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# New data on the genus *Hybos* (Diptera: Hybotidae) from the Russian Far East, with description of a new species

# Новые сведения по роду *Hybos* (Diptera: Hybotidae) Дальнего Востока России, с описанием нового вида

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KEYWORDS: Diptera, Hybotidae, *Hybos*, Palaearctic, Russia, new species, key.
КЛЮЧЕВЫЕ СЛОВА: Diptera, Hybotidae, *Hybos*, Палеарктика, Россия, новый вид, ключ.

ABSTRACT. *Hybos zlobini* **sp.n.** is described from the south of the Russian Far East (Primorskiy Territory). Additionally, *H. caesariatus* Yang et Yang and *H. emeishanus* Yang et Yang are recorded for the first time from the territory of Russia (Kuril Islands). A key to four *Hybos* species known currently from the Russian Far East is provided.

РЕЗЮМЕ. *Hybos zlobini* **sp.n.** описан с Дальнего Востока России (Приморский край). Кроме того, *H. caesariatus* Yang et Yang и *H. emeishanus* Yang et Yang впервые указываются с территории России (Курильские о-ва). Дан ключ для определения четырех видов *Hybos*, известных в настоящее время с Дальнего Востока России.

## Introduction

Species of the genus *Hybos* Meigen, 1803 are quite large to middle-sized, usually blackish, shining or subshining flies with strongly bristled legs and strong, forward directed proboscis. They can be distinguished from representatives of related genera by some features of the wing venation including the following characters: anal cell longer than basal cell, Rs rather short, $R_{4+5}$ and $M_1$ divergent apically and basal cells separated by distinct vein $M_{1+2}$ [Chvála, 1983]. The genus has a worldwide distribution and currently it includes about 200 species, the majority of which (about 165 species) are known from the Oriental region, especially from the territory of China [Yang & Yang, 2004; Yang et al., 2007; Plant, 2013]. Only 13 species have been recorded from the Palaearctic. Almost nothing is known about species of *Hybos* from the Russian Far East. The only record published is *Hybos grossipes* (Linné, 1767) noted by Frey [1935] from Kamchatka. In this paper we report 2 already known and 1 new species of *Hybos* collected from Kuril Islands and south of Primorskiy Territory.

## Material and methods

This study is based on material deposited in Zoological Institute of Russian Academy of Sciences, St. Petersburg, Russia (ZISP). Terms used for adult structures primarily follow those of Cumming and Wood [2009], except for the antenna where the terms of Stuckenberg [1999] are used. Label data for primary type are cited from the top downward, with the data from each label in quotation marks. Labels are cited in full, with original spelling, punctuation, and date. The repository of the type is given in parentheses. Secondary type data are abridged and listed alphabetically.

## Taxonomy

KEY TO THE SPECIES OF *HYBOS* FROM THE RUSSIAN FAR EAST

1. Scutum dull, densely pollinose; acrostichal setae very long, hair-like, biserial. Legs almost entirely clothed in very long, pale, hair-like setae. Male: hypandrium with three long, digitiform projections ..... *Hybos caesariatus* Yang et Yang
— Scutum subshining, very faintly pollinose; acrostichal setae minute, multiserial. Different combination of characters ..... 2
2. Mesonotum with stronger setae brownish yellow to pale. Legs with fore and mid tarsomeres 1–2 yellowish ..... *Hybos emeishanus* Yang et Yang
— Mesonotum with stronger setae black. Legs entirely black ..... 3
3. Fore tibiae and tarsi with short setae; hind basitarsus only with ordinary setulae ventrally ..... *Hybos zlobini* **sp.n.**

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— Fore tibiae and tarsi with very long, black, hair-like setae; hind basitarsus with black spines ventrally ..... ..... *Hybos grossipes* (Linné)

## *Hybos caesariatus* Yang et Yang, 2004
Figs 1–3

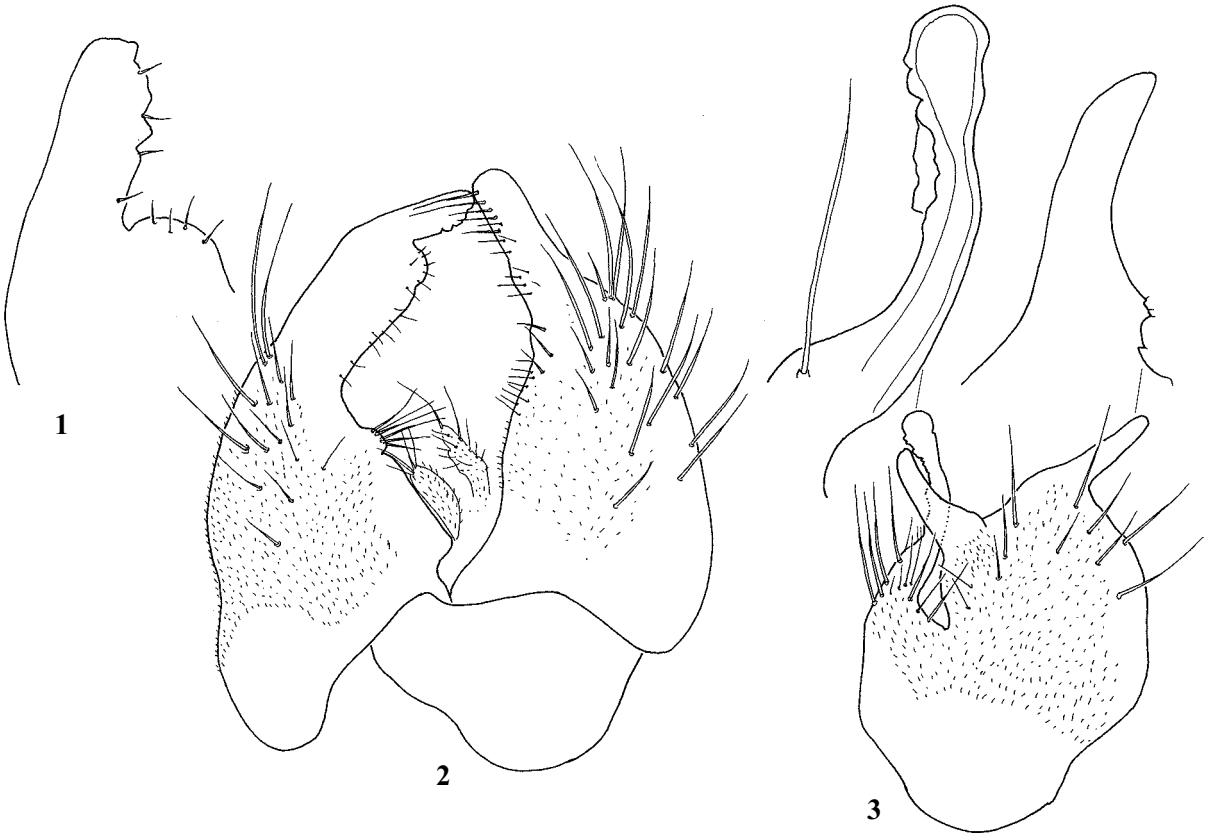
*caesariatus* Yang et Yang, 2004: 141 (in Chinese) and 304 (in English), figs 196–201. Type locality: (China) Zhejiang, Longwangshan Mountain.

MATERIAL EXAMINED. Russia, Sakhalin Province, Kuril Islands: 10 ♂♂, 4 ♀♀, env. Lagunnoe Lake, Kunashir Island, 18.vi.1968, Nartchuk; 2 ♂♂, 1 ♀, Tret'yakovo, Kunashir Island, 12.vi.1968, Nartchuk; 1 ♀, Malo-Kuril'skoe, Shikotan Island, 24.vi.1968, Nartchuk; 2 ♀♀, Mendeleevo, Kunashir Island, 30.vii.1971, Nartchuk; 1 ♂, Tserkovnaya Bay, Shikotan Island, 16.viii.1973, Kasparyan; 1 ♂, env. Lagunnoe Lake, Kunashir Island, 13–15.vii.1954, Violovich; 3 ♂♂, 8 ♀♀, South Kuriles, Iturup, Rybaki, 5 km SW of Kuril'sk, 23.vi.1968, V. Richter (ZISP).

DIAGNOSIS. Medium-sized species (body 5–5.2, wing 6–6.2 mm). *Head*: occiput densely greyish pollinose, bearing several long, thin, black postoculars on upper part, otherwise with yellowish to pale hair-like setae; 2 moderately long, thin, black ocellars; face silvery white; antenna black, postpedicel bare; palpus black. *Thorax*: proepisternum with 1 long, pale upturned seta; mesonotum densely pollinose, scutum (dorsal view) greyish, with some brownish tinge along middle; all mesonotal setae black, long, thin (except stronger notopleurals and postalars), acrostichals biserial, dorsocentrals uniserial. *Legs* almost uniformly black, only basal tarsomeres of hind pair usually somewhat paler, hind femur shining, distinctly thickened, hind tibia somewhat thickened and curved, fore and mid legs slender, with femora greyish pollinose; coxae and trochanters with numerous pale hairs, only hind trochanter with black subapical spinules ventrally; all femora, tibiae and basitarsi covered with very long, erect, pale, hair-like setae (some darkened to black setae usually present in subapical circlets), mid and hind femora with strong, black subapical seta anteriorly, mid tibia with 2–3 anterodorsal, long, stronger, black setae (sometimes partly pale) and subapical circlet of about 4 long setae (anteroventral and posteroventral setae usually black and stronger), hind basitarsus with short, black, ventral spines; wing faintly infuscate, stigma pale brownish, calypter yellow, with pale setae, halter yellow. *Abdomen* faintly greyish pollinose, covered with dense long, pale setae; male terminalia (Figs 1–3) moderately large, subglobular, faintly greyish pollinose, with pale setae, right epandrial lamella with short, digitiform, apical projection (Fig. 1), left epandrial lamella subtriangular, hypandrium with three long, digitiform projections (Fig. 3); female similar to male but with abdomen blunt-ended, cerci usually hidden by tergite 8, small, brownish.

REMARKS. *Hybos caesariatus* Yang et Yang, 2004 was described from Longwangshan Mountain in Zhejiang Province of China [Yang & Yang, 2004]. We record this species from the Russian Far East (Kuril Islands) for the first time.

DISTRIBUTION. Oriental: China (Zhejiang). Palaearctic: Russia (Kuril Islands).




Figs 1–3. *Hybos caesariatus* Yang et Yang, male terminalia: 1 — apical part of right epandrial lamella, lateral view; 2 — epandrium and cerci, dorsal view; 3 — hypandrium, ventral view.

Рис. 1–3. *Hybos caesariatus* Yang et Yang, гениталии самца: 1 — вершинная часть правой лопасти эпандрия, сбоку; 2 — эпандрий и церки, сверху; 3 — гипандрий, снизу.

### *Hybos emeishanus* Yang et Yang, 1989
Figs 4–6.

*emeishanus* Yang et Yang, 1989: 157, fig. 3. Type locality: (China) Sichuan, Emeishan Mountain.

MATERIAL EXAMINED. Russia, Sakhalin Province, Kuril Islands: 1 ♂, Tret'yakovo, Kunashir Island, 8.viii.1971, Nartchuk (ZISP).

DIAGNOSIS. Small species (body 3.5, wing 3.7 mm). *Head*: occiput densely greyish pollinose, bearing several moderately long, thin, black postocular setae and some pale hair-like setae behind mouth-opening; 2 moderately long, thin, black ocellars; eye with upper ommatidia distinctly enlarged; face silvery grey; antenna black, postpedicel bare; palpus black. *Thorax*: proepisternum with 1 long, dark upturned seta; mesonotum with brownish yellow postalar ridge, scutum (dorsal view) subshining, uniformly faintly pollinose; mesonotum with brownish yellow to pale (scutellars) larger setae, acrostichals very short, arranged in 4 irregular rows, dorsocentrals uniserial, scutellum with 2 long apical and several short lateral setae. *Legs*: coxae, trochanters and femora blackish brown, fore and mid tibiae yellowish brown, hind tibia brownish, fore and mid tarsomeres 1–2 yellowish, remaining tarsomeres of these legs and entire hind tarsus yellowish brown; fore and mid legs slender, hind femur distinctly thickened, hind tibia somewhat thickened and curved; coxae and trochanters with pale setae; only hind femur with strong black subapical seta anteriorly; fore femur with pale thin anteroventral and posteroventral setae becoming longer toward base, otherwise with ordinary setulae; fore tibia (except posterior face) and fore tarsomeres 1–2 covered with long, thin, yellowish to pale setae; mid tibia with 1 strong, long, dorsal seta on about basal third, clothed in long thin pale setae; hind femur and tibia clothed in long thin pale setae; hind basitarsus with short, black, ventral spines; wing faintly infuscate; stigma indistinct, pale brownish, calypter yellow, with pale setae, halter yellow. *Abdomen*: shining, tergites only with subtriangular patch of pollinosity dorsally, with pale setae longer on posterior margin; male terminalia small, as in Figs 4–6.

REMARKS. *Hybos emeishanus* Yang et Yang, 1989 was described from Emeishan Mountain in Sichuan Province of China [Yang & Yang, 1989]. We record this species from the Russian Far East (Kuril Islands) for the first time.

DISTRIBUTION. Oriental: China (Sichuan). Palaearctic: Russia (Kuril Islands).

### *Hybos zlobini* Shamshev, Grootaert et Ding Yang, **sp.n.**
Figs 7–8.

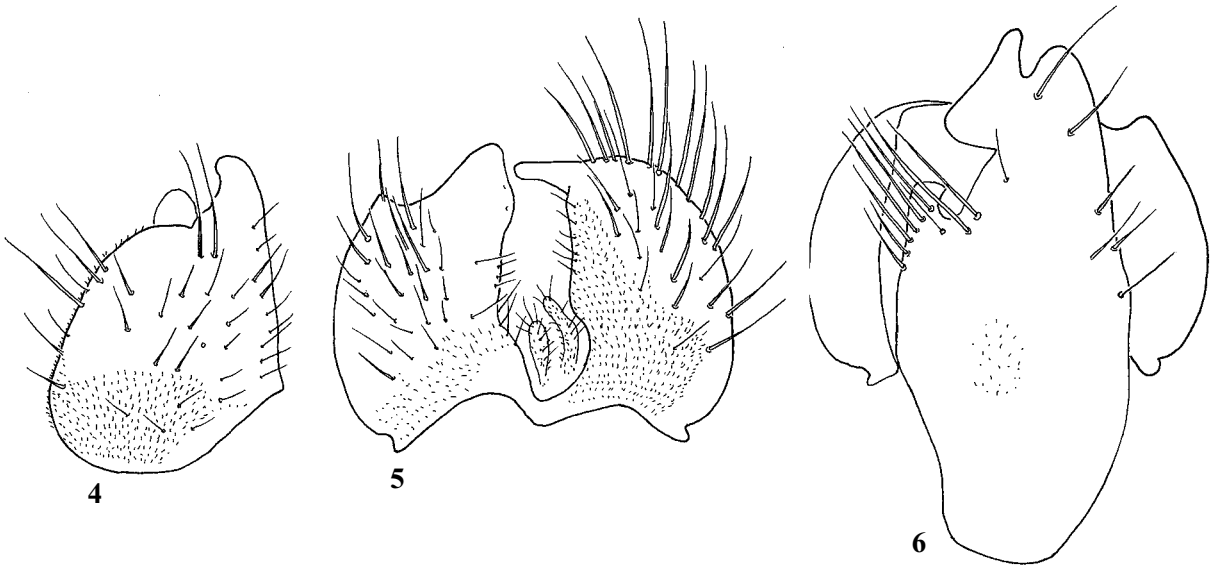
MATERIAL. Holotype ♂, RUSSIA: Primorskiy Kray, Anisimovka, 20.viii.2004, Zlobin (ZISP).

Paratypes: 1 male, Primorskiy Kray, Anisimovka, 18.vii.2004, Zlobin. 1 male, same locality, 20.viii.2004 (ZISP, CAU).

DESCRIPTION. Length of body 3.1–3.2 mm. Length of wing 3.4 mm. Male. *Head* black; occiput faintly greyish pollinose, with scattered black to brownish thin setae, upper postoculars moderately long. One pair of thin, moderately long ocellars. Eyes holoptic, with upper ommatidia enlarged. Face light grey. Antenna black; postpedicel bare; stylus long. Proboscis with labrum black; palpus black, with scattered black setulae.

*Thorax* black; scutum viewed dorsally almost shining, very faintly uniformly brownish pollinose; pleuron somewhat denser brownish grey pollinose. Antepronotum with 3–4 setulae on each side. Postpronotal lobe with several setulae. Proepisternum with 1 moderately long, pale upturned seta. Mesonotum with stronger setae black; 2 notopleurals (posterior longer and stronger), 1 short postalar, 2 very long, lateroclinate scutellars (with 6 additional setulae); some setulae present behind postpronotal lobe and on supra-alar face; acrostichals very short, arranged in 4 irregular rows, lacking on prescutellar depression; dorsocentrals uniserial, somewhat longer than acrostichals, 1 prescutellar pair long (nearly as long as posterior notopleurals).

*Legs* almost uniformly black, only tarsi slightly paler, faintly greyish pollinose (denser on coxae). Coxae and trochanters with pale setae of different lengths. Fore and mid femora slender, with short, thin anteroventral and posteroventral setae, additionally, mid femur with several somewhat




Figs 4–6. *Hybos emeishanus* Yang et Yang, male terminalia: 4 — right epandrial lamella, lateral view; 5 — epandrium and cerci, dorsal view; 6 — hypandrium, ventral view.

Рис. 4–6. *Hybos emeishanus* Yang et Yang, гениталии самца: 4 — правая лопасть эпандрия, сбоку; 5 — эпандрий и церки, сверху; 6 — гипандрий, снизу.

stronger pale setae anteriorly on about basal third. Fore tibia clothed in short setae (scarcely longer than tibia is wide), with 1 somewhat longer, thin, dorsal seta on about middle; subapical circlet with 1 long black anteroventral and 1 posteroventral setae. Fore tarsomeres 1–2 with longer anteroventral and posteroventral setulae (about 2 times as long as corresponding tarsomere is wide), pubescent ventrally. Mid tibia with 3 moderately long anterodorsal setae (except circlet of subapicals). Mid tarsus clothed in short setulae. Hind femur thickened, elongate; with longer scattered anteroventral and shorter numerous posteroventral black spines, bearing 1 long subapical seta anteriorly, clothed in rather short pale setae longer on posteroventral face (at most scarcely longer than femur width). Hind tibia covered with short setae. Hind tarsus covered with short setae, basitarsus without ventral spines.

*Wing* faintly infuscate, stigma brownish, no costal bristle, veins $R_{4+5}$ and $M_{1+2}$ slightly divergent near wing margin, discal cell elongate. Calypter yellow, with pale setae. Halter yellow.

*Abdomen* black, brownish pollinose, rather subshining, covered with pale setae. Terminalia (Figs 7–8) small, black, subglobular; epandrial lamellae (Fig. 7) subtriangular, rounded apically, hypandrium (Fig. 8) with deep, asymmetrical concavity apically, bearing several long setae.

Female. Similar to male; cercus short, brown.

ETYMOLOGY. The new species is dedicated to the memory of the Russian dipterist Vladimir Zlobin (St. Petersburg) who collected the type material.

COMPARISON. The new species resembles smaller-sized specimens of *H. grossipes*. However, it can be distinguished from the latter by shorter setae on tibiae and tarsi of anterior two pairs of legs, ordinary ventral setae on hind metatarsus (vs. short, black spines), more slender hind femur and details of male terminalia.

DISTRIBUTION. Palaearctic: Russia (Primorskiy Kray).

## References

Chvála M. 1983. The Empidoidea (Diptera) of Fennoscandia and Denmark. II. General Part. The families Hybotidae, Atelestidae and Microphoridae // Fauna Entomologica Scandinavica. Vol.12. P.1–279.

Cumming J.M., Wood D.M. 2009. Adult morphology and terminology // B.V. Brown, A. Borkent, J.M. Cumming, D.M. Wood & M. Zumbado (eds.). Manual of Central American Diptera. Vol.1. NRC Research Press, Ottawa. P.9–50.

Frey R. 1935. Entomologische Ergebnisse der schwedischen Kamtschatka-Expedition 1920–1922. 36. Diptera Brachycera. 5. Empididae, Micropezidae, Lauxaniidae, Chloropidae // Arkiv för Zoologi. Bd.28A. No.10. S.1–8.

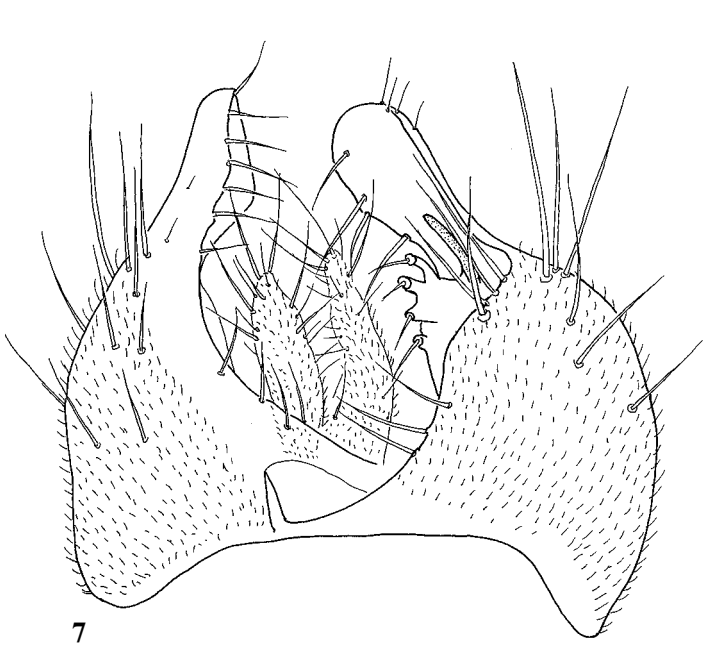
Plant A. 2013. The genus *Hybos* Meigen (Diptera: Empidoidea: Hybotidae) in Thailand // Zootaxa [in press].

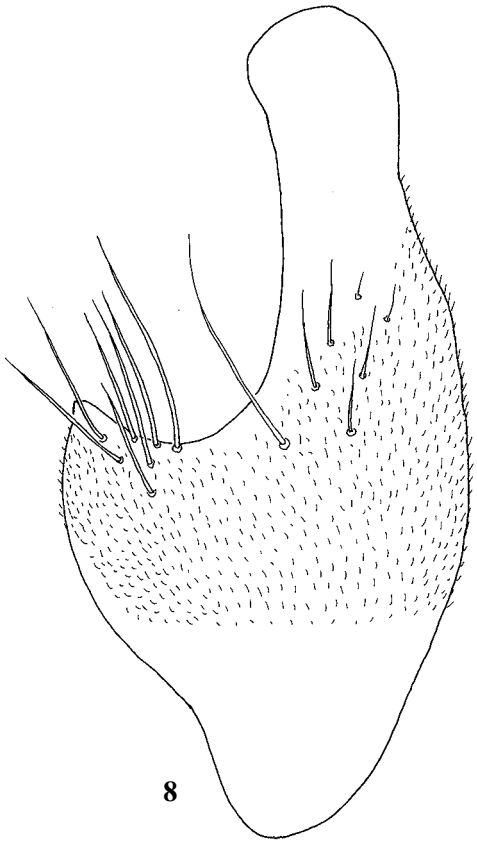
Stuckenberg B.R. 1999. Antennal evolution in the Brachycera (Diptera), with a reassessment of terminology relating to the flagellum // Studia dipterologica. Bd.6. S.33–48.

Yang C., Yang D. 1989. Four new species of the genus *Hybos* from Sichuan (Diptera: Empididae) // Journal of Southwest Agricultural University. Vol.11. No.2. P.155–158.

Yang D., Yang C.K. 2004. Diptera, Empididae, Hemerodromiinae Hybotinae // Fauna Sinica Insecta. Vol.34. Beijing: Science Press. 329 pp.

Yang D., Zhang K.Y., Yao G., Zhang J.H. 2007. World catalog of Empididae (Insecta: Diptera). Beijing: China Agricultural University Press. 599 pp.




Figs 7–8. *Hybos zlobini* **sp.n.**, male terminalia: 7 — epandrium and cerci, dorsal view; 8 — hypandrium, ventral view.
Figs 7–8. *Hybos zlobini* **sp.n.**, гениталии самца: 7 — эпандрий и церки, сверху; 8 — гипандрий, снизу.