

UDC 595.773.2(477)

## NEW DATA ON PACHYGASTERINAE (DIPTERA, STRATIOMYIDAE) FROM UKRAINE

A. Ye. Dubrovsky

Schmalhausen Institute of Zoology,  
vul. B. Khmel'nits'kogo, 15, Kyiv, 01601 Ukraine  
E-mail: doubrique@inbox.ru

Accepted 24 February 2004

**New Data on Pachygasterinae (Diptera, Stratiomyidae) from Ukraine.** Dubrovsky A. Ye. — *Eupachygaster tarsalis* (Zetterstedt, 1842) is recorded from Ukraine for the first time. Two more species, *Berkshiria hungarica* (Kertész, 1921) and *Neopachygaster meromelaena* (Dufour, 1841) were found for the first time in the forest zone. Therefore, six of the nine European species of Pachygasterinae are known from Ukraine. One widespread species is expected to be found. A key to species occurring in Ukraine and bordering countries is provided.

**Key words:** Diptera, Stratiomyidae, Pachygasterinae, Ukraine, new records.

**Новые данные о Pachygasterinae (Diptera, Stratiomyidae) из Украины.** Дубровский А. Е. — Вид *Eupachygaster tarsalis* (Zetterstedt, 1842) впервые зарегистрирован в Украине. Находки видов *Berkshiria hungarica* (Kertész, 1921) и *Neopachygaster meromelaena* (Dufour, 1841) — первые для лесной зоны. Таким образом, из Украины известно шесть видов подсемейства Pachygasterinae из девяти, описанных для Европы. Еще один широко распространенный вид в дальнейшем может быть найден в Украине. Приведена таблица для определения видов, известных из Украины и сопредельных стран.

**Ключевые слова:** Diptera, Stratiomyidae, Pachygasterinae, Украина, новые находки.

### Introduction

Pachygasterinae is a large subfamily of Stratiomyidae, especially abundant in tropical regions of all continents. Nine species are known from Europe (Rozkošný, 1983; Krivosheina, Rozkošný, 1985). The Pachygasterinae fauna of Ukraine is poorly and fragmentarily studied. Only five species were recorded from its territory until now (Nartshuk, Berezovsky, 1992, 1997; Mamaev et al., 1977; Krivosheina, Rozkošný, 1985; Lezhenina, 2002), four of them were recorded based upon few specimens.

The larvae of Pachygasterinae feed upon tree bark. Their biology, morphology as well as the keys for identification are given by Rozkošný (1983) and Mamaev et al. (1977).

In 1997–2003 Dr. Valery Korneyev and the author collected in parks in Kyiv and reared from rotting poplar bark more than thirty specimens of flies, which belong to the subfamily Pachygasterinae. Some species were found to be previously unknown or little known in Ukraine.

### Material and methods

The material was identified with the keys to European soldier flies (Rozkošný, 1983). Distribution is given after Rozkošný (1983) and Woodley (2001). The material examined is deposited in the collection of the I. I. Schmalhausen Institute of Zoology of the NAS of Ukraine.

### Results

Including the recent finds, there are six species of Pachygasterinae known from Ukraine: *Berkshiria hungarica* (Kertész, 1921), *Neopachygaster meromelaena* (Dufour, 1841), *Pachygaster atra* (Panzer, 1798), *P. leachii* (Curtis, 1824), *Zabrachia tenella* (Jaenicke, 1866) and *Eupachygaster tarsalis* (Zetterstedt, 1842). The latter was known only from neighbouring countries (Rozkošný, 1983; Woodley, 2001). Also the species widespread in Western and Central Europe and in European part of Russia, namely *Zabrachia minutissima* (Zetterstedt, 1938) is very probable to be found here.

In view of changes of nomenclature and of that the material on distribution was greatly supplemented since the edition of "The Keys to Insects of the European Part of the USSR" (Nartshuk, 1969), short descriptions, actual data on distribution of the species known from Ukraine are given. Also there is a key for the species of the subfamily inhabiting Ukraine and neighbouring countries.

***Eupachygaster tarsalis* (Zetterstedt, 1842)**

Zetterstedt, 1842: 152; Nartshuk, 1969: 480 (*Pachygaster*); Rozkošný, 1983: 184; Woodley, 2001: 102. — *robustus* Jaennicke, 1866: 219 (*Pachygaster*).

Material examined. ♀, Ukraine, Kyiv, Pushkin Park, 23.07.1997 (S. and V. Korneyev).

**Diagnosis.** Head almost spherical in lateral view, eyes contiguous in males, antennae inserted at middle of head or somewhat lower. Scutellum with a flat marginal rim. Basal half of wings contrastingly blackish, femora mainly black.

Length of both sexes: body 3.0–4.5 mm, wing 2.8–4.3 mm.

**Biology.** A forest species. The larvae apparently prefer deciduous trees, and live under the bark and in decaying wood

**Distribution.** The species is widespread in Europe (Austria, Belgium, Bulgaria, Great Britain, Hungary, Germany, Denmark, Poland, Russia, Slovakia, France, Czech Republic, Sweden, Switzerland). Also is registered in Transcaucasia (Azerbaijan) and Middle Asia (Tadjikistan). First record from Ukraine.

***Berkshiria hungarica* (Kertész, 1921)**

Kertész, 1921: 170; Nartshuk, 1969: 481 (*Pseudowallacea*); Krivosheina, 1979: 209; Rozkošný, 1983: 180; Nartshuk, Berezovsky, 1997: 40; Woodley, 2001: 87. — *Strobiloceromyia barowskii* Pleske, 1922: 337.

Material examined. ♀, Ukraine, Kyiv, park, on poplar log, 11.05.2002; ♀, Kyiv, Lukjanovka (PAG), 22.05.03, (V. Korneyev).

**Diagnosis.** Head transverse, very high in both sexes. Antennae inserted well above middle of head in profile; basal part of flagellum spindle-shaped, longer than in other European Pachygasterinae, with a slender white haired apical arista. Frontal triangle and face are black, with dark brown and black hairs. Eyes are contiguous in males and separated in females.

Length (both sexes): body 3.5–4.0 mm, wing 3.5–3.8 mm.

**Biology.** A forest species. The larvae live under the bark of fallen trees of the genus *Populus* L. Adults through June to July.

**Distribution.** Common in boreal regions of Europe (Finland, Sweden, Northern Russia) and Western Siberia. Also there were finds in Romania (Rozkošný, 1973; Mamaev et al., 1977; Krivosheina, 1979) and in mountain regions of Ukraine (Mamaev et al., 1977; Krivosheina, 1979). First record from the forest zone of Ukraine.

***Neopachygaster meromelaena* (Dufour, 1841)**

Dufour, 1841: 266 (*Pachygaster meromelas*); Rozkošný, 1983: 187; Nartshuk, Berezovsky, 1997: 40; Woodley, 2001: 122 (*Neopachygaster meromelaena*). — *orbitalis* Wahlberg, 1854: 212; Nartshuk, 1969: 480 (*Pachygaster*). — *argentifer* Jaennicke, 1866: 221 (*Pachygaster*).

Material examined. 9 ♂, 12 ♀, Ukraine, Kyiv, Kyrylivs'kiy Yar, ex bark of poplar, 26–30.04.2003 (V. Korneyev).

**Diagnosis** Head profile strikingly high and eyes separated in both sexes; antennae orange, darkened apically. Scutellum simply rounded; wings hyaline; knob of halteres yellow. Femora black, sometimes also tibiae darkened medially. Male epandrium fused with proctiger, cerci with several groups of setae.

Length of both sexes: body 2.5–3.0 mm, wing 2.5–3.2 mm.

**Biology.** The larvae are found under the bark of many deciduous trees and sometimes under the pine-tree bark. We reared specimen of this species from the bark of poplar (*Populus nigra*). Adults are to be found from June to August.

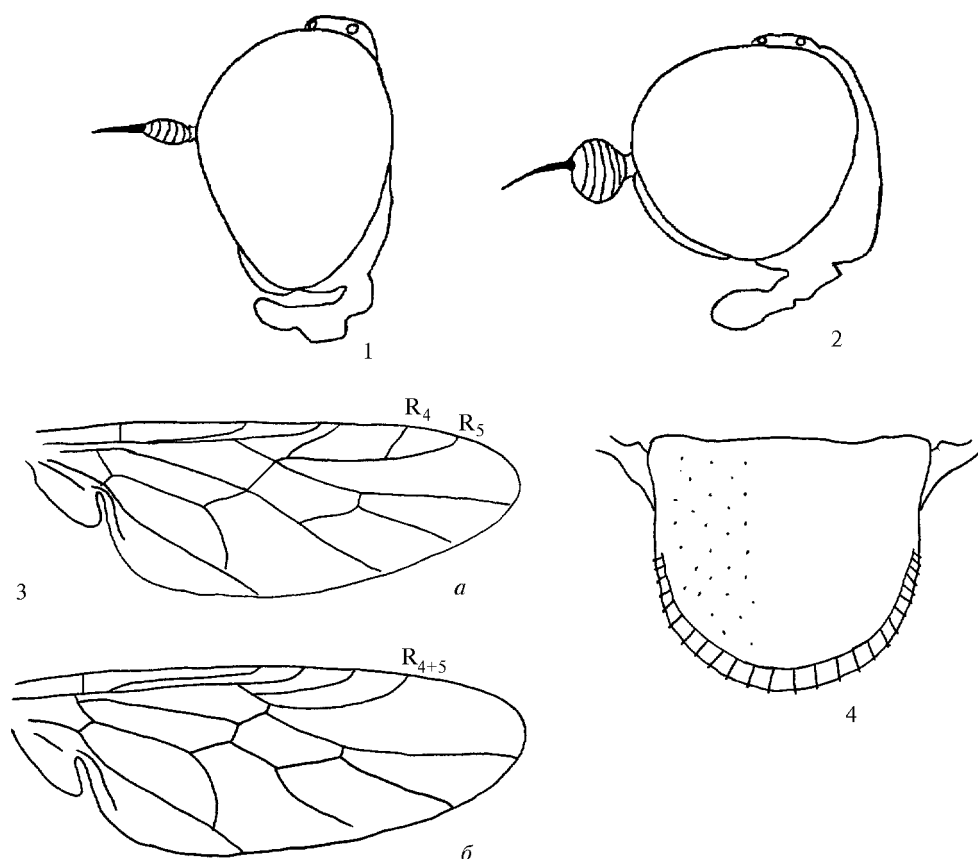


Fig. 1–4. Pachygasterinae. Details of structure: 1 — head of *Berkshiria hungarica*, ♂; 2 — head of *Pachygaster atra*, ♀; 3 — wing: a — *Eupachygaster tarsalis*; b — *Zabrachia minutissima*; 4 — scutellum of *Eupachygaster tarsalis* (1–2 after Rozkošný 1983; 3–4 after Rozkošný 1998).

Рис. 1–4. Pachygasterinae. Детали строения: 1 — голова *Berkshiria hungarica*, ♂; 2 — голова *Pachygaster atra*, ♀; 3 — крыло: a — *Eupachygaster tarsalis*; b — *Zabrachia minutissima*; 4 — щиток *Eupachygaster tarsalis* (1–2 по: Rozkošný 1983; 3–4 по: Rozkošný, 1998).

**Distribution.** Sweden, Finland (south), Great Britain, France (including Corsica), Belgium, Germany, Czech Republic, Byelorussia, north of European Russia, Northern Caucasia.

Until now it was only one finding of this species in Ukraine (Nartshuk, Berezovsky, 1992, 1997). This is the first record from the forest zone of Ukraine.

#### *Pachygaster atra* (Panzer, 1798)

Panzer, 1798: 5 (*Nemotelus ater*). Meigen, 1803: 266; Nartshuk, 1969: 480; Rozkošný, 1983: 191; Woodley, 2001: 125. — *ater* Latreille, 1804: 193 (*Vappo*). — *pachygaster* Fallén, 1817: 13 (*Sargus*).

**Material examined.** Ukraine. ♀, “Kiev, Lysa Hora”, 02.07.2000; ♂, “Kiev, Lysa Hora”, 04.07.2000 (Kameneva, Korneyev); ♂, “Kiev, Lysa Hora”, 28.06.2003; ♀, “Kiev, Novobylchychy”, 22.07.2003 (Dubrovsky).

**Diagnosis.** Antennae black in males and yellow in females. Basal half of wings distinctly blackish, knob of halteres darkened and all femora mainly black. Male cerci simple, with a basal bunch of long setae; synsternum notched posteriorly. Male eyes contiguous for a short distance (6–8 facets) and separated in females.

Length of both sexes: body 2.8–4.2 mm, wing 2.8–3.8 mm.

**Biology.** In forests. Larvae occur under the decaying bark of many deciduous trees and also in the rotting leaves. Adults from May to August.

Distribution. Widespread in Western Palearctic Region, in the Northern Caucasia and Turkey (Rozkošný, 1983) and in Israel (Lindner, Freidberg, 1978).

***Pachygaster leachii* Curtis, 1824**

Curtis, 1824: 42; Nartshuk, 1969: 480 (*Praomyia*); Rozkošný, 1983: 197 (*Praomyia*); Woodley, 2001: 126; Lezhenina, 2002: 155 (*Praomyia*).

Diagnosis. Antennae yellow in both sexes, wings completely hyaline. Legs wholly yellow, at most with a dark ring on hind femora. Male cerci bilobed with a basal bunch of long setae, systemum straight, not notched postero-medially. Male eyes large and bare, contiguous for a distance of 6–8 facets, lower facets distinctly smaller than upper ones. Female eyes separated by a moderately wide frontal band.

Length of both sexes: body 3.0–3.5 mm, wing 2.8–3.5 mm.

Biology. The larvae are very probably widely saprophagous. They have been found in a *Boletus* and in rotten wood taken from the hollow of an old oak. Adults from June to August.

Distribution. Throughout Europe, Azerbaijan. I. P. Lezhenina (2002) recorded it from south-eastern Ukraine.

**A key to *Pachygasterinae* of Ukraine and bordering countries**

**Таблица для определения *Pachygasterinae* Украины и сопредельных стран**

1. Basal part of flagellum disc-shaped or reniform, usually broader than long (fig. 2). ..... 2
- Basal part of flagellum suboval, always longer than broad (fig. 1). ..... *Berkshiria hungarica* (Kertész)
2. Vein R<sub>4</sub> on wings absent, there is only vein R<sub>4+5</sub> (fig. 3, b). ..... 3
- Vein R<sub>4</sub> on wings well-developed (fig. 3, a). ..... 4
3. Postocular area in lower part much narrower than maximum width of antenna; female antenna ochre-yellow. *Zabrachia tenella* (Jaenicke)
- Postocular area in lower part nearly as broad as maximum width of antenna; female antenna black. ....  
..... *Zabrachia minutissima* (Zetterstedt)

I greatly appreciate V. A. Korneyev for the material given at my disposal and critical comments on the early stage of this manuscript, B. Merz, Geneva, for copies of some articles he sent, and my father, Ye. B. Dubrovsky, for his support.

Curtis J. British entomology. Vol. 1. — London : Priv. publ., 1824. — Pl. 39–42. — (Quoted after Woodley, 2001).

Dufour L. Note sur la larve du *Pachygaster meromelas*, insecte de l'ordre des Diptères // Ann. Sci. Natur. Seconde Série — 1841. — 16. — P. 264–266.

Fallén C. F. Stratiomyidae Sveciae. — Lund : Berlingianis, 1817. — F. 1–14.

Jaenicke F. Beiträge zur Kenntniss der europäischen Stratiomyiden, Xylophagiden u. Coenomyiden sowie Nachtrag zu den Tabaniden // Berliner Entom. Zeitschr. — 1866. — 10, N 1–3. — S. 217–237.

Kertész K. Vorarbeiten zu einer Monographie der Notacanthen. 39–44 // Ann. Hist.-Nat. Mus. Nat. Hung. — 1921. — 18. — S. 153–176.

Krivosheina N. P., Rozkošný R. Additional notes on Palearctic *Pachygasterinae* (Diptera, Stratiomyidae) // Acta Entomol. Bohemoslov. — 1985. — 82, N 2. — P. 143–149.

Latreille P. A. Tableau méthodique des Insectes // Nouveau dictionnaire d'histoire naturelle, appliquée aux arts, principalement à l'agriculture et à l'économie rurale et domestique: par un société de naturalistes et d'agriculteurs: avec des figures tirées des trois règnes de la nature. T. 24. — Paris : Crapelet and Deterville, 1804. — 238 p.

Lezhenina I. P. (Леженина И. П.) [On the fauna of flies (Insecta: Diptera) of the southern part of Lugansk Region] (Материалы по фауне двукрылых (Insecta: Diptera) юга Луганской области) // Изв. Харьковск. энтомол. об-ва. — 2002 (2001). — 9, № 1–2. — С. 155–157. — Russian.

Lindner E., Freidberg A. New records of Stratiomyidae (Diptera) from the Near East with a key to the species of Israel, Sinai and the Golan // Israel J. Entomol. — 1978. — 12. — P. 51–64.

Мамаев В. М., Krivosheina N. P., Pototskaya V. A. (Мамаев В. М., Кривошеина Н. П., Потоцкая В. А.) [Keys to larvae of predatory insects, the entomophags of stem pests] (Определитель личинок хищных насекомых—энтомофагов ствольных вредителей). — М. : Наука, 1977. — 392 с. — Russian.

Meigen J. W. Versuch eines neues Gattungs Eintheilung der europäischen zweiflügligen Insekten // Mag. für Insektkunde, herausgegeben von Karl Illiger. — 1803. — 2. — S. 259–281.

- Nartshuk E. P.* (Нарчук Э. П.) [36. Fam. Stratiomyidae — soldier flies] (36. Сем. Stratiomyidae — львинки) // Определитель насекомых европейской части СССР. Т. 5: Двукрылые, блохи. Ч. 1. — Л. : Наука, 1969. — С. 454–481. — Russian.
- Nartshuk E. P., Berezovsky V. V.* (Нарчук Э. П., Березовский В. В.) [On the fauna of soldier flies (Diptera, Stratiomyidae) of Ukraine] (К фауне мух-львинок (Diptera, Stratiomyidae) Украины). — 1992. — 18 с. — Деп. в Верас Эко, 1992, № 157. — Russian.
- Nartshuk E. P., Berezovsky V. V.* (Нарчук Э. П., Березовский В. В.) [Biogeographical analysis of soldier flies (Diptera, Stratiomyidae) of the Ukrainian fauna] (Биогеографический анализ мух-львинок (Diptera, Stratiomyidae) фауны Украины) // Вестн. зоологии. — 1997. — **31**, № 1–2. — С. 38–43. — Russian.
- Panzer G. W. F.* Faunae insectorvm germanicae initia oder Devtschlands Insecten. Heft 54. — Nürnberg : Felsecker, 1798. — 24 S.
- Pleske T.* Revue critique des genres, espèces et sous- espèces paléarctiques des sous-familles des Stratiomyinae et des Pachygasterinae (Diptères) // Ann. Mus. Zool. Acad. Rus. Sci. — 1922. — **23**. — P. 325–338.
- Rozkošný R.* A biosystematic study of the European Stratiomyidae (Diptera). Vol. 2. — Hague ; Boston ; London : Dr. W. Junk, 1983. — 431 p.
- Rozkošný R.* Family Stratiomyidae // Manual of European Diptera. Vol. 2. — Budapest, 1998. — P. 387–411.
- Wahlberg P. F.* Bidrag till kännendomen om de nordiska Diptera // Öfversigt Kongl. Vetenskaps-Akad. Förhand. — 1854. — **11** (7). — S. 211–216.
- Woodley N. E.* A world catalog of the Stratiomyidae (Insecta: Diptera). — Leiden : Backhuys Publishers, 2001. — 474 p.
- Zetterstedt J. W.* Diptera scandinavica disposita et descripta. Tomus primus — Lund : Lundberg, 1842. — 440 f.