SHORT COMMUNICATIONS
КРАТКИЕ СООБЩЕНИЯ

A NEW *ORNITHOCTONA* (DIPTERA: HIPPOBOSCIDAE) SPECIES FROM BAIKAL STATE NATURE RESERVE (RUSSIA)

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Louse flies from the family Hippoboscidae parasitise birds and mammals. Both males and females feed on the blood and carry many dangerous diseases. Representatives of the genus *Ornithoctona* are full-winged, widely specialised parasites of birds. Before this study it was considered, that the genus *Ornithoctona* includes 12 species. Among them, only two species were recorded in the Palaearctic (from Kazakhstan, Russian Far East, and Kuril Islands). Other ones inhabit Africa, tropical Asia, the Pacific Islands, and the New World. During the annual bird ringing in the Baikal State Nature Reserve (Russia), a new species of the genus *Ornithoctona* (Diptera: Hippoboscidae) (*Ornithoctona zootherae* sp. nov.) was collected and described. *Ornithoctona zootherae* sp. nov. was found on *Zoothera dauma*, a common species, that breeds in Eastern Siberia and winters in China. *Ornithoctona zootherae* sp. nov. differs from all known Palearctic and Asian *Ornithoctona* species in larger body size (length of the head + thorax is 5.5–6.0 mm). Additionally, the new species differs from *O. plicata* in the wing-setulae, while *O. plicata* has no wing-setulae. It differs from *O. soror* and *O. australaisiae* in the ventral and dorsal view of the abdominal apices. A single key for all World species of the genus *Ornithoctona* is composed.

Key words: louse flies, parasite, Palearctic, two-winged flies, *Zoothera dauma*

Introduction

The world fauna of the family Hippoboscidae, Samouelle, 1819 includes more than 210 species (Dick, 2018; Oboňa et al., 2019). They are divided into three subfamilies, namely Ornithomyinae, Hippoboscinae and Lipopteninae (Maa, 1969a; Maa & Peterson, 1987; Dick, 2018; Silva et al., 2021), which are distributed around the world.

Both males and females parasitise on birds and mammals (Levesque-Beaudin & Sinclair, 2021). They feed on the blood and find their sexual partners on hosts. Females lay prepupae (Bequaert, 1954), which immediately form overwinter puparia (Hutson, 1984). The Hippoboscidae representatives are carriers of many dangerous diseases (Bequaert, 1954; Doszhanov, 1980) both in mammals (Doszhanov, 1980), and birds (Kucera, 1983; Gancz et al., 2002; Farajollahi et al., 2005; Khametova et al., 2018).

Louse flies of the genus *Ornithoctona* Speiser, 1902 are full-winged, widely specialised parasites of birds. The genus *Ornithoctona* distinguishes from the other genera of the subfamily Ornithomyinae by the large antennae, developed ocellus, microtrichia on the wing membrane and bifid tarsal claws (Doszhanov, 1980, 2003; Hutson, 1984). Before this study it was considered, that the genus *Ornithoctona* includes 12 species (Ibáñez-Bernal et al., 2015), namely *O. australaisiae* (Fabricius, 1805), *O. erythrocephala* (Leach, 1817), *O. fusciventris* Wiedemann, 1830, *O. hulahula* Maa, 1969, *O. idonea* Falcoz, 1929, *O. laticornis* (Macquart, 1935), *O. nitens* Bigot, 1885, *O. orizabae* Bequaert, 1954, *O. oxycera* Falcoz, 1929, *O. plicata* von Olfers, 1816, *O. rugicornis* Maa, 1963, and *O. soror* Ferris, 1926 (Dick, 2018). Among them, only two species were recorded from the Palaearctic, namely *O. australaisiae* from Kazakhstan and Russian Far East (Doszhanov, 1980, 2003; Nartshuk et al., 2018) and *O. plicata* from the Kuril Islands (Nartshuk et al., 2018). Other species inhabit Africa (Hutson, 1984), tropical Asia (Maa, 1969a,b; Wang et al., 2022), the Pacific Islands (Maa, 1969a,b), and the New World (Maa, 1969a,b; Moreira et al., 2019; Vélez et al., 2020; Silva et al., 2021).

Material and Methods

The material was collected in May 2022 in the Baikal State Nature Reserve (Russia) during the annual bird ringing. The birds were caught with nets according to the standard methods. In total, 900 birds were caught and examined by Valentina Anisimova,

Yuri Anisimov and Mikhail Markovets. The Baikal State Nature Reserve is located on the south-eastern border of Lake Baikal. It occupies the central part of the mountain ridge Khamar-Daban. The new species (one individual) was collected on *Zoothera dauma* (Latham, 1790), which is a common species, breeding in Eastern Siberia and wintering in China. Thirteen individuals of *Z. dauma* were caught in May 2022. Morphological terminology follows Hutson (1984).

Results and Discussion

Order Diptera L., 1758

Family Hippoboscidae Samouelle, 1819

Genus *Ornithoctona* Speiser, 1902

Diagnosis. The head is transversely eleptic, located between the prominent humeral tubercles. The eyes are big. Ocellus is developed. Antennae are large and broad, at most twice as long as broad. The palps are short and wide. Humeral tubercles are large. Wings are fully developed and functional. Vein R_{2+3} is well separated from Costa except at apex. Wing membrane is usually with microtrichia. Tarsal claws are bifid. The abdomen pregenital plate is absent (Doszhanov, 1980, 2003; Hutson, 1984).

Description of the new species

Ornithoctona zootherae Yatsuk, Nartshuk & Matyukhin sp. nov.

Type material. Holotype: female (Fig. 1). The holotype in alcohol is located in the collection of the Zoological Institute RAS. Inventory number: INS_DIP_000103.

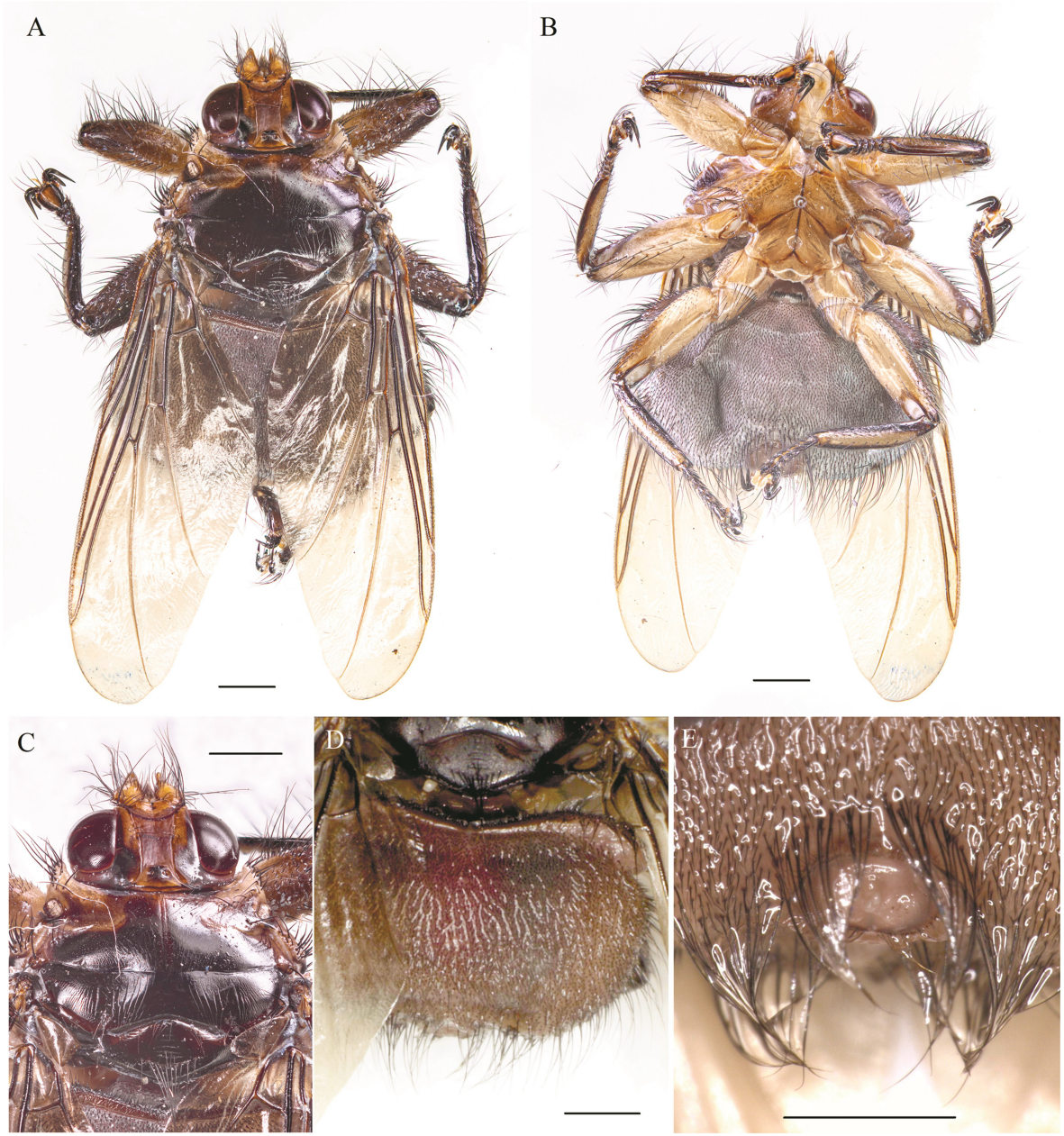

Fig. 1. *Ornithoctona zootherae* sp. nov., Holotype female. Designations: A – general view, dorsal side; B – general view, ventral side; C – mesonotum, dorsal side; D – abdomen, dorsal side; E – abdomen genital area, ventral side. Scale bars: 1 mm.

Type locality, hosts and habitats. Baikal State Nature Reserve, Republic of Buryatia, Russia (51.546023° N, 105.122287° E). Samples were collected on 16.05.2022 on *Zoothera dauma* (Latham, 1790) by M.Y. Markovets.

Etymology. The specific epithet comes from the Latin name of the bird host.

Description. Body size (head + thorax) is 5.5–6.0 mm. Ocellus forms an isosceles triangle. The postvertex and the frontal part are far from each other. The mediavertex is longer than the postvertex and the frontal part. Antennae are broad, long, and leaf-like.

The mesoscutum is dark brown. Anterior margin of mesoscutum is nearly straight. Humeral tubercles are with 15–17 setae. The sternal processes are large. Their bases and sides form an almost equilateral triangle. The mesosternal process is distinctly shorter than the sternal processes. The longitudinal, transversal, and scutoscutellar sutures are clearly noticeable. The transversal suture is deep, and interrupted in the middle. The longitudinal suture is thin; it does not reach the scutoscutellar suture. Notopleuron is wedge-shaped, and separated from mesonotum by deep suture. There are two long setae on notopleuron. Mesopleura is with 18–20 long setae. Scutellum is short, twice as wide as long. On the scutellum, in addition to the apical fringe of small setae, ten large setae form a row on the posterior margin. A row of four bristles is above them. A row of small setae is near the anterior margin of the scutellum. The ventral side of the thorax is light, without spots. The length of the wing is 10 mm. Wing is with full venation. There are three transverse (3R, 1M and 2M) and seven longitudinal veins. Cell 2a is with an additional longitudinal vein. Cell 2bc is more than two times larger than 3bc, and shorter than 1bc. Longitudinal veins R_1, R_{2+3} and R_{4+5} connect with costa at an acute angle. The subcosta is complete. Vein 2M is very inclined. Costa and basicosta are covered with setae. Wing-setulae (the arrangement of microtrichia on the wings) cover the main space of the cells 3r and 1m, where there are three stripes of wing-setulae. Legs are brown. Femurs are strong. The empodium and paired pulvilli are not reduced.

Abdomen is brown, and covered with short hairs. Tergites are 3–6 absent. The genital area is surrounded by a row of long setae, forming an arcuate row on the ventral side.

Differential diagnosis

Ornithoctona zootherae sp. nov. differs from all known Palearctic and Asian species of the genus in a larger body size. Additionally, the new species differs from *O. plicata* von Olfers, 1816 by the wing-setulae, while *O. plicata* has no wing-setulae. It differs from *O. soror* Ferris, 1926 and *O. australasiae* (Fabricius, 1805) in small 3–5 tergites and the ventral and dorsal view of the abdominal apices (Maa, 1969b; Rahola et al., 2011).

Below, we provide a new dichotomous key of all the *Ornithoctona* species, based on keys from Maa (1963, 1969b) and Rahola et al. (2011). The key includes data on the distribution area of the species. Thus, to date, three species from this genus have been recorded in the Palaearctic and in Russia.

An updated key to the *Ornithoctona* species

1. Material is collected in the New World (including Hawaii and the Galapagos Islands) 2
– Material is collected in the Old World (including the Pacific Islands) 7
2. There are many wing-setulae on the wing. Setae on humeral tubercles are dense 3
– Wing-setulae on the wing are absent or few. Setae on humeral tubercles are sparse 4
3. Wing is 11.0–12.5 mm long. Antenna is slightly longer than mediovertex. The mesosternal process is slightly shorter than the width at its base ..... *O. nitens* Bigot, 1885
– Wing is 10.0 mm long. Antenna is slightly shorter than mediovertex. The mesosternal process is noticeably longer than its base width ..... *O. orizabae* Bequaert, 1954
4. Fore tibiae are with four strong apical spurs, but without apical plate ..... *O. erythrocephala* (Leach, 1817)
– Fore tibiae are without apical spurs, but with a small area of very dense short setae or with developed apical plate reaching the basictarsus apex 5
5. Setae on the scutellum are thick. Wing is 8.5–9.5 mm long ..... *O. oxycera* Falcoz, 1929
– Setae on the scutellum are thin. Wing is 5.5–7.5 mm long 6
6. Lateral parts of tergite six are about 0.20–0.23 mm long and wide, with 2–4 moderately strong setae. Sternite 1 is either longer or at least 3/4 as long as wide. Posterior marginal setae on laterite 2 are very long and strong ..... *O. hulahula* Maa, 1969
– Lateral parts of tergite 6 are about 0.36 mm long and wide, with five very long, and strong setae. Length of sternite 1 is 2/3 of its width. Posterior marginal setae on laterite 2 are very short and thin ..... *O. fusciventris* Wiedemann, 1830

7. Material is collected on Borneo ..... *O. soror* Ferris, 1926
– Material is collected elsewhere 8
8. Material is collected in Africa 9
– Material is collected in Europe and Asia, excluding Borneo 12
9. Posterior ocelli are two times farther from each other than from anterior ocellus ..... *O. rugicornis* Maa, 1963
– Posterior ocelli are hardly farther from each other than from anterior ocellus or form an equilateral triangle 10
10. Wings are almost entirely without wing-setulae ..... *O. plicata* von Olfers, 1816
– There are many wing-setulae on the wings 11
11. Anterior ocellus is situated on or slightly above the level of posterior eye-margins ..... *O. laticornis* (Macquart, 1935)
– The ocellus forms an equilateral triangle ..... *O. idonea* Falcoz, 1929
12. Body size (head + thorax) is 5.0 mm or more ..... *Ornithoctona zootherae* Yatsuk, Nartshuk & Matyukhin sp. nov.
– Body size (head + thorax) is approximately 3.0–3.5 mm 13
13. Antennae are shortened at apex, blunt tips ..... *O. plicata* von Olfers, 1816
– Long antennae are with pointed tips (front view) ..... *O. australasiae* (Fabricius, 1805)

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НОВЫЙ ВИД *ORNITHOCTONA* (DIPTERA: HIPPOBOSCIDAE) ИЗ БАЙКАЛЬСКОГО ГОСУДАРСТВЕННОГО ЗАПОВЕДНИКА (РОССИЯ)

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Мухи кровососки семейства Hippoboscidae являются паразитами птиц и млекопитающих. И самки и самцы питаются кровью и переносят множество опасных заболеваний. Представители рода *Ornithoctona* это полнокрылые широко специализированные паразиты птиц. До настоящего исследования считалось, что род состоит из двенадцати видов. Среди них только два вида были отмечены в Палеарктике (в Казахстане, на Дальнем востоке и Курильских островах). Прочие виды населяют Африку, тропическую часть Азии, острова Тихого океана и Новый Свет. Во время ежегодного кольцевания птиц в Байкальском государственном заповеднике (Россия) был найден и описан новый вид для рода *Ornithoctona* (Diptera: Hippoboscidae) (*Ornithoctona zootherae* sp. nov.). *Ornithoctona zootherae* sp. nov. был собран с *Zoothera dauma*, который является обычным видом, гнездящимся в Восточной Сибири и зимующим в Китае. *Ornithoctona zootherae* sp. nov. отличается от всех известных палеарктических видов рода более крупными размерами тела (длина головы + груди 5.5–6.0 мм). Кроме того, новый вид отличается от *O. plicata* щетинками на крыльях, в то время как щетинки на крыльях у *O. plicata* отсутствуют. От *O. soror* и *O. australaisiae* он отличается морфологией вентральной и дорсальной сторон апикальной части брюшка. Был составлен единый определительный ключ для всех видов рода *Ornithoctona*.

Ключевые слова: *Zoothera dauma*, двукрылые мухи, мухи кровососки, Палеарктика, паразиты