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NEW HOST RECORDS FOR PARASITIC DIPTERANS OF THE GENUS *PHASIA* LATREILLE (DIPTERA: TACHINIDAE) FROM THE RUSSIAN FAR EAST //

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Summary. The present report provides new data on the hosts of *Phasia albopunctata* (Baranov), *Ph. aurigera* (Egger), *Ph. aurulans* Meigen, *Ph. barbifrons* (Girschner), *Ph. obesa* (F.), *Ph. hemiptera* (F.), *Ph. subcoleoptrata* (L.), *Ph. zimini* (D.-M.), and *Ph. pusilla* Meigen (Tachinidae: Phasiinae) from the Russian Far East.

Key words: Diptera, Phasiinae, Phasiini, host, Heteroptera, Primorsky Krai, Russia.

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Резюме. Приведены новые сведения о хозяевах *Phasia albopunctata* (Baranov), *Ph. aurigera* (Egger), *Ph. aurulans* Meigen, *Ph. barbifrons* (Girschner), *Ph. obesa* (Fabricius), *Ph. hemiptera* (F.), *Ph. subcoleoptrata* (Linnaeus), *Ph. zimini* (D.-M.) и *Phasia pusilla* Meigen (Tachinidae: Phasiinae) на Дальнем Востоке России.

INTRODUCTION

The *Phasia* Latreille, 1804, one of the largest genera in the subfamily Phasiinae, belongs to the tribe Phasiini. Members of this genus are distributed worldwide. The *Phasia* species parasitize Heteroptera including crop pests and predatory bugs (Dupuis, 1963; Draber-Mońko, 1965; Herting, 1971; Nishiyama *et al.*, 1995; Shima, 2006; Sun & Marschall, 2003; Aksenenko *et al.*, 2012; etc.). An updated list of the *Phasia* species from the Nearctic, Palearctic, Afrotropical, Australian, and Oriental realms and their associated hosts has been published elsewhere (Sun & Marschall, 2003).

In the Russian Far East fauna, the genus *Phasia* is represented by 11 species. The present report provides new and summarizes available data on the distribution and hosts of nine of them: *Phasia albopunctata* (Baranov, 1935), *Ph. aurigera* (Egger, 1830), *Ph. aurulans* Meigen, 1824, *Ph. barbifrons* (Girschner, 1887), *Ph. obesa* (Fabricius, 1798), *Ph. hemiptera* (Fabricius, 1794), *Ph. subcoleoptrata* (Linnaeus, 1767), *Ph. zimini* (Draber-Mońko, 1965), and *Phasia pusilla* Meigen, 1824. To date, there is still a lack of data on the hosts of *Phasia rohdendorfi* (Draber-Mońko, 1965). *Ph. takanoi* (Draber-Mońko, 1965) in Japan has been reared from *Menida scotti* Put. (Nishiyama *et al.*, 1995; Shima, 2006).

MATERIAL AND METHODS

The information about the distribution of the species is according to the available publications (Ziegler & Shima, 1996; Draber-Mońko, 2012; Sun & Marschall, 2003; Ziegler & Shima, 2003; Richter, 2004, 2005; Cha & Han, 2009; O'Hara *et al.*, 2009; Zeegers, 2017). The techniques of bug collection and keeping, assessment of the infestation rate, and rearing of adult Phasiinae were described in detail earlier (Markova *et al.*, 2018). All the materials used are deposited in the author's private collection. The species are named according to the systematic lists published by the experts in the respective taxa (Herting, 1984; Thomas *et al.*, 1988; Aukema & Rieger, 1996, 1999, 2001; 2006; Vinokurov *et al.*, 2010). In the list below, *n* means number of specimens.

RESULTS

Phasia albopunctata (Baranov, 1935)

MATERIAL. Primorsky Krai: Ussuriysky Nature Reserve (43°40'00" N, 132°30'00" E), ex **Carbula putoni* Jak. (Pentatomidae), August 25, 2001, 1 ♀ (T. Markova, M. Maslov).

DISTRIBUTION. Russia: Western and Eastern Siberia, Far East (Amur Oblast, Khabarovsk Krai, and Primorsky Krai); Japan (Hokkaido), Taiwan, Pakistan.

HOST. This species was reared ex *Dolycoris baccarum* (L.) (Pentatomidae) in Siberia and in Primorsky Krai (Kolomiets, 1976; Markova, 1999), ex *Palomena angulosa* (Motsch.), *P. viridissima* (Poda), *Picromerus bidens* (L.), *Pentatoma semiannulata* (Motsch.), *Lelia decempunctata* (Motsch.) (Pentatomidae) and *Coreus marginatus orientalis* (Kir.) (Coreidae) in Primorsky Krai (Markova, 1999; Markova *et al.*, 2020), and ex *Eysarcoris lewisi* Dist. (Pentatomidae) in Japan (Nishiyama *et al.*, 1995; Shima, 2006). *Carbula putoni* Jak. was first recorded as a host from Primorsky Krai. The duration of development in the puparium was 12 days (*n*=1).

Phasia aurigera (Egger, 1830)

MATERIAL. Primorsky Krai: village of Kaimanovka (43°37'49" N, 132°13'49" E), ex **Palomena viridissima* (Poda) (Pentatomidae), August 17, 2017, 1 ♂ (T. Markova).

DISTRIBUTION. Russia: Far East (Khabarovsk Krai, Primorsky Krai); Western Europe, Korean Peninsula, China.

HOST. *Palomena viridissima* (Poda) was first recorded as a host from Primorsky Krai. The duration of development in the puparium was 10 days (*n*=1). In Western Europe and European Russia, this fly is known as a parasite of *Palomena prasina* (L.), *Rhaphigaster nebulosa* Poda (Pentatomidae) and *Coreus marginatus marginatus* (L.), *Gonocerus acuteangulatus* (Goeze), *G. juniperi* H.-S. (Coreidae) (Dupuis, 1963; Draber-Mońko, 1965; Herting, 1971; Kolomiets, 1976; Tschorsnig & Herting, 1994; San & Marshall, 2003).

Phasia aurulans Meigen, 1824

MATERIAL. Primorsky Krai: village of Kaimanovka (43°37'49" N, 132°13'49" E), ex **Acanthosoma haemorrhoidalis angulatum* Jak. (Acanthosomatidae), August 17, 2018, 1 ♀ (T. Markova).

DISTRIBUTION. Russia: northern and northwestern European part, Siberia, Far East (Primorsky Krai, Amur Oblast); Western Europe, Kazakhstan, Japan (Hokkaido), USA, Canada.

HOST. *Acanthosoma haemorrhoidalis angulatum* Jak. was first recorded as a host from Primorsky Krai. The duration of development in the puparium was 11 days (*n*=1). In South Carolina (USA), this fly is known as a parasite of *Elasmucha lateralis* (Say) (Acanthosomatidae) (San & Marshall, 2003).

***Phasia barbifrons* (Girschner, 1887)**

MATERIAL. Primorsky Krai: village of Kaimanovka (43°37'49" N, 132°13'49" E), ex **Palomena viridissima* (Poda) (Pentatomidae), August 15, 2020, 1 ♀ (T. Markova).

DISTRIBUTION. Russia: middle of the European part, Western Siberia, Far East (Primorsky Krai); Western Europe, China, Vietnam.

HOST. *Palomena viridissima* (Poda) was first recorded as a host from Primorsky Krai. The duration of development in the puparium was 12 days ($n=1$).

***Phasia hemiptera* (Fabricius, 1794)**

MATERIAL. Primorsky Krai: village of Kaimanovka (43°37'49" N, 132°13'49" E), ex **Acanthosoma haemorrhoidalis angulatum* Jak. (Acanthosomatidae), August 22, 2018, 1 ♀ (T. Markova).

DISTRIBUTION. Russia: northern and middle European part, Siberia, Far East (Amur Oblast, Khabarovsk Krai, Primorsky Krai, Kamchatka, Sakhalin Oblast); Western Europe, Transcaucasus; China, Korean Peninsula, Japan (Hokkaido, Honshu).

HOST. This species was reared ex *Pentatoma metallifera* (Motsch.) in Siberia and Primorsky Krai (Kolomiets, 1976; Draber-Moňko, 1965; Markova, 1999), ex *Dolycoris baccarum* (L.), *Palomena viridissima* (Poda) (Pentatomidae), *Elasmotherus brevis* Lindb. (Acanthosomatidae) (Markova, 1999; Markova *et al.*, 2017) in Primorsky Krai, ex *Palomena prasina* (L.), *Pentatoma rufipes* (L.), *P. metallifera* (Motsch.) in Western Europe (Dupuis, 1963; Draber-Moňko, 1965; Herting, 1971; San & Marshall, 2003), and ex *Pentatoma rufipes* (L.), *P. japonica* (Dist.), *Lelia decempunctata* (Motsch.), *Palomena angulosa* (Motsch.) (Pentatomidae) in Japan (Nishiyama *et al.*, 1995; Shima, 2006). *Acanthosoma haemorrhoidalis angulatum* Jak. was first recorded as a host from Primorsky Krai. The duration of development in the puparium was 14 days ($n=1$).

***Phasia obesa* (Fabricius, 1798)**

MATERIAL. Primorsky Krai: the village of Kaimanovka (43°37'49" N, 132°13'49" E), ex **Eurygaster testudinaria* (Geoffr.) (Scutelleridae), August 21, 2019, 1 ♀ (T. Markova).

DISTRIBUTION. Russia: middle of the European part, Siberia, Far East (Amur Oblast, Khabarovsk Krai, Primorsky Krai); Western Europe, Middle East, Israel, Transcaucasus, Kazakhstan, Middle Asia, Mongolia, Japan (Hokkaido), North America.

HOST. This species was reared ex *Zicrona caerulea* (L.), *Neottiglossa pusilla* (Gmel.) (Pentatomidae), *Leptopterna dolabrata* (L.), *Lygus pratensis* (L.), *L. rugulipennis* Popp. (Miridae), *Myrmus miriformis* (Fall.) (Rhopalidae), and *Beosus maritimus* (Scop.) (Lygaeidae) in Western Europe (Dupuis, 1949, 1963; Draber-Moňko, 1965; Herting, 1971; San & Marshall, 2003). *Eurygaster testudinaria* (Geoffr.) was firstly recorded as a host from Primorsky Krai. The duration of development in the puparium was 15 days ($n=1$).

***Phasia subcoleoptrata* (Linnaeus, 1767)**

MATERIAL. Primorsky Krai: village of Kaimanovka (43°37'49" N, 132°13'49" E), ex **Dolycoris baccarum* (L.) (Pentatomidae), August 17, 2018, 1 ♀; ex **Eurygaster testudinaria* (Geoffr.) (Scutelleridae), August 15, 2019, 1 ♀ (T. Markova).

DISTRIBUTION. Russia: southern and central European part, Eastern Siberia, Far East (Amur Oblast, Khabarovsk Krai, Primorsky Krai); Western Europe, Israel, Turkey, Iran, Transcaucasus, Kazakhstan, Middle Asia, North Africa.

HOST. In Western Europe and European Russia, this fly is known as a parasite of *Eurygaster integriceps* Put. (Scutelleridae), *Dolycoris baccarum* (L.), *D. numidicus* Horv., and *Stagonomus amoenus* (Brullé) (Pentatomidae) (Dupuis, 1963; Draber-Moňko, 1965; Herting, 1971; Kolomiets, 1976; Tschorsnig & Herting, 1994; San & Marshall, 2003). *Dolycoris baccarum* (L.) and *Eurygaster testudinaria* (Geoffr.) were first recorded as hosts from Primorsky Krai. The duration of development in the puparium ranged 12–13 days ($n=2$).

***Phasia zimini* (Draber-Moňko, 1965)**

MATERIAL. Primorsky Krai: Ussuriysky Nature Reserve (43°40'00" N, 132°30'00" E), ex **Eysarcoris aeneus* (Scop.) (Pentatomidae), September 10, 2017, 1 ♂ (T. Markova, M. Maslov).

DISTRIBUTION. Russia: Far East (Amur Oblast, Khabarovsk Krai, Primorsky Krai).

HOST. This species was reared ex *Dolycoris baccarum* (L.) (Pentatomidae) in Primorsky Krai (Markova, 1999). *Eysarcoris aeneus* (Scop.) was firstly recorded as a host in Primorsky Krai. The duration of development in the puparium was 14 days ($n=1$).

***Phasia pusilla* Meigen, 1824**

MATERIAL. Primorsky Krai: Ussuriysky Nature Reserve (43°40'00" N, 132°30'00" E), ex **Eysarcoris aeneus* (Scop.) (Pentatomidae), September 7, 2017, 1 ♂, September 8, 2017, 1 ♀ (T. Markova, M. Maslov).

DISTRIBUTION. Russia: northern and central European part, Siberia, Far East (Amur Oblast, Khabarovsk Krai, Primorsky Krai); Western Europe, Israel, Transcaucasus, Kazakhstan, Mongolia, Japan.

HOST. *Eysarcoris aeneus* (Scop.) was firstly recorded as a host from Primorsky Krai. The duration of development in the puparium ranged 10–11 days ($n=2$). In Western Europe, European Russia, and Siberia, this fly is known as a parasite of *Chilacis typhae* (Perr.), *Nysius cymoides* (Spin.), *N. helveticus* (H.-S.) (= *N. lineatus* Costa), *Nithecus jacobaeae* (Schill.), *Cymus glandicolor* Hahn., *Kleidocerus ericae* (Horv.) (Lygaeidae); *Microporus nigrita* (F.) (Cydnidae); *Eysarcoris aeneus* (Scop.), *Eysarcoris ventralis* (Westw.) (= *Stollia inconspicua* (H.-S.)), *Bagrada hiliaris* (Burm.) (Pentatomidae); *Lyctocoris campestris* (F.), *Anthocoris sarothamni* Dg. & Sc., *A. nemoralis* (F.) (Anthocoridae), and *Prostemma aeneicolle* St. (Nabidae) (Viktorov & Kozharina, 1961; Dupuis, 1963; Draber-Moňko, 1965; Herting, 1971; San & Marshall, 2003; Aksenenko *et al.*, 2012).

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