

New species of Sepsidae and Scathophagidae (Diptera) from Vietnam

НОВЫЕ ВИДЫ ДВУКРЫЛЫХ СЕМЕЙСТВ Sepsidae и Scathophagidae (Diptera) из Вьетнама

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А.Л. Озеров¹, М.Г. Кривошеина²¹Zoological Museum, Lomonosov Moscow State University, Bol'shaya Nikitskaya 6, Moscow 125009, Russia. E-mail: ozerov2455@rambler.ru²Зоологический музей, Московский государственный университет им. М.В. Ломоносова, Большая Никитская ул., 6, Москва 125009, Россия.³A.N. Severtsov Institute of Ecology and Evolution, Russian Academy of Sciences, 119071 Moscow, Russia. E-mail: dipteramarina@rambler.ru²Институт проблем экологии и эволюции им. А.Н.Северцова РАН, Ленинский проспект, 33, Москва 119071, Россия.KEYWORDS: Diptera, Scathophagidae, Sepsidae, *Cordilura*, *Pseudonemopoda*, new species, Vietnam.КЛЮЧЕВЫЕ СЛОВА: Diptera, Scathophagidae, Sepsidae, *Cordilura*, *Pseudonemopoda*, новый вид, Вьетнам.ABSTRACT. Two new species from Vietnam are described: *Cordilura pulchra* sp.n. (fam. Scathophagidae) and *Pseudonemopoda annamensis* sp.n. (fam. Sepsidae).РЕЗЮМЕ. Описаны 2 новых вида из Вьетнама: *Cordilura pulchra* sp.n. (сем. Scathophagidae) и *Pseudonemopoda annamensis* sp.n. (сем. Sepsidae).

Introduction

First report about Scathophagidae of Vietnam was presented in 2011 [Ozerov & Krivosheina, 2011a]. Three genera and five species from this family were recorded from Vietnam: *Parallelomma merzi* Ozerov, 2009, *Scathophaga stercoraria* (Linnaeus, 1758), and 3 species of *Scatomyza* Fallén, 1810. In the present work we describe a new species from the genus *Cordilura* Fallén, 1810. This genus was previously recorded for Oriental Region from two undescribed species from Taiwan [Vockeroth, 1977], but it is reported from Vietnam for the first time.

Sepsidae of Vietnam are studied intensively at the latest time. As a result 55 species belonging to nine genera has been known till now from this country [Ozerov, Krivosheina, 2011b; Iwasa & Thinh, 2012; Ozerov, 2012]. Below, we describe one more new species from the genus *Pseudonemopoda* Duda, 1926. The genus *Pseudonemopoda* has involved up to now the single species — *P. speiseri* Duda, 1926, which has been recorded in Palaearctic Region only. So the genus *Pseudonemopoda* is registered in Oriental Region as well as in Vietnam for the first time.

Terminology follows McAlpine [1981] and Cumming et al. [2009]. The following abbreviations

are used for depositories of the studied specimens: ZMUM — Zoological Museum, Moscow State University, Moscow, Russia. Other abbreviations used: *a* — anterior; *d* — dorsal; *p* — posterior; *v* — ventral; and combinations of these latter four, all used for leg chaetotaxy.

Descriptions of new species

Family Scathophagidae

Cordilura pulchra sp.n.
Figs 1–5.

MATERIAL. Holotype ♂, VIETNAM: Lai Chau Province, Hoang Lien National Park (22.347948°N, 103.769714°E) 1900 m, 19.IV.2012, A.L. Ozerov (ZMUM). Paratypes: 7 ♂♂, 6 ♀♀, same locality as holotype, 18–19.IV.2012, A.L. Ozerov (ZMUM).

DESCRIPTION. Length of body 7.0–9.6 mm, length of wing 6.5–8.2 mm.

Male (Fig. 1). *Head*. Frons black, sometimes yellow near ocellar triangle, with whitish microtrichia. Ocellar triangle black. Fronto-orbital plate, face, parafacial and gena yellow, with whitish microtrichia. Postcranium black, with black setae and setulae in upper third or half, and yellow, with yellow hairs in lower part. Setae: 2 orbitals, 3–4 frontals, 1 ocellar, 1 inner vertical, 1 outer vertical (approximately 0.3 times as long as inner vertical); postocellar setae divergent; 1 pair of strong vibrissae and 1–2 pairs of short subvibrissae present. Antenna yellow. Postpedicel with roundish apical corner, approximately 2.5 times as long as wide. Arista blackish, plumose. Palpus long, yellow, with long apical seta. Clypeus and proboscis yellow.

Thorax. Scutum black in ground colour, shining in centre and subshining at sides, postpronotal lobe and



Figs 1–5. *Cordilura pulchra* sp.n., ♂: 1 — adult (foto by D. Gavryushin); 2 — sternite 4; 3 — sternite 5; 4 — epandrium, cerci and surstyli, dorsal view; 5 — epandrium, cerci and surstyli, lateral view.

Рис. 1–5. *Cordilura pulchra* sp.n., ♂: 1 — имаго (фото Д. Гаврюшина); 2 — стернит 4; 3 — стернит 5; 4 — эпандрий, церки и сурстили, сверху; 5 — эпандрий, церки и сурстили, сбоку.

postalar area yellowish, often with yellowish stripe in centre. Lateral pleural sclerites yellow, mediotergite black. Scutum with following setae: 1 postpronotal, 1–2 notopleurals (if 2 then posterior small), 1 (as setulae)+2 supra-alars, 2 postalar, and (3–4)+3 dorso-centrals; no developed intra-alars and acrostichals. Proepisternum and proepimeron each with 1 seta. Anepisternum covered with yellow hairs in posterior half and with 3 black setae along posterior margin. Katepisternum with 1 strong seta in posterodorsal corner. Anepimeron bare. Scutellum black, with pair of strong subapical setae.

Legs yellow, only hind tibia sometimes darkened in basal part. Fore femur with rows of long *pv* setulae. Fore tibia with long 2 *pd*, 1 *ad* and 2 *p* at middle, and ring of long apical setae. Mid femur with 1–2 preapical *pd*. Mid tibia with 2 *pd*, 1–2 *p*, 1 *a* or *ad*, and ring of apical setae. Hind femur with 1 preapical *pd*. Hind tibia with 2–3 *ad*, 2–3 *pd*, 1 preapical *d*, and apical *ad* and *av*.

Wing tinged with brownish, blackish in apical quarter; veins brownish. Calypteres, margin of lower calypter, and halteres yellowish; margin of upper calypter blackish.

Abdomen black, shining. Syntergite 1+2 with row of long setae at sides. Tergites 3–6 with row of marginal setae. Sternite 4 black, as in Fig. 2. Sternite 5 with pale yellowish lobes, as in Fig. 3. Epandrium, cerci and surstyli as in Figs 4, 5.

Female. Similar to male. Scutum without yellowish stripe in centre, postpronotal lobe black. Posterior part of anepisternum, anepimeron and katatergite blackish. Hind tibia darkened in basal part, sometimes strongly. Tergites 3–5 without marginal setae; tergite 6 with row of marginal setae.

COMPARISON. New species is closely related to East Palaearctic species *C. nubecula* Sasakawa, 1986 and *C. shatalkini* Ozerov, 1997, but is readily distinguished from either species by the structure of male sternites 4 and 5 (see Figs 2–3, Figs 6–7 and Figs 8–9) and apex of surstylus. Female abdominal tergites 2–5 of new species are bare, but each of *C. nubecula* and *C. shatalkini* with a pair of long dorsolateral setae before posterior margin.

DISTRIBUTION. Vietnam: Lai Chau Province.

Family Sepsidae

Pseudonemopoda annamensis sp.n. Figs 10–13.

MATERIAL. Holotype ♂, VIETNAM: Lai Chau Province, Hoang Lien National Park (22.347948°N, 103.769714°E) 1900 m, 11.IV.2012, A.L. Ozerov (ZMUM). Paratypes: 3 ♂♂, same locality as holotype, 11 and 16.IV.2012, A.L. Ozerov (ZMUM).

DESCRIPTION. Male. Length of body 5.1–5.2 mm, length of wing 3.7–3.8 mm.

Head. Frons dark brown to black, matt. Gena, face, parafacial reddish-brown. Postcranium black. Setae: 1 ocellar, 1 inner vertical and 1 postocellar present; outer vertical and orbital absent. Subvibrissal setae numerous

and short. Scape, pedicel and postpedicel reddish-brown; postpedicel outside darkened. Arista bare.

Thorax black. Scutum, with postpronotal lobes and scutellum, matt. Setae reduced: 2 notopleurals, 1 postalar, 1 supra-alar, 1 dorsocentral, sometimes with a small second one in front. Pleura subshining, katepisternum with a broad band of white pruinosity along upper part. Setae: anepisternal present, proepisternals reduced to a few fine setulae, katepisternal absent; anterior margin of katepisternum bare. Scutellum short, twice as wide as long, with only a strong pair of apical setae.

Legs. Fore coxa and fore trochanter yellow; fore femur yellow inside, dark outside; fore tibia yellow; fore tarsus yellow at base, apical tarsomeres dark; mid and hind legs with coxae mostly and trochanters wholly yellow, femora yellow at base and tip, tibiae weakly yellow at tip, tarsi mostly brown. Fore femur in apical half with rows of 10–15 anteroventral and 9–12 posteroventral spinulose setulae (Fig. 10). Mid coxa in upper half bare, without seta. Mid femur and midtibia without setae. Hind femur with 3–4 anterodorsals around middle, without ventral setae. Hind tibia with no trace of osmeterium; at apical sixth with 3–4 close-set decumbent posteroventral setae, without other setae.

Wing clear. Veins brownish. Wing surface covered with microtrichiae except for basal medial cell and part of posterior cubital cell. Calypteres darkened. Halter yellow with black base.

Abdomen. Subshining black, without metallic reflections, slightly constricted after segment 1+2, broadest at tip of segment 5. Without setae except on sides of tergite 5; syntergite 1+2 bare along sides. Male sternites 4 and 5 as in Fig. 11; the surstylus strongly bifurcated (Figs 12–13).

Female unknown.

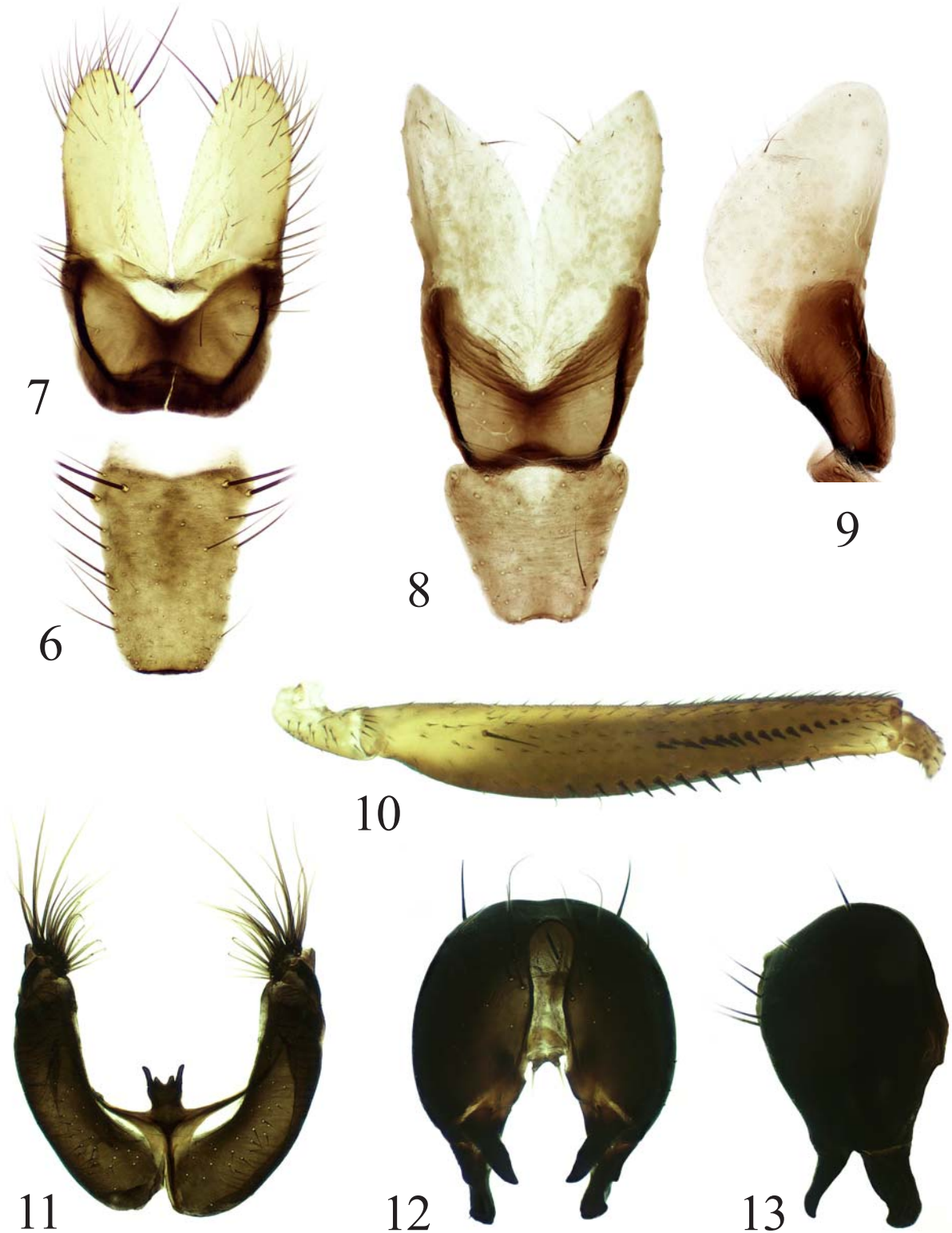
COMPARISON. The new species differs well from the known species — *P. speiseri* (Duda, 1926) — by the shape of surstylus, which is bifurcate at base (Figs 12–13); surstylus of *P. speiseri* has bifurcate process near tip of inner surface (figured by Zuska, 1965: fig. 13; Ozerov, 1999: fig. 347 (2); Ozerov, 2003: fig. 26 (6–7); Pont & Meier, 2002: figs 355, 356).

DISTRIBUTION. Vietnam: Lai Chau Province.

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References

- Cumming J.M., Wood D.M. 2009. Adult morphology and terminology // Brown B.V., Borkent A., Cumming J.M., Wood D.M., Woodley N.E., Zumbado M. (eds.). Manual of Central American Diptera. Vol. 1. National Research Council Press, Ottawa. P.9–50
- Iwasa M., Thinh T.H. 2012. Taxonomic and faunistic studies of the Sepsidae (Diptera) from Vietnam, with descriptions of six new species // Entomological Science. Vol.15. P.99–114.



Figs 6–13. *Cordilura shatalkini* Ozerov (6, 7), *Cordilura nubecula* Sasakawa (8, 9) and *Pseudonemopoda annamensis* sp.n. (10–13), ♂♂: 6 — sternite 4; 7 — sternite 5; 8, 11 — sternites 4 and 5; 9 — sternite 5, lateral view; 10 — left fore femur, anteroventral view; 12 — epandrium, cerci and surstyli, dorsal view; 13 — epandrium, cerci and surstyli, lateral view.

Рис. 6–13. *Cordilura shatalkini* Ozerov (6, 7), *Cordilura nubecula* Sasakawa (8, 9) и *Pseudonemopoda annamensis* sp.n. (10–13), ♂♂: 6 — стернит 4; 7 — стернит 5; 8, 11 — стерниты 4 и 5; 9 — стернит 5, сбоку; 10 — бедро передней левой ноги, антеровентрально; 12 — эпандрий, церки и сурстили, сверху; 13 — эпандрий, церки и сурстили, сбоку.

- McAlpine J.F. 1981. Morphology and terminology-adults // McAlpine J.F., Peterson B.V., Shewell G.E., Teskey H.J., Vockeroth J.R., Wood D.M. (coordinators). Manual of Nearctic Diptera. Vol.1. Research Branch, Agriculture Canada. Monograph 27. Ottawa. P.9–63.
- Ozerov A.L. 1999. [88. Fam. Sepsidae] // Lehr A.P. (ed.). Opre-delitel' nasekomykh Dal'nego Vostoka Rossii. Vol.6. Diptera and Siphonaptera. Pt. 1. Dal'nauka. Vladivostok. P.556–570 [in Russian].
- Ozerov A.L. 2003. [The Sepsidae (Diptera) of Russia] // Sbornik trudov Zoologicheskogo Muzeya MGU. Vol.45. 182 pp [in Russian].
- Ozerov A.L. 2012. A new genus and three new species of the family Sepsidae (Diptera) from China and Vietnam // Russian Entomological Journal. Vol.21. No.1. P.113–116.
- Ozerov A.L., Krivosheina M.G. 2011a. To the knowledge of dung flies (Diptera, Scathophagidae) of Vietnam, with the description of a new species // Far Eastern Entomologist. No.228. P.1–10.
- Ozerov A.L., Krivosheina M.G. 2011b. Two new species of Sepsidae (Diptera) from Vietnam // Russian Entomological Journal. Vol.20. No.2. P.211–214.
- Pont A.C., Meier R. 2002. The Sepsidae (Diptera) of Europe // Fauna Entomologica Scandinavica. Vol.37. P.1–221 pp.
- Vockeroth J. R. 1977. Family Scathophagidae. P.436–438. In Delfinado M. D., Hardy D. E. (eds.). A Catalog of the Diptera of the Oriental Region. Vol.3, Suborder Cyclorrhapha (excluding Division Aschiza). The University Press of Hawaii. Honolulu. 854 pp.
- Zuska J. 1965. Notes on the Palaearctic species of the genus *Nemopoda* Robineau-Desvoidy (Diptera, Sepsidae) // Acta entomologica bohemoslovaca. Vol.62. No.4. P.308–313.