

Niche separation between two closely related species of the genus *Lasiambia* Anonym., 1937 (Diptera: Chloropidae)

Разделение ниш у двух близких видов рода *Lasiambia* Anonym., 1937 (Diptera: Chloropidae)

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Ключевые слова: Diptera, Chloropidae, *Lasiambia*, разделение ниш.

Abstract. Habitat and types of feeding of larvae of the genus *Lasiambia* Anonym., 1937 are analyzed. Larvae of *Lasiambia* as opposite to most Chloropidae are not phytophagous and not associated with Poaceae grasses. Two groups of species are separated. The first – larvae are saprophagous in a broad sense. The second includes species, larvae of which are carnivorous. Two closely related species are compared: *L. palposa* (Fallén, 1820) and *L. coxalis* (von Roser, 1840). Adults of these species are very similar and distinguished only on the structure of male postabdomen. Larvae of common *L. palposa* feed in egg pods of many different species of Acrididae, which lay eggs in ground. Larvae of rare *L. coxalis* feed eggs of Acrididae of a genus *Chrysochraon*, which lay eggs in plant stem. Character of alimentary niche is correlated with numbers and extent of areal of these species.

Резюме. Проанализированы места обитания и типы питания личинок в роде *Lasiambia* Аноним., 1937, которые в отличие от большинства Chloropidae не фитофаги и не связаны со злаками. Выделены 2 группы видов. У первой личинки сапрофаги в широком понимании. У второй личинки хищники, питающиеся яйцами насекомых. Сравниваются 2 близких вида, *L. palposa* (Fallén, 1820) и *L. coxalis* (von Roser, 1840), имаго которых сходны по внешней морфологии и различаются по наличию / отсутствию мембранозных мешков в прегенитальной области самцов. Личинки *L. palposa* питаются яйцами многих видов саранчовых, отложенных в землю. Личинки *L. coxalis* – яйцами видов только одного рода саранчовых *Chrysochraon*, которые откладывают их в стебли растений. Широта пищевой ниши коррелирует с численностью и протяженностью ареалов этих видов.

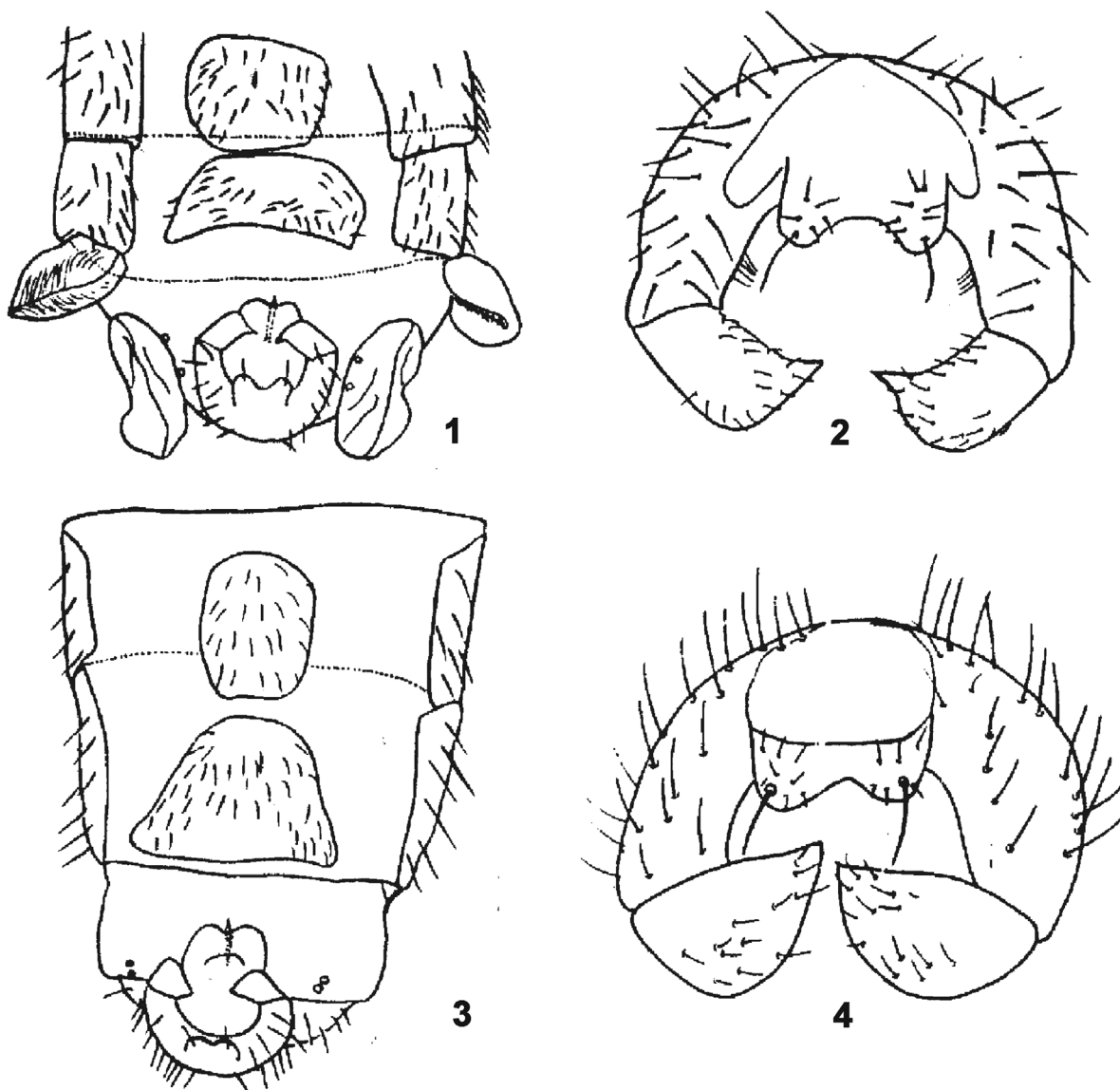
The genus *Lasiambia* Anonymous in Imperial Institute of Entomology, 1937 includes 18 species in the Palaearctic according to the Catalogue [Nartshuk, 1984], where species are listed in the genus *Fiebrigella* Duda, 1921 with two subgenus *Fiebrigella* and *Lasiambia*. Later all Palaearctic species of the genus were considered in the genus *Lasiambia* [Tschirnhaus, 1992]. Habitats of larvae are known for some species. Larvae of *Lasiambia* as opposite

to most Chloropidae are not associated with grasses and not phytophagous. There are 2 groups of species which larval habitats are known: species with saprophagous larvae in a broad sense (probably micromycetophagous and necrophagous as well) and species with carnivorous larvae. The first group includes 5 species. Larvae of *L. albidipennis* (Strobl, 1893) live in damaged plant stems together with other insects [Séguy, 1934; Koçak et al., 2009]. Larvae of *L. baliola* Collin, 1946 and *L. brevibucca* (Duda, 1933) develop in rotten wood, especially broad leaved wood, sap flows of damaged trees and in root holes [Collin, 1946; Allen, 1981; Godfrey, 1998]. *Lasiambia conicola* (Hering, 1941) was reared from stem of plant *Conium maculatum* L. (Apiaceae) [Hering, 1941]. Larvae of *L. fycoperda* (Becker, 1910) develop in damaged fruits of *Ficus carica* (Moraceae) [Silvestri, 1917].

The second group includes species with carnivorous larvae feeding on egg masses of insects. Larvae of *L. mantivora* Nartshuk, 2010 were reared from ootheca of *Mantis religiosa* Linnaeus, 1758 [Nartshuk, Sánchez, 2010]. *Lasiambia theryi* (Séguy, 1946) and *L. picardi* (Séguy, 1946) are reared from Mantidae oothecae as well [Séguy, 1946]. Larvae of *L. palposa* (Fallén, 1820) live in egg pods of Acrididae and feed on eggs. Following species of Acrididae were recorded as hosts¹: *Chorthippus biguttulus* Linnaeus, 1758, *C. albomarginatus* De Geer, 1773, *C. apricarius* Linnaeus, 1758, *Stenobothrus eurasius* Zubovski, 1898, *S. nigromaculatus* Herrich-Schäffer, 1840, *Omocestus viridulus* Linnaeus, 1758, *Aeropedellus variegates* Fischer-von Waldheim, 1848 [Frauenfeld, 1863; Bezrukov, 1922; Shapinsky, 1923; Zakhvatkin, 1954; Nartshuk, 1972]. *Lasiambia coxalis* (von Roser, 1840) was reared only once from egg masses of *Chrysochraon dispar* Germer, 1834 (Acrididae) in thistle stem [Hennig, 1941]. I received additional reared material of the species.

Galls of last year of *Lipara* spp. on *Phragmites australis* were collected in Staraya Russa southern of Lake Il'men in Veliky Novgorod Region (Russia) in 10–17 of May 2010.

¹ I use here name host, as some authors considered these *Lasiambia* species as parasites. Indeed larvae of these species live inside egg pods, but they feed egg by egg, not develop inside of a egg. Therefore it is more correctly considered these larvae as carnivorous.



Figs 1–4. *Lasiambia*, details of structure.

1–2 – *L. coxalis* (von Roser, 1840); 3–4 – *L. palposa* (Fallén, 1820). 1, 3 – tip of male abdomen, view below; 2, 4 – male genitalia, epandrium.

Рис. 1–4. *Lasiambia*, детали строения.

1–2 – *L. coxalis* (von Roser, 1840); 3–4 – *L. palposa* (Fallén, 1820). 1, 3 – вершина брюшка самца, вид снизу; 2, 4 – гениталии самца, эпандрий.

Galls were collected near small salt lakes which in the past were used for extraction of food salt. Now this place is a balneology health resort. At present these lakes feed from artificial fountain drilled in 1840. Water of the fountain named Murav'evski contains 20 gram of mineral salt on a litre.

Galls were put in glass vessels, 19 galls in each. Two species of gall makers *Lipara lucens* Meigen, 1830 and *L. pullitarsis* Doskočil et Chvála, 1971 were reared from galls. Two common species of Chloropid inquilines *Cryptoneva flavitarsis* (Meigen, 1830) (36 specimens) and *Calamoncosis minima* (Strobl, 1893) (10 specimens) were reared from galls as well. Besides Anthomyzidae: 6 males, 9 females of *Anthomyza gracilis* (Fallén, 1823); some Cecidomyiidae; 14 specimens (7 males, 7 females) of bees Colletidae: *Hylaeus pectoralis* Förster, 1871 (Hymenoptera:

Apoidea), which usually nests in old *Lipara* galls and 2 specimens of parasites of *Lipara*: *Stenomalina liparae* (Giraud, 1863). All listed species are recorded for the first time for Veliky Novgorod Region (Russia).

Absolute unexpectedness was appearing of 6 specimens (1 male and 5 females) of *Lasiambia coxalis* (von Roser, 1840). A larva of *Chrysochraon* sp. was found in the same glass some days later. I collected *Lipara* galls on Common reed (*Pragmites australis*) during many years in different localities for rearing Chloropidae and received *L. coxalis* for the first time.

Lasiambia palposa and *L. coxalis* are closely related species. They are similar each another in all external characters and may be distinguished only on structure of male postabdomen. *Lasiambia coxalis* has two pairs of membranous vesicules between 5th tergite of abdomen

and pregenital sclerite (Figs 1, 2). These vesicles are usually situated inside of abdomen and turn outside in precopulation period. *Lasiambia coxalis* is rare species. Only a few specimens of *L. coxalis* are in the collection of the Zoological Institute RAS (ZIN, St. Petersburg, Russia): northern Ural Mountains (Mt. Neroika); Labytnangi, Tyumen Region; Yakutia, eastern of Yakutsk. *Lasiambia coxalis* was described from Germany (Württemberg) and I have seen some specimens from France. Membranous vesicles is absent in male postabdomen of *L. palposa* (Figs 3, 4). The species is rather common and there are numerous specimens in the collection of ZIN from most territory of Russia from St. Petersburg to Irkutsk and Yakutia, Estonia and Mongolia.

Larvae of both species feed on Acrididae eggs. Ecological difference between these two closely related species lies in the fact that larvae of common species *L. palposa* feed on egg pods situated in ground, and larvae of rare species *L. coxalis* feed on eggs of Acrididae situated in herbaceous stem. Only species of *Chrysochraon* (Acrididae) lay eggs in the plant stem in the Palaearctic, and *L. coxalis* has one host species. *Lasiambia palposa* was reared from egg pods of different Acrididae, laying eggs in the ground. Ecological niche of larvae of *L. palposa* is wider, egg pods of many Acrididae are in the ground; ecological niche of larvae of *L. coxalis* is significantly narrower, egg pods are in plant stem. Probably these ecological features exert some effect on numbers and geographical distribution of species.

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