992, 1 ♂, 1 ♀, 21 Oct., 1992, 1 ♂, 4 ♀♀, 18 Nov., 1992, Vysoká pri Morave, Mäsiarky locality, 3 ♂♂, 4 ♀♀, 11 Nov., 1998, 3 ♂♂, 5 ♀♀, 12 Nov., 1998, Suchohrad, Karlov Dvor locality, 5 ♀♀, 4 Sept., 1998, 1 ♂, 17 Aug., 1999, 2 ♀♀, 16 Sept., 1999, Zohor, Piesky locality (all leg. J. Krištofik); **790** Podunajská rovina plain - 3 ♀♀, 29 Sept., 1978, Svätý Jur, Panonský háj wood (leg. S. Kalúz), 1 ♂, 1 ♀, 16 Oct., 1991, 1 ♂, 2 ♀♀, 22 Oct., 1996, Gabčíkovo, Malé Vranie locality, 8 ♂♂, 5 ♀♀, 15 Jan., 1992, 3 ♂♂, 5 ♀♀, 15 Apr., 1992, 1 ♂, 2 ♀♀, 15 Sept., 1992, 6 ♂♂, 7 ♀♀, 16 Sept., 1992, 3 ♂♂, 4 ♀♀, 9 Dec., 1992, 2 ♂♂, 4 ♀♀, 3 nymphs, 24 Sept., 1997, 22 ♂♂, 42 ♀♀, 1 nymph, 21 Jan., 1998, 9 ♂♂, 12 ♀♀, 17 March, 1998, 1 ♀, 18 March, 1988, 1 ♂, 4 ♀♀, 9 Sept., 1998, 2 ♂♂, 1 ♀, 6 Oct., 1998, 3 ♂♂, 6 ♀♀, 15 Sept., 1999, 5 ♂♂, 3 ♀♀, 13 Oct., 1999, 1 ♂, 1 ♀, 9 Nov., 1999, Medvedov, Čobánsky chrbát locality, 1 ♂, 2 ♀♀, 19 Sept., 1995, 2 ♂♂, 4 ♀♀, 20 Sept., 1995, Dolný Štál, fishponds (47°57' N, 17°45' E), 4 ♂♂, 10 ♀♀, 1 nymph, 20 Sept., 1995, 2 ♂♂, 3 ♀♀, 19 Sept., 1996, 3 ♂♂, 2 ♀♀, 20 Sept., 1996, Bodíky, Kráľovská lúka Nature monumet (47°53' N, 17°29' E), 3 ♂♂, 1 ♀, 25 Sept., 1996, 2 ♂♂, 1 ♀, 3 Sept., 1997, Vrbová nad Váhom, Listové jazero Nature reserve (47°53' N, 18°03' E), 6 ♂♂, 3 ♀♀, 20 Sept., 1996, 2 ♂♂, 3 ♀♀, 14 Sept., 1999, 1 ♀, 9 Nov., 1999, Veľký Meder, Šarkan locality (47°53' N, 17°45' E), 1 ♂, 19 Sept., 1996, 1 ♀, 20 Sept., 1996, Jánošíkovo na Ostrove, Dolný diel locality (47°55' N, 17°45' E), 1 ♂, 19 Sept., 1996, 2 ♂♂, 1 ♀, 20 Sept., 1996, 2 ♂♂, 1 ♀, 30 Oct. 1997, 13 ♂♂, 11 ♀♀, 31 Oct., 1997, Ohrady, fishpond (47°59' N, 17°43' E), 12 ♂♂, 13 ♀♀, 24 Sept., 1996, Dobrohošť, floodplain forest (47°59' N, 17°21' E), 1 ♀, 3 Sept., 1997, 4 ♂♂, 6 ♀♀, 4 Sept., 1997, 3 ♂♂, 4 ♀♀, 3 Oct., 1997, Marcelová, Patinský kanál canal (47°48' N, 18°15' E), 3 ♂♂, 4 ♀♀, 3 Oct., 1997, 1 ♂, 1 ♀, 20 Jan., 1998, Veľké Kosihy, Trstiny locality (all leg. J. Krištofik); **810** Východoslovenská pahorkatina hilly-country - 9 ♂♂, 13 ♀♀, 24 Sept., 1977, Kusín, pastures all from *M. minu-*

tus; **S. dyromydis**. **710** Vihorlat Mts - 2 ♂♂, 4 ♀♀, 28 Sept., 1977, Valaškovce settlement from *M. avellanarius* (all leg. A. Dudich, A. Štollmann);

N. sciuri. **090** Malé Karpaty Mts - 3 ♀♀, 19 Sept., 1996, Bratislava, Mlynská dolina valley (48°10' N, 17°05' E) from *S. vulgaris* (leg. J. Krištofik).