



## First record of the parasitic louse fly *Ornithomya comosa* (Diptera: Hippoboscidae) in Europe and western Russia

## Первая находка паразитической мухи-кровососки *Ornithomya comosa* (Diptera: Hippoboscidae) в Европе и на западе России

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**Abstract.** The parasitic louse fly *Ornithomya comosa* (Austen, 1930) (Diptera, Hippoboscidae), known from the Oriental Region (India, Thailand, Nepal and Peninsular Malaysia) and Asian part of the Palaearctic Region (Kazakhstan, Kyrgyzstan, West Siberia of Russia and Japan), is found for the first time in Europe and in the western part of Russia (Curonian Spit). Flies were collected from the swallow species *Hirundo rustica* (Linnaeus, 1758) and *Delichon urbica* (Linnaeus, 1758) (Hirundinidae). Two possible narratives for the occurrence of this fly in Europe are discussed.

**Резюме.** Паразитическая муха-кровососка *Ornithomya comosa* (Austin, 1930) (Diptera, Hippoboscidae), известная ранее в Ориентальной области (Индия, Таиланд, Непал, материковая часть Малайзии) и в азиатской части Палеарктической области (Казахстан, Киргизия, Западная Сибирь в России и Япония), впервые найдена в Европе и на западе России (Куршская коса). Мухи собраны с ласточек *Hirundo rustica* (Linnaeus, 1758) и *Delichon urbica* (Linnaeus, 1758) (Hirundinidae). Обсуждаются две версии обнаружения мухи в Европе.

**Key words:** louse flies, swallows, Europe, western Russia, first record, Diptera, Hippoboscidae, Hirundinidae

**Ключевые слова:** мухи-кровососки, ласточки, Европа, Запад России, первая находка, Diptera, Hippoboscidae, Hirundinidae

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## Introduction

Louse flies (Diptera, Hippoboscidae) are obligate blood-sucking ectoparasites of birds and mammals. As bloodsuckers and as vectors of pathogenic organisms of various kinds, they have

a deleterious effect on birds (Bequaert, 1953; Baker, 1967; Ganez et al., 2002; Farajollahi et al., 2005; Zabashta et al., 2017a, 2017b). The family is distributed all over the World, with the majority of species inhabiting the tropics of both hemispheres. In the Palaearctic Region, there are 55

species and 3 subspecies in 12 genera (Soós & Húrka, 1986). Doszhanov (2003) reviewed the Hippoboscidae of Russia and the former Soviet Union, but this monograph was based mainly on the material from Kazakhstan, which was mostly collected from migrant birds on the Chokpak Pass (Karatau Ridge). The distribution of louse flies within Russia is poorly known and needs further studies. Only a single paper is devoted to the louse flies of birds on the Curonian Spit (Kaliningrad Province of Russia). Doszhanov & Abelkariev (1991) published a list of louse flies of the genus *Ornithomya* Latreille, 1802 from migrant birds. They listed three species of the genus: *O. avicularia* (Linnaeus, 1758), *O. fringillina* (Curtis, 1836) and *O. chloropus* (Bergroth, 1901). Birds of the family Hirundinidae were not examined and *O. comosa* was not found.

## Material and results

Long-standing collecting of Hippoboscidae from birds during the periods of nesting, spring and autumn migrations has been carried out at the Biological Station “Rybachy” (55°05'N, 20°44'E) of the Zoological Institute of the Russian Academy of Sciences on the Curonian Spit in 2008 and 2012–2018. During that time, 337 specimens of Hippoboscidae were found on 267 individuals of different species of birds. Only 13 specimens of *Ornithomya comosa* (Austen, 1930) were collected, i.e. the frequency index is 3.85%. All the material was collected by A. Shapoval. The species is illustrated in Fig. 1.

**Material examined.** **Russia, Kaliningrad Prov.,** Rybachiy Vill., biological station: 1 female, on *Hirundo rustica*, 29.VII.2013; 3 females, on *H. rustica*, 15.VII.2014; 1 female, on *H. rustica*, 5.VIII.2014; 2 females, on *H. rustica*, 26.VIII.2014; 1 female, on *H. rustica*, 22.VII.2016; 1 female, on *H. rustica*, 25.VII.2016; 2 females, on *H. rustica*, 7.VII.2017; 1 male, 1 female, on *Delichon urbica*, 8.VIII.2017.

This record of *O. comosa* is the first in Europe and in the western part of Russia (Curonian Spit). The species was found on only two species of birds, *Hirundo rustica* (Linnaeus, 1758) and *Delichon urbica* (Linnaeus, 1758) (Hirundinidae). Adults of *O. comosa* on the Curonian Spit were collected

in July–August 2013–2017. The first specimens of *O. comosa* were collected in early July, and the last in early August on young birds. Probably local birds were taken in early July, and migrant birds, in late July and in August. No ticks or mites were found on any of the examined specimens of *O. comosa*.

## Discussion

*Ornithomya comosa* is an obligate specific parasite of birds of the family Hirundinidae. The species was described from India (Pusa, Bihar), where it was collected from a grey-throated martin, *Riparia chinensis* (J.E. Gray, 1830) (Austen, 1930). Maa (1977), in the Oriental Diptera Catalogue, recorded it from India, Peninsular Malaysia, Nepal and Thailand. Doszhanov (1970) was the first to find this species in Asia, in Kazakhstan. Later he found the species in Kyrgyzstan and West Siberia (Novosibirsk) (Doszhanov, 2003). Doszhanov



**Fig. 1.** *Ornithomyia comosa* (Austen, 1930), habitus. Photo by N. Vikhrev.

listed 13 species of birds as hosts, 12 species of Passeriformes and the Eurasian scops owl, *Otus scopus* (Linnaeus, 1758), of Strigiformes. Most of *O. comosa* specimens (98%) were collected from *Riparia riparia* (Linnaeus, 1758), and fewer specimens, from *Hirundo rustica* and *Delichon urbica*, during the period of summer and autumn migration on the Chokpak Pass, Karatau Ridge, Kazakhstan (Doszhanov, 2003). These regions were mentioned for *O. comosa* in the Palaearctic Diptera Catalogue (Soós & Hürka, 1986). Later on, the species was also found in Japan, on Honshu, Kyushu and Ryukyu islands (Mogi, 2014). Now we add Europe and western Russia to the known distribution.

There are two possible explanations for the record of *O. comosa* in western Russia. The first: *O. comosa* migrates with adult swallows from West Siberia or Kazakhstan to western Russia, where it moves on to young birds. Migrating swallows cannot bring *O. comosa* from Africa, as *O. comosa* does not occur there, but some *Hirundo rustica rustica* spend the winter in Asia, where *O. comosa* occurs. It is known that *O. comosa* occasionally occurs on some other passerine birds. Doszhanov (2003) mentioned twelve such species. These birds could bring *O. comosa* from Asia to the Curonian Spit, but this is unlikely. Another possibility would involve exchanges of parasites including Hippoboscidae in places where swallows spend the night during migration, forming large crowds and intermingling with birds from Africa and Asia. It is impossible to establish the exact date for the appearance of *O. comosa* in western Russia, probably it occurred during 1986–2008. Louse flies from Hirundinidae on the Curonian Spit were not collected before 2008, and Soós & Hürka (1986) did not record *O. comosa* in Europe.

The second: *O. comosa* has always or for a long time been present in western Russia but has not been collected, as swallows are seldom trapped in mist nets and so their parasites are not collected. Another element in favour of the second explanation is provided by the data from the study of Hippoboscidae on *Riparia riparia* in the centre of European Russia. Only the louse fly *O. avicularia* has been found on these birds in the Vladimir Province, and no *O. comosa* (Pavlov et al., 2019). Nevertheless the first explanation seems to be the more convincing. Recently a revised list of Hippo-

boscidae in Slovakia was published (Oboňa et al., 2019) and a list of Hippoboscidae in the protected area Helmeštausee Berga-Kelbra, Germany (Labitze & Jentzsch, 2019); *O. comosa* was not found in both the localities.

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