

## ***Homalocephala albitarsis* Zetterstedt, 1838 (Diptera: Ulidiidae): a first record for the Czech Republic**

---

Jindřich Roháček

*Homalocephala albitarsis* Zetterstedt, 1838 (Diptera: Ulidiidae): a first record from the Czech Republic. – Čas. Slez. Muz. Opava (A), 61: 181-186, 2012.

**A b s t r a c t :** *Homalocephala albitarsis* Zetterstedt, 1838 (Ulidiidae) is added to the fauna of the Czech Republic based on record from the Frýdlant area in N. Bohemia. It is the second species of the genus *Homalocephala* Zetterstedt, 1837 reported from the Czech Republic. The distribution and biology of *H. albitarsis* are reviewed. The new record is given with illustrated habitat data, and its significance discussed.

**K e y w o r d s :** Diptera, Ulidiidae, *Homalocephala albitarsis*, new record, Czech Republic, biology, distribution

### **Introduction**

The genus *Homalocephala* Zetterstedt, 1838 (Diptera: Ulidiidae) belongs together with *Seioptera* Kirby, 1817 and *Pseudoseioptera* Stackelberg, 1955 to the tribe Seiopterini Kameneva & Korneyev, 1994 and is most closely allied to the latter genus. With seven included species (Krivosheina & Krivosheina 1995, 1997; Kameneva, 2008) it is the most diverse genus of the tribe (see Kameneva & Korneyev 1994). In Europe, six species of *Homalocephala* are known (Andersson 1991; Kameneva 2008; Kameneva & Greve 2011), all having predominantly boreal or boreo-montane distributions. Although five of them have also been found in Central Europe (Kameneva 2008; Kameneva & Greve 2011) records in the area are infrequent and they are mostly very old. Indeed, except for *H. biumbrata* (Wahlberg, 1839) which has recently been recorded from France (Merz & Roháček 2005), N. Italy (Belcari et al. 1995, as *H. albitarsis*), Czech Republic (Merz & 2005; Roháček & Bílek 2012), Slovakia (Roháček & Heřman 2009) and Ukraine (Kameneva 2002, 2008), the other four species, viz. *H. albitarsis* Zetterstedt, 1838, *H. apicalis* (Wahlberg, 1838), *H. bimaculata* (Wahlberg, 1838) and *H. mamaevi* Krivosheina & Krivosheina, 1995 are only known from northern Italy (the 3 former species, see Belcari et al. 1995) and Austria: Lechtaler Alps (the latter species, see Kameneva 2008).

Hitherto, only *H. biumbrata* has been reported from the Czech Republic, based on two North Moravian records (Hrubý Jeseník Mts–Velká kotlina glacial cirque; Moravskoslezské Beskydy Mts–Lysá hora Mt., both by Merz & Roháček 2005) and a single most recent Bohemian record (Hradec Králové–Na Plachtě res., by Roháček & Bílek 2012).

The occurrence of *Homalocephala albitarsis*, which is dealt with below, in Central Europe was based (except for the record from N. Italy by Belcari et al. 1995, as *H. bipunctata*) on very old records: Loew (1854, as *Psairoptera bipunctata* Loew, 1854) found it in „Posen“ (= Poznań) in central Poland, Hennig (1940, as *H. bipunctata*) listed it from Berlin in Germany (date of collection unknown but the record surely is very old, cf. Kameneva 2008) and Kameneva (2008) recorded it from „Tatra“ Mts in southern Poland based on a specimen collected on 1.viii.1869. Therefore the new record presented here is considered an important confirmation of the contemporary occurrence of the species in the area.

The biology of the majority of *Homalocephala* species is poorly known. Adult flies can be found on fallen trunks of both deciduous and coniferous trees, usually sitting or running on

sunlit parts of the wood. The larvae are known to develop in bast under bark of dead trees but also (rarely) in sap runs or in decayed leaves (Zetterstedt 1838; Wahlberg 1839; Steyskal 1965; Allen & Foote 1967; Cogan & Dear 1974; Perry & Stubbs 1978; Lukasheva 1987; Krivosheina & Krivosheina 1995; Rotheray & Robertson 1998; Perry & Rotheray 2010). The immature stages (3rd instar larvae and puparia) of *H. biunbrata* and *H. albitarsis* are described by Rotheray & Robertson (1998).

## Material and methods

All the material examined is deposited in the collection of Silesian Museum (Opava, Czech Republic). Besides the 5 females collected, killed and dry mounted for the museum collection, a few more were observed which were not captured. Label data are presented in full including habitat and other biological information. Habitat, tree trunk and some specimens of *Homalocephala albitarsis* were documented by photography. All images of adult flies were photographed using of digital camera Canon EOS 60D with macro lens (Canon MP-E 65 mm 1–5x) and macro flash (Canon Macro Twin Lite MT-24ex).

## Study area

The locality “Meandry Smědá” (Nature Reserve) lies in the extreme NW of the Frýdlantsko region (near the Czech-Polish state border) in northern Bohemia (Czech Republic). It covers an area of 137 ha and lies in quadrants 4956 and 5056 (according to Central European grid mapping). It comprises a floodplain surrounding the naturally meandering river Smědá (Fig. 3) with a mosaic of grassland, woodland and riparian ecosystems, including pasture, humid or boggy meadows, reed beds, psammophilous vegetation of gravel-sand shore deposits, lowland (oak-hornbeam prevailing) and waterlogged (mostly alder) forests and fragments of beech and scree woods.

### *Homalocephala albitarsis* Zetterstedt, 1838

(Figs 2, 4, 5)

Synonyms (after Kameneva 2008):

*Ortalis costalis* Walker, 1849

*Ortalis diopsides* Walker, 1849

*Psairoptera bipunctata* Loew, 1854

**Material examined:** CZECH REPUBLIC: N Bohemia: Černousy 1 km SW, Meandry Smědé res., 51°00'05"N, 15°02'17"E, 225 m, on rotting tree trunk, 12.vi.2012, 5♀, J. Roháček leg and det., all in coll. Silesian Museum, Opava (mounted on pinned triangular cards).

**Distribution:** A Holarctic species which seems to be widespread in the northern part of the Palaearctic Region. It has been recorded from Great Britain: England, Scotland (Cogan & Dear 1974, Rotheray & Robertson 1998), Norway (Zetterstedt 1838, Greve & Nielsén 2001), Sweden (Zetterstedt 1838, Ringdahl 1931, 1948, 1951 /all as *H. bipunctata*/, Andersson 1991, Kameneva 2008), Finland (Andersson 1991), Russia: European Russia (Leningrad Region (vicinity of St. Petersburg)), Moscow Region, Vologda Region, Kostroma Region, NW Caucasus – Stackelberg 1958 /as *H. bipunctata*/, Lukasheva 1987, Krivosheina & Krivosheina 1995, Kameneva 2008), Asian Russia (Buryatia, Tyumen Region, Amur Region, Primoskiy Kray – Krivosheina & Krivosheina 1995, Kameneva 2008). In North America it has been reported from Canada (Ontario: Hutsons Bay – Kameneva 2008) and USA (Oregon – Steyskal 1965).

In Central Europe *H. albitarsis* appears to be a very rare and local species. Hitherto it has only been known from Germany (Berlin – Hennig 1940, as *H. bipunctata*; Kameneva 2008), Poland (Poznań – Loew 1854, as *Psairoptera bipunctata*; Tatra Mts – Kameneva 2008) and from North Italy (Belcari et al. 1995, as *H. bipunctata*). Precise locality and other details from the latter country are not known because this species (similarly for the three other *Homalocephala* species) are listed in the Italian Diptera checklist on the basis of unpublished collection data provided by the late V. F. Zaitzev; it is assumed, however, that the record originates from the Italian Alps (E. P. Kameneva, pers. comm. 2012). The above record from N. Bohemia (the first for the Czech Republic) is interesting for its relatively low altitude (cca 225 m). However, the old records from Germany (Berlin) and Poland (Poznań) are also from lowland sites, at yet lower altitudes (both under 80 m a.s.l.).

**Biology:** Data concerning the habitat associations of the saproxylic larvae of *H. albitarsis* given in the literature are somewhat controversial. Krivosheina & Krivosheina (1995) stated that the species is linked to coniferous trees: the larvae were found under bark of stumps of spruce (*Picea*) and cedar-pine (*Pinus sibirica*) in



**Figs 1-2:** *Homalocephala albitarsis* Zetterstedt and its habitat. 1 – fallen oak (*Quercus robur*) trunk on gravel bank of Smědá river, where *H. albitarsis* specimens occurred; 2 – female in lateral view (body length 6.2 mm). Photo by J. Roháček.

clearings exposed to the sun. They developed in light-brown moist bast in galleries of bark beetles. There are also other rearing data of this species from conifers: Zetterstedt (1838) described the species from adults reared from decaying bark of *Pinus* sp., Cogan & Dear (1974) from trunks of *Pseudotsuga taxifolia* and Rotheray & Robertson (1998) refer to a larva collected in a stump of *Pinus meneziesii*. On the other hand, Lukashova (1987) found larvae in fallen aspen (*Populus tremula*) trunks often lying in insulated places, in brown to dark brown humid bast. Based on her rearing experiments the last instar larvae overwinter, pupate in spring (May-June) and adults emerge in second half of June and the beginning of July. Rotheray & Robertson (1998) recorded three larvae and a puparium under bark of beech (*Fagus*) stump and reared from them three adults. They suggested that the larva apparently feed on the products from microbially decomposed cambial layers. Moreover, they also examined a teneral (freshly emerged) female that was captured on a dead *Fagus*.

The present finding of a series of females (Figs 2, 4, 5) on old, partly debarked, fallen oak (*Quercus robur*) trunk (see Fig. 1) could indicate the species can also be associated with this tree species, particularly as no conifers were seen in the close vicinity of the site (Fig. 3). This insulated trunk could, however, been selected by the adult females only as a place for mating, but if so, why was no male collected with them? In any case, this new record supports the findings by Lukashova (1987) and Rotheray & Robertson (1998) that the species is not strictly associated with conifers as reported by Krivosheina & Krivosheina (1995).

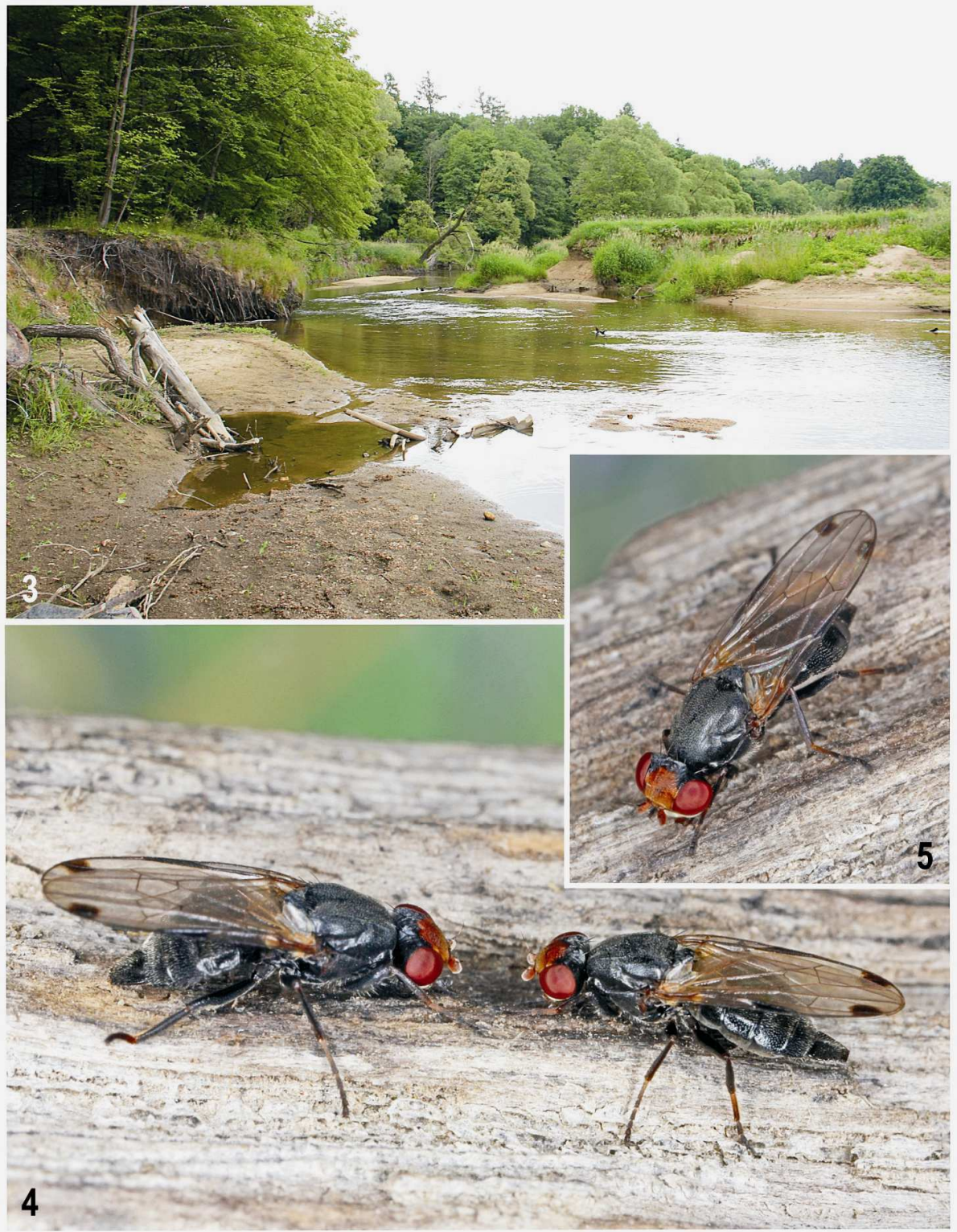
## Discussion

The faunistic importance of the North Bohemian record of *Homalocephala albitarsis* is apparent. After many dozens of years the species is confirmed as a component of Central European dipterous fauna. It can occur not only in boreal and montane coniferous woodland (as demonstrated by the majority of previous records, see Andersson 1991, Krivosheina & Krivosheina 1995 and others referred to above) but also in alluvial lowland forests and can also develop under bark of fallen deciduous trees. Some of the old records above discussed from Poland (Loew 1854) and Germany (Hennig 1940) may also have originated from lowland (possibly floodplain) forests. The present summary of available biological information has clearly shown that this saproxylic species is not specialised as regards the host tree and is able to develop under bark of a variety of both coniferous and deciduous tree species across a wide range of altitudes. The microclimatic conditions and degree of decomposition of bast under bark probably are more important for the development of the species than is tree species. Its rare occurrence in Central Europe can be explained either by secretive habits combined with short flight periods, or records are based on very local, relic populations comprising few individuals.

**A c k n o w l e d g e m e n t s :** It is an agreeable duty to express my thanks to Graham E. Rotheray (Edinburgh, Scotland, U. K.) for his kind improvement of the English of this paper and helpful advice and to Elena P. Kameneva (Kiev, Ukraine) for valuable comments and unpublished information. The study was supported by grant IGS201103 of the Slezské zemské muzeum.

## References

- Allen E. J. & Foote B. A. (1967): Biology and immature stages of three species of Otitidae (Diptera) which have saprophagous larvae. – *Annls Entomol. Soc. Am.*, 60: 826-836.
- Belcari A., Girolami V., Rivosecchi L. & Zaitzev V. F. (1995): Diptera Tephritoidea. In Minelli A., Ruffo S. & La Posta S. (eds): Checklist delle specie della fauna Italiana. Fascicolo 72, Edizioni Calderini, Bologna, 13 pp.
- Andersson H. (1991): Revision of Swedish *Homalocephala* Zetterstedt (Diptera, Otitidae). – *Entomol. Tidskr.*, 112: 27-32.
- Cogan B. H. & Dear J. P. (1974): Additions and corrections to the list of British Acalyptratae Diptera. – *Entomol. Month. Mag.* 110: 173-181.
- Greeve L. & Nielssen T. R. (2001): *Homalocephala albitarsis* Zetterstedt, 1838 (Diptera, Ulidiidae) in Norway. – *Dipterists Digest* 8: 65-66.
- Hennig W. (1940): 45. Ulidiidae. In Lindner E. (ed.): *Die Fliegen der palaearktischen Region*. Vol. 5, Pt. 1, Lfg. 133. E. Schweizerbart'sche Verlagsbuchhandlung, Stuttgart, 34 pp.
- Kameneva E. P. (2002): The first record of the genus *Homalocephala* (Diptera, Ulidiidae) in Ukraine. – *Vestnik Zool.* 36(3): 14.
- (2008): New and little-known Ulidiidae (Diptera, Tephritoidea) from Europe. – *Vestnik Zool.* 42(5): 427–454.



**Figs 3-5:** 3 – Smědá river nr. Černousy (N. Bohemia) at locality of *Homalocephala albitarsis*; 4 – *Homalocephala albitarsis*, two females on debarked oak wood (body length 5.3 and 6.0 mm); 5 – same, a female in dorsal view (body length 6.2 mm). Photo by J. Roháček.

- Kameneva E. P. & Greve-Jensen L. (2011): Ulidiidae. In Pape T. & Beuk P. (eds): Fauna Europaea: Diptera, Brachycera. Fauna Europaea, version 2.4, <http://www.faunaeur.org>.
- Kameneva E. P. & Korneyev V. A. (1994): Holarctic genus *Pseudoseioptera* Stackelberg (Diptera: Ulidiidae (= Otitidae)). Part I. Phylogenetic relationships and taxonomic position. – J. Ukr. Entomol. Soc. 1(2)(1993): 65-72.
- Krivosheina M. G. & Krivosheina N. P. (1995): A revision of the genus *Homalocephala* Zetterstedt, 1838 (Diptera Ulidiidae) of Russia. – Russian Entomol. J., 4: 109-113.
- (1997): A new species of the genus *Homalocephala* Zetterstedt, 1838 (Diptera Ulidiidae) from Russia. – Russian Entomol. J., 6(1–2): 83-84.
- Loew H. (1854): Neue Beiträge zur Kenntniss der Dipteren. Zweiter Beitrag. – Progr. K. Realsch. Meseritz 1854: 1-24.
- Lukasheva N. V. (1987): Ksilofil'nye dvukrylye severo-zapadnogo Kavkaza. [Xylophilous Diptera of the north-west Caucasus]. Zoologicheskij institut AN SSSR, Leningrad, 143 pp. (in Russian).
- Merz B. & Roháček J. (2005): New records of *Homalocephala biumbata* (Wahlberg, 1839) (Diptera, Ulidiidae, Ulidiinae) from Western and Central Europe. – Studia dipterologica 12: 8-9.
- Perry I. & Rotheray G. E. (2010): Chapter 3. Immature stages of flies and some microhabitats. Dead wood and sap runs. Pp. 144-157. In Chandler P. (ed.): A dipterist's handbook (2nd Edition). The Amateur Entomologist Vol. 15, The Amateur Entomologist's Society, Brentwood, Essex, 525 pp.
- Perry I. & Stubbs A. E. (1978): Chapter 3. Some micro-habitats. Dead wood and sap runs. Pp. 65-73. In Stubbs A. & Chandler P. (eds): A dipterist's handbook. The Amateur Entomologist, Vol. 15, The Amateur Entomologist's Society, Hanworth, Middlesex, 255 pp.
- Ringdahl O. (1931): Insektfaunan inom Abisko National park. III: 6 Flugor – Diptera Brachycera [Insect fauna in Abisko National Park. III: 6 Flies – Diptera Brachycera]. – K. Sv. Vet. Akad. Skr. Naturskyd. 18: 1-32 (in Swedish).
- (1948): Fyndorter för sydsvenska Diptera [Findings of southern Swedish Diptera]. – Entomol. Tidskr. 69: 1-4 (in Swedish).
- (1951): Flugor från Lapplands, Jämtlands och Härjedalens fjälltrakter (Diptera Brachycera) [Flies from Lapland, Jämtland and Härjedalen mountains]. – Opusc. Entomol. 16: 113-186.
- Roháček J. & Heřman P. (2009): Ulidiidae. Pp. 195-197. In Roháček J. & Ševčík J. (eds): Diptera of the Pořana Protected Landscape Area – Biosphere Reserve (Central Slovakia). SNC SR, Administration of the PLA – BR Pořana, Zvolen, 340 pp.
- Roháček J. & Bílek P. (2012): First record of *Homalocephala biumbata* (Wahlberg, 1839) from Bohemia (Czech Republic), with notes on adult behaviour (Diptera: Ulidiidae). – Čas. Slez. Muz. Opava (A) 60(2011): 193-198.
- Rotheray G. E. & Robertson D. M. (1998): The biology and early stages of *Homalocephala* (Diptera: Ulidiidae). – Br. J. Ent. Nat. Hist. 10(1997): 139-144.
- Stackelberg A. A. (1958): Materialy po faune dvukrylykh Leningradskoj oblasti. III. Diptera Acalyprata, ch. 1 [List of Diptera of the Leningrad Region, III. Acalyprata, pt. 1]. – Trudy Zoologicheskogo Instituta Akademii Nauk SSSR 24: 103-191 (in Russian).
- Steyskal G. C. (1965): Otitidae. Pp. 642-654. In Stone A., Sabrosky C. W., Wirth W. W., Foote R. H. & Coulson J. R. (eds): A catalog of the Diptera of America north of Mexico. U.S. Department of Agriculture Handbook 276, Washington, 1696 pp.
- Wahlberg P. F. (1839): Bidrag till svenska dipternas kannedom. – Kongl. Vetensk. Acad. Handl., 1838: 1-23.
- Zetterstedt J. W. (1838). Dipterologis Scandinaviae. Sect. 3: Diptera. Insecta Lapponica., L. Voss, Lipsiae [= Leipzig], 477-868 pp.

### ***Homalocephala alb tarsis* Zetterstedt, 1838 (Diptera: Ulidiidae): první nález v České republice**

Dolichnatka *Homalocephala alb tarsis* Zetterstedt, 1838 z čeledi Ulidiidae je dalším novým druhem pro faunu České republiky a to na základě nálezů z Frýdlantska v severních Čechách. Serie několika samic (5 kusů deponováno ve sbírce Slezského zemského muzea) tohoto druhu byla nalezena v rezervaci Meandry Smědé u obce Černousy (kvadrant síťového mapování 4956). Jde teprve o druhý druh rodu *Homalocephala* Zetterstedt, 1837 hlášený z České republiky. Nález je zajímavý i tím, že potvrzuje přetrvávající výskyt tohoto převážně severského druhu ve střední Evropě, protože údaje z Německa (Berlín) a Polska (Poznaň, Tatry) jsou patrně více než 100 let staré. Údajný výskyt druhu v severní Itálii (patrně z Alp) publikovaný v checklistu dvoukřídlých Itálie (Belcari et al. 1995, jako *H. bipunctata*) je založen na nepublikovaném nálezů, jehož okolnosti (lokalita, datum sběru atd.) jsou neznámé. Nový nález je doložen podrobnými údaji, dokumentován fotograficky (včetně biotopu a mikrohabitu) a diskutován jeho význam.

Authors' address: Jindřich Roháček, CSc., Slezské zemské muzeum, Tyršova 1, CZ - 746 46 Opava, Czech Republic; e-mail: rohacek@szmo.cz