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## NINE NEW SPECIES OF GENUS *LEDOMYIA* KIEFFER, 1895 (DIPTERA, CECIDOMYIIDAE) FROM THE RUSSIAN FAR EAST

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*Ledomyia adunca* sp. n., *L. lignosa* sp. n., *L. caespitosa* sp. n., *L. rustica* sp. n.,  
*L. vaga* sp. n., *L. conspecta* sp. n., *L. alterna* sp. n., *L. necessaria* sp. n., *L. obtu-  
rata* sp. n. are described from the Russian Far East. Key to the Far Eastern species  
of the genus *Ledomyia* Kieffer, 1895 is given.

KEY WORDS: Diptera, Cecidomyiidae, gall midges, new species, Russian Far  
East.

З. А. Федотова<sup>1)</sup>, В. С. Сидоренко<sup>2)</sup>. Девять новых видов рода *Ledomyia*  
Kieffer, 1895 (Diptera, Cecidomyiidae) с Дальнего Востока России // Дальне-  
восточный энтомолог. 2007. N 169. С. 1-19.

С Дальнего Востока России описаны *Ledomyia adunca* sp. n., *L. lignosa* sp. n.,  
*L. caespitosa* sp. n., *L. rustica* sp. n., *L. vaga* sp. n., *L. conspecta* sp. n., *L. alterna*  
sp. n., *L. necessaria* sp. n. и *L. obturata* sp. n. Дана определительная таблица  
дальневосточных видов рода *Ledomyia* Kieffer, 1895.

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## INTRODUCTION

Three species of gall-midges of the genus *Ledomyia* Kieffer, 1895 were recorded from the Russian Far East: *L. volucris* Mamaev, 1972 (Ussuriyskii Reserve); *L. primigena* Mamaev, 1994 (Kamtchatka), and *L. eminens* Fedotova et Sidorenko, 2005 (Vladivostok). The paper is devoted to the descriptions of nine new species of this genus.

The abbreviations used in the descriptions and figure legends are as follows: F1, F2, ... F10 – length of flagellomeres 1, 2 ... 10; LT – light trap, MT – Malaise trap, YT - yellow trap.

The present study is based on material collected in Primorskii krai, Lazovskii Nature Reserve by various methods in 2005. Holotypes and some paratypes are deposited in the Zoological Institute, St.-Petersburg, Russia; other paratypes – in the Institute of Biology and Soil Sciences, Vladivostok, Russia (IBP).

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### Genus *Ledomyia* Kieffer, 1895

*Lepidomyia* Kieffer, 1894: 201, preoccupied by Loew, 1864. Type species - *Lepidomyia lugens* Kieffer, 1894: 211

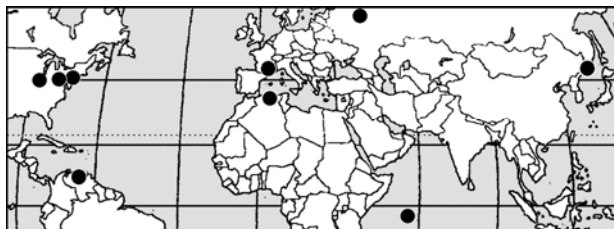
*Ledomyia* Kieffer, 1895: cccxx, new name for *Lepidomyia* Kieffer.

DIAGNOSIS. Wing, body and legs conspicuously covered by scales; antennae 2+8 to 11 segmented, male flagellomeres subcylindrical with stem and numerous swollen peritremae, female flagellomeres elongate; female legs with toothed claws; male fore legs usually with tooth, other legs with or without tooth. Palpi 4-segmented, labrum triangular. Wing broad,  $R_{1+2}$  joining costa before middle wing,  $R_{4+5}$  straight or curved, joining *C* rather far before wing apex; *C* broken at junction with  $R_{4+5}$ ; *Cu* forked. Cerci of male genitalia with very deep excision. Gonocoxites ovoid or parallel-sided. Gonostylus short, excavated ventrally, terminated by very wide apical or dorso-apical claw, protruding from dorsal part of gonostylus. Hypoproct slightly curved; aedeagus usually longer than gonocoxites or equal in length; basal processes of gonocoxites well developed, narrowed. Ovipositor very long, extensible, apically with two terminal lamellae with two small, obtuse spines.

SPECIES INCLUDED. The genus is mainly distributed in the Holarctic Region (Distribution-map). The genus *Ledomyia* includes 17 species, eight of them are Palaearctic (Mamaev, 1967; Skuhrová, 1997; Gagné, 2004; Fedotova & Sidorenko, 2005), 7 species are recorded from the Nearctic Region, one species from the Neotropical Region, and one from Afrotropical Region (Fig. 57).

Based on morphology of male genitalia the Far Eastern species of the genus *Ledomyia* can be easily divided into two groups: with sclerotized plate at base of genitalia (*L. lignosa* sp. n., *L. rustica* sp. n., *L. alterna* sp. n., *L. necessaria* sp. n.)

and without such plate (*L. adunca* sp. n., *L. capitosa* sp. n., *L. vaga* sp. n., *L. conspecta* sp. n., *L. obturata* sp. n., *L. volucris*). The females are usually unknown or less distinct. Further more detailed researches will determine whether it is necessary to give these groups the rank of subgenera.



Distribution-map of genus *Ledomyia*

**TAXONOMIC POSITION.** The taxonomic position of the genus *Ledomyia* within related genera is still unclear. B. Mamaev (1967) included the genera *Ledomyia* Kieffer, 1894, *Brachineura* Rondani, 1840, *Spaniocera* Winnertz, 1853, *Rhizomyia* Kieffer, 1898, *Lauthia* Kieffer, 1912, *Prolauthia* Rübsaamen, 1916, *Plesiolauthia* Mamaev, 1967, *Epimiella* Mamaev, 1967, *Lasiopterix* Stephens, 1829, and *Brachineurina* Mamaev, 1967 in the tribe Oligotrophini based on the following characters: wings, body and legs conspicuously covered by scales; antennae 2+8 to 11; male flagellomeres subcylindrical with stem; female legs with toothed claws; male fore legs with tooth only or all legs with tooth; palpi 4-segmented;  $R_{4+5}$  straight or curved, joined *C* very far before wing apex; *Cu* forked; gonostylus short, terminated by apical or dorso-apical claws; male cerci with very deep excision; hypoproct slightly curved. Later *Ledomyia* and related genera were placed in a separate tribe Ledomyini (Mamaev, 1968). R. Gagné (1976) transferred Ledomyini to the supertribe Lasiopteridi. The same taxonomic position of this tribe was adopted in the Catalogue of Palaearctic Diptera (Skuhravá, 1986). Now *Ledomyia* and related genera (*Lauthia*, *Ledomyia*, *Ledomyiella*, *Plesiolauthia*, *Prolauthia*, *Isogynandrobremia* Spungis, 1981) are considered as a separate tribe in the supertribe Lasiopteridi (Gagné, 2004).

**BIOLOGY.** The larvae of some species are associated with fresh-cut logs (Gagné, 1985) or dry tree-trunks (Mamaev, 1972).

#### Key to species of the Russian Far East

1. Abdominal segments VII and VIII with dorsal strongly sclerotized structures. Palpi 3-segmented. Wing narrowed distally . . . . . *L. eminens*
- Abdominal segments VII and VIII without dorsal sclerotized structures. Palpi 4-segmented. Wing widely rounded distally (Figs 1, 12, 18, 24, 38, 45, 52, 56), except *L. vaga* n. sp. (see couplet 8, Fig. 39) . . . . . 2
2. Dorso-apical claw of gonostylus more than half of its length. 1.2 mm . . . . .  
 . . . . . *L. volucris*

- Dorso-apical claw of gonostylus less than half its length (Figs 8, 13, 30, 40, 46, 53) or less, situated almost apically (Figs 2, 19, 31) . . . . . 3
- 3. Basal processes of gonocoxites triangular (Fig. 53), strongly enlarged basally and sclerotized laterally. 0.83-0.88 mm . . . . . *L. obturata* **sp. n.**
- Basal processes of gonocoxites situated adjacent to aedeagus (Figs. 2, 7, 13, 19, 31, 40, 49), narrowed apically, slightly enlarged basally and sclerotized . . . . . 4
- 4. Base of genitalia with sclerotized plate (Figs 8, 19, 40, 46) . . . . . 5
- Base of genitalia without sclerotized plate (Figs 2, 13, 30, 31) . . . . . 6
- 5. Base of genitalia with wide sclerotized plate, truncated apically (Fig. 19) . . . . .  
. . . . . *L. rustica* **sp. n.**
- Base of genitalia with apically narrowed (Figs 8, 46) or oval (Fig. 40) sclerotized plate . . . . . 8
- 6. Base of genitalia with oval (Fig. 40) sclerotized plate. Gonocoxites 2.3 times as long as wide, with medio-basal oval lobes. F5 2.3 times as long as wide, basal node 1.2 times longer than stem. 1.05 mm . . . . . *L. alterna* **sp. n.**
- Sclerotized plate of base genitalia with thin apical protuberance (Figs 8, 46) . . . 7
- 7. Length of gonostylus less than width of gonocoxites near middle (Fig. 8). Gonocoxites 1.6 times as long as wide, without basal lobes. Sclerotized plate of base of genitalia with lateral strongly sclerotized forked stripes. F5 2.2 times as long as wide, basal node 2.3 times longer than stem (Fig. 10). 1.45 mm . . . . .  
. . . . . *L. lignosa* **sp. n.**
- Length of gonostylus more than width of gonocoxites at distal half (Fig. 46). Gonocoxites 2.3 times as long as wide, with large triangular lobes. Sclerotized plate of base of genitalia without strongly sclerotized lateral forked stripes. F5 2.6 times as long as wide, basal node 1.5 times longer than stem (Fig. 49). 1.20 mm . . . . . *L. necessaria* **sp. n.**
- 8. Length of gonostylus almost equal to width of gonocoxites near middle (Fig. 30). Gonostylus short and strongly curved, strongly enlarged basally, 1.9 times shorter than gonocoxites, 2.6 times as long as wide. Gonocoxites 2.3 times as long as wide. F5 2.4 times as long as wide, basal node 1.4 times longer than stem (Fig. 27). 0.85 mm . . . . . *L. vaga* **sp. n.**
- Length of gonostylus more than width of gonocoxites near middle (Figs 2, 13, 31) . . . . . 9
- 9. Gonostylus almost straight, enlarged basally, 2.0-2.1 times shorter than gonocoxites (Fig. 13), 2.9-3.1 times as long as wide. Gonocoxites without lobes, 2.4-2.7 times as long as wide. F5 2.8-3.2 times as long as wide, basal node 1.9 times longer than stem (Fig. 16). 0.95 mm . . . . . *L. caespitosa* **sp. n.**
- Gonostylus curved apico-ventrally (Figs 2, 31). Gonocoxites with wide basal lobes. F5 2.0 times as long as wide, basal node 2.3-2.4 times longer than stem (Figs 5, 35) . . . . . 10
- 10. Gonostylus 3.0 times shorter than gonocoxites (Fig. 2), 3.3 times as long as wide. Gonocoxites 2.1 times as long as wide. 1.03 mm . . . . . *L. adunca* **sp. n.**
- Gonostylus 1.8 times shorter than gonocoxites (Fig. 31), 3.7 times as long as wide. Gonocoxites 3.8 times as long as wide. F5 2.0 times as long as wide, basal node 2.4 times longer than stem (Fig. 35). 0.83-0.88 mm . . . . . *L. conspecta* **sp. n.**

***Ledomyia volucris* Mamaev, 1972**

*Ledomyia volucris* Mamaev, 1972: 113.

*Lauthia volucris*: Gagné, 2004: 183.

DISTRIBUTION. Russia (Primorskii krai).

***Ledomyia eminens* Fedotova et Sidorenko, 2005**

*Ledomyia eminens* Fedotova & Sidorenko, 2005: 8.

DISTRIBUTION. Russia (Primorskii krai).

***Ledomyia adunca* Fedotova et Sidorenko, sp. n.**

Figs 1-6

MATERIAL. Holotype – ♂ (slide 303/8102/1): RUSSIA, Primorskii krai, Lazovskii Reserve, Proselochnaya bay, river shore, MT, 15-16.VII 2005 (V. Sidorenko).

DIAGNOSIS. The new species differs from other known species by the strongly sclerotized genitalia; hook-like aedeagus; wide wings and flagellomeres with short stem. The new species is closely related to *L. lepida* (Mamaev, 1967) from the Moscow Region but differs by 2+11 antennae (not 2+12 in *lepida*), by F1 2.0 times as long as wide (not 1.5), by the gonostylus 1.3 times shorter than gonocoxites (not 2.0), by the less curved gonostylus and by the presence of wide basal lobes and a sclerotized plate at base of gonocoxites.

DESCRIPTION. MALE. Eye bridge medially 6 facets broad. Body length 1.03 mm, wing length 0.98 mm, wing width 0.45 mm. Antennae 2+11-segmented, scape 1.3 times longer than rounded pedicel. Stem of mid flagellomeres very short. F1 2.0 times as long as wide, basal node 4.6 times longer than stem. F2 1.1 times shorter than F1. F5 2.0 times as long as wide, basal node 2.3 times longer than stem. Palpi 4-segmented, their ratio 1:1.7:1.7:1.6, 1-3 segments oval. Mandibles with tooth apically. F11 ovoid, 1.1 times shorter than F10. Wing strongly rounded, maximally enlarged medially, length 2.3 times as long as wide.  $R_{1+2}$  joining *C* far before middle of wing, 2.4 times shorter than wing;  $R_{4+5}$  strongly curved medially and joining *C* distinctly before of wing apex, 1.1 times shorter than wing. Fork of *Cu* narrow, acuted. Two pores on vein  $R_{4+5}$  present medially. Cell between *C* and  $R_{1+2}$  slightly sclerotized. Genitalia strongly sclerotized. Gonocoxites narrow distally and strongly enlarged proximally, with wide basal lobes, 2.1 times as long as wide. Gonostylus slightly enlarged basally, narrowed distally, with narrow apical claw, 1.3 times shorter than gonocoxites, 3.3 times as long as wide. Cerci wide, with rounded lobes and narrow or wide triangular excision. Hypoproct 2.2 times narrower than cerci, slightly excavated apically, enlarged basally. Aedeagus thin, hook-like apically. Basal outgrowths of gonocoxites equal in width with cerci basally and strongly narrowed near apex, longer than gonocoxites.

FEMALE unknown.

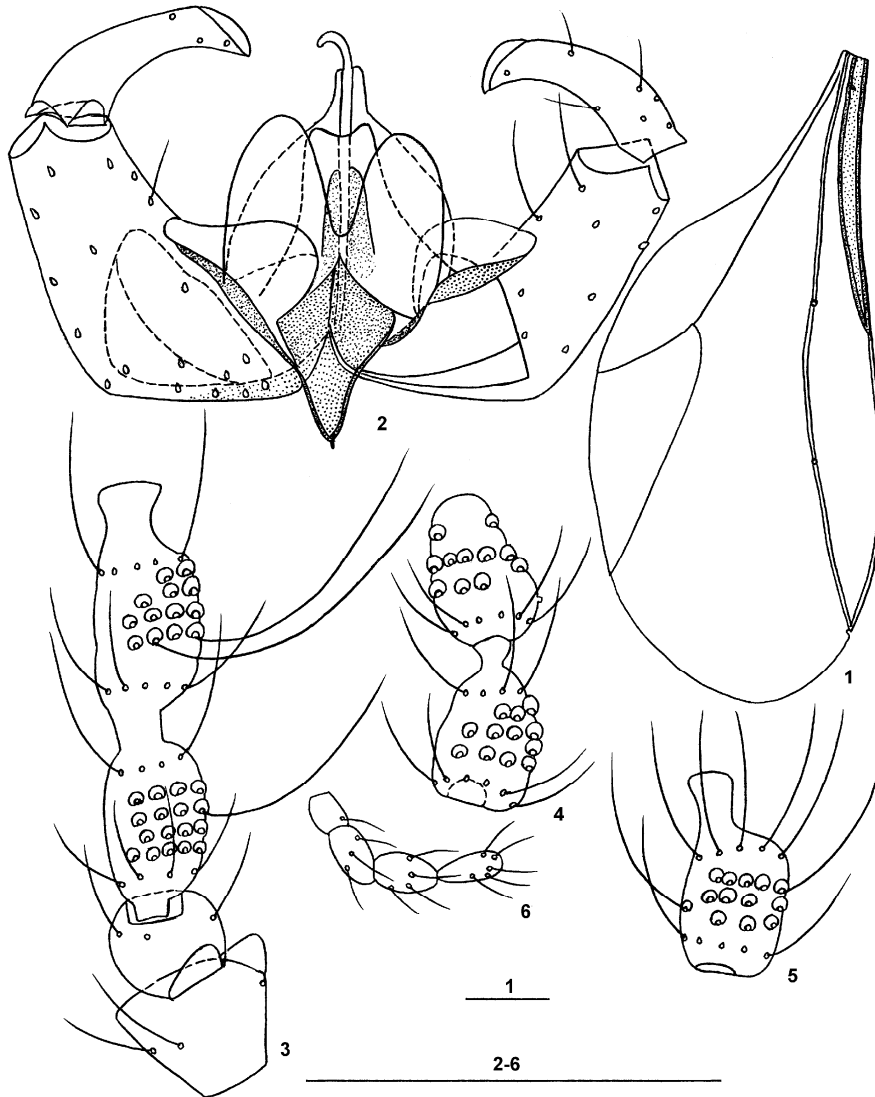
ETYMOLOGY. Species named for shape of apical part of aedeagus.

DISTRIBUTION. Russia (Primorskii krai).

***Ledomyia lignosa* Fedotova et Sidorenko, sp. n.**

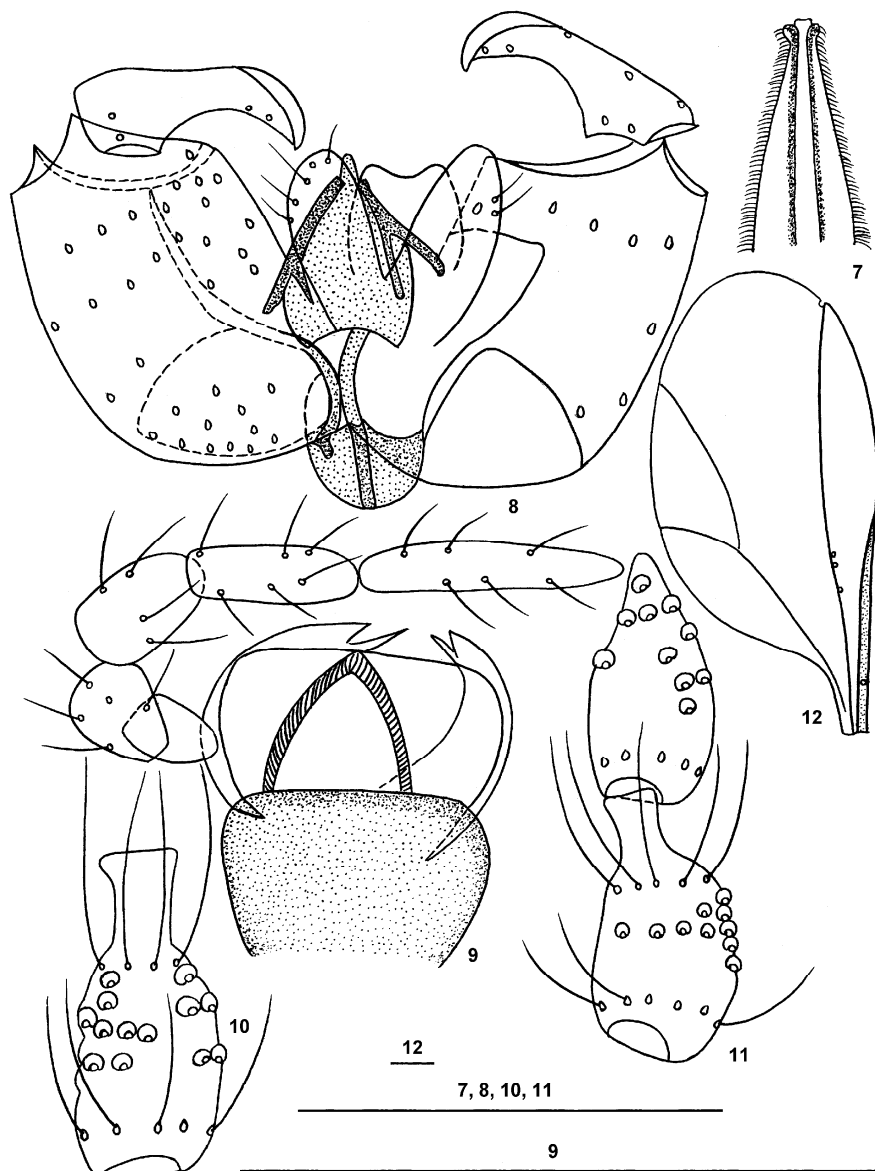
Figs 7-12

MATERIAL. Holotype – ♂ (slide 304/8090/1): RUSSIA, Primorskii krai, Lazovskii Resrve, Koreiskaya pad', MT, river shore, 17-18.VII 2005 (V. Sidorenko).



Figs 1-6. *Ledomyia adunca* sp. n., male: 1) wing; 2) genitalia; 3) scape, pedicel, F1 and F2; 4) F10 and F11; 5) F5; 6) palpus. Scale line - 0.1 mm

DIAGNOSIS. The new species differs from other *Ledomyia* species by the wide sclerotized aedeagus with sclerotized stripes and narrow basal processes of gonocoxites. The new species is closely related to *L. adunca* sp. n., described above but



Figs 7-12. *Ledomyia lignosa* sp. n., male: 7) basal outgrowths of gonocoxites; 8) genitalia; 9) mouth parts; 10) F5; 11, F9 and F10; 12) wing. Scale line - 0.1 mm

differs by 2+10 segmented antennae (not 2+11 in *adunca*); by gonostylus 1.8 times shorter than gonocoxites (not 2.3); by the strongly curved gonostylus and by absence of wide basal lobes and by a sclerotized plate at base of gonocoxites; by an unsclerotized cell between *C* and  $R_{1+2}$ ; and by elongate palpal segments.

DESCRIPTION. MALE. Eye bridge medially 5 facets broad. Body length 1.45 mm, wing length 1.18 mm, wing width 0.6 mm. Antennae 2+10-segmented. Basal nodes of flagellomeres enlarged, with numerous swollen peritremae of setae, stem of mid flagellomeres shorter than node. F1 and F2 equal in length. F5 2.2 times as long as wide, basal node 2.3 times longer than stem. Palpi 4-segmented, their ratio 1:1.3:1.6:2.4, last segment longer and narrower than other. Mandibles toothed. F10 conical, 1.1 times shorter than F9. Tarsal claws lost. Pteropleura with one long row of setae. Wing strongly rounded, maximally enlarged basally, 2.1 times as long as wide.  $R_{1+2}$  joining *C* near wing middle, 2.1 times shorter than wing;  $R_{4+5}$  strongly curved distally and joining *C* distinctly before wing apex, 1.1 times shorter than wing. Fork of *Cu* narrowly pointed basally. Three pores on  $R_{4+5}$  near proximal 1/3 length of vein. Genitalia slightly sclerotized. Gonocoxites strongly enlarged, slightly rounded laterally, without basal lobes, 1.6 times as long as wide. Gonostylus strongly enlarged basally and strongly curved ventrally, with wide apical claw, 1.8 times shorter than gonocoxites, 2.6 times as long as wide. Cerci narrower than width of gonocoxites, without widely oval lobes and wide triangular excision. Hypoproct 1.8 times narrower than cerci, slightly excavated apically and rounded laterally. Sclerotized plate of base of genitalia wider than hypoproct, slightly sclerotized, with thin apical protuberance and lateral strongly sclerotized forked stripes. Setose basal processes of gonocoxites surrounding aedeagus.

FEMALE unknown.

DISTRIBUTION. Russia (Primorskii krai).

***Ledomyia caespitosa* Fedotova et Sidorenko, sp. n.**

Figs 13-18

MATERIAL. Holotype – ♂ (slide 312/8090/1): RUSSIA, Primorskii krai, Lazovskii Reserve, Koreiskaya pad', MT, river shore, 17-18.VII 2005 (V. Sidorenko).

DIAGNOSIS. The new species differs from other *Ledomyia* species by the narrow cerci and hypoproct, and by thin curved gonostylus. Closely related to *L. eminens* by the presence of two pores on  $R_{4+5}$ , but differs by the wider scape and pedicel; by elongate palpi and by absence of a sclerotized cell between *C* and  $R_{1+2}$ .

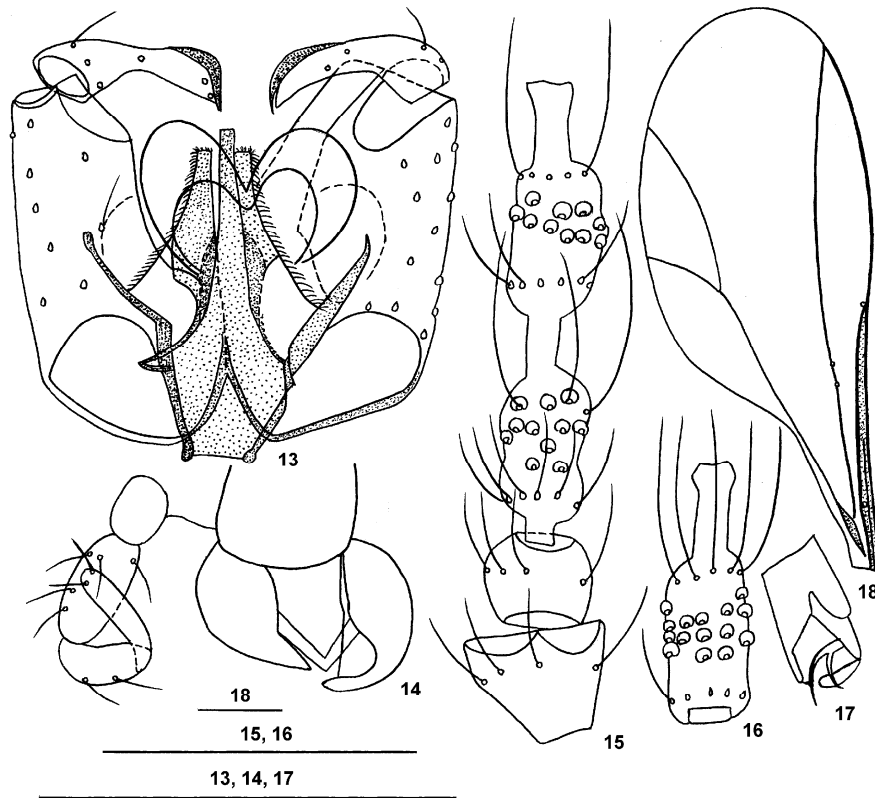
DESCRIPTION. MALE. Eye bridge medially 4 facets broad. Body length 0.95 mm, wing length 1.1, wing width 0.5 mm. Basal nodes of flagellomeres narrow and elongate, with numerous swollen peritremae of setae, stem of mid flagellomeres shorter than node, widened apically. Scape 1.2 times longer than pedicel. F1 2.7 times as long as wide, basal node 3.5 times longer than stem, narrowed medially. F2 1.1 as long as F1, wider than F1. F5 2.8-3.2 times as long as wide, basal node 1.9 times longer than stem. Palpi 4-segmented, their ratio 1:1.7:1.3:1.7, last segment narrowed laterally. Mandibles with thin apical protuberance. Tarsal claws toothed,



empodium as long as claw. Wing strongly rounded apically, maximally enlarged medially, 2.5 times as long as wide.  $R_{1+2}$  joining  $C$  near middle of wing, 2.1 times shorter than wing;  $R_{4+5}$  curved medially, joining  $C$  distinctly before wing apex, 1.1 times shorter than wing, with two pores in basal 1/3 of its length.  $Cu$  forked. Gonocoxites without sclerotized lobes, almost parallel-sided, 2.4-2.7 times as long as wide. Gonostylus almost straight, enlarged basally, 2.0-2.1 times shorter than gonocoxites, 2.9-3.1 times as long as wide. Cerci cordiform; with wide excision and rounded lobes, 1.5 times wider than hypoproct. Hypoproct smaller and narrower than cerci. Aedeagus short, thin and parallel-sided, strongly sclerotized, obtuse apically. Basal processes of gonocoxites thin, short, slightly sclerotized, densely covered by dark microtrichia. Base of genitalia with wide sclerotized plate.

FEMALE unknown.

DISTRIBUTION. Russia (Primorskii krai).



Figs 13-18. *Ledomyia caespitosa* sp. n., male: 13) genitalia; 14) mouth parts; 15) scape, pedicel, F1 and F2; 16) F5; 17) tarsal claw; 18) wing. Scale line - 0.1 mm

***Ledomyia rustica* Fedotova et Sidorenko, sp. n.**

Figs 19-24

MATERIAL. Holotype – ♂ (slide 305/8071/1): RUSSIA, Primorskii krai, Lazovskii Reserve, Koreiskaya pad', MT, river shore, 16-17.VII 2005 (V. Sidorenko). Paratype – ♂ (slide 305/8083/2) the same place, 17-18.VI 2005 (V. Sidorenko).

DIAGNOSIS. The new species differs from other *Ledomyia* species by the short gonostylus, a sclerotized plate at the base of the genitalia, a strongly curved  $R_{4+5}$ , a small hypoproct and very long and thin basal processes of gonocoxites. Similar to *L. caespitosa* sp. n. described above but differs from it by thinner basal processes of gonocoxites, by the short gonocoxites and gonostylus and by the elongate basal node of flagellomeres.

DESCRIPTION. MALE. Eye bridge medially 7 facets broad. Body length 0.75 mm, wing length 0.93 mm, wing width 0.4 mm. Antennae 2+9-segmented. Basal nodes of flagellomeres elongate, almost parallel-sided, with sparse swollen peritremae of setae, stem of mid flagellomeres shorter than node. F1 3.0 times as long as wide, basal node 4.0 times longer than stem. F2 as long as F1 but wider. F5 2.9 times as long as wide, basal node 2.0 times as long as stem. F9 thin, conical, 1.2 times shorter than F8. Tarsal claws with very thin short elongate, empodium shorter than claw. Wing strongly rounded apically, maximally enlarged medially, 2.4 times as long as wide.  $R_{1+2}$  joining *C* near wing middle, 2.1 times shorter than wing;  $R_{4+5}$  strongly curved medially, joining *C* distinctly well before wing apex, 1.2 times shorter than wing. *Cu* narrowly forked. Gonocoxites without medio-basal lobes, almost widely oval, 2.0 times as long as wide. Gonostylus strongly curved ventrally and enlarged basally, 2.9 times as long as wide, as long as width of gonocoxites. Cerci cordiform; with wide triangular excision between rounded lobes, unsclerotized, 2.0 times wider than hypoproct. Hypoproct slightly sclerotized, slightly excavated apically, 2.0 times narrower than cerci. Aedeagus very long, narrow. Base of genitalia with wide sclerotized plate, truncated apically.

FEMALE unknown.

DISTRIBUTION. Russia (Primorskii krai).

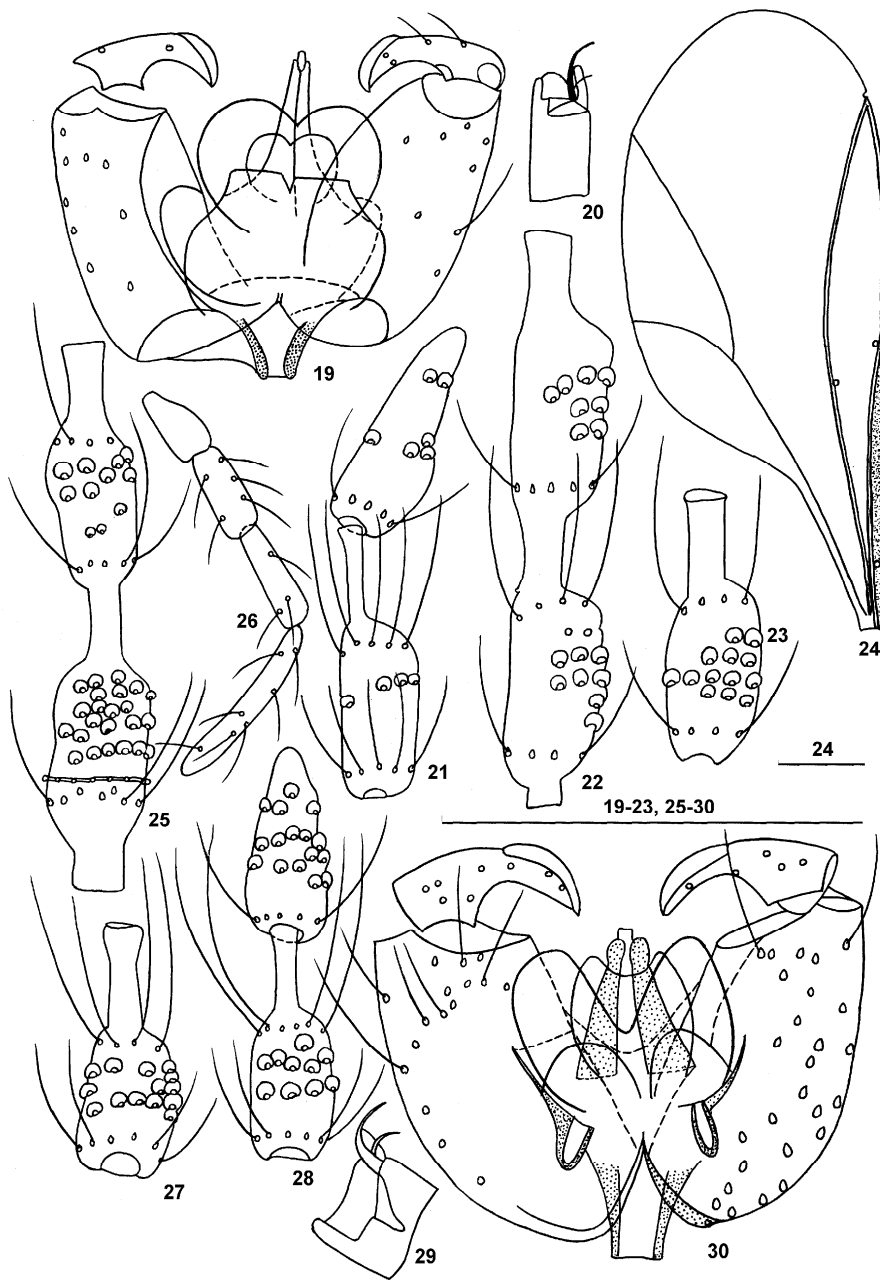
***Ledomyia vaga* Fedotova et Sidorenko, sp. n.**

Figs 25-30, 39

MATERIAL. Holotype – ♂ (slide 321/8095/1): RUSSIA, Primorskii krai, Lazovskii Reserve, cordon America, MT, margin of forest, 18-19.VI 2005 (V. Sidorenko).

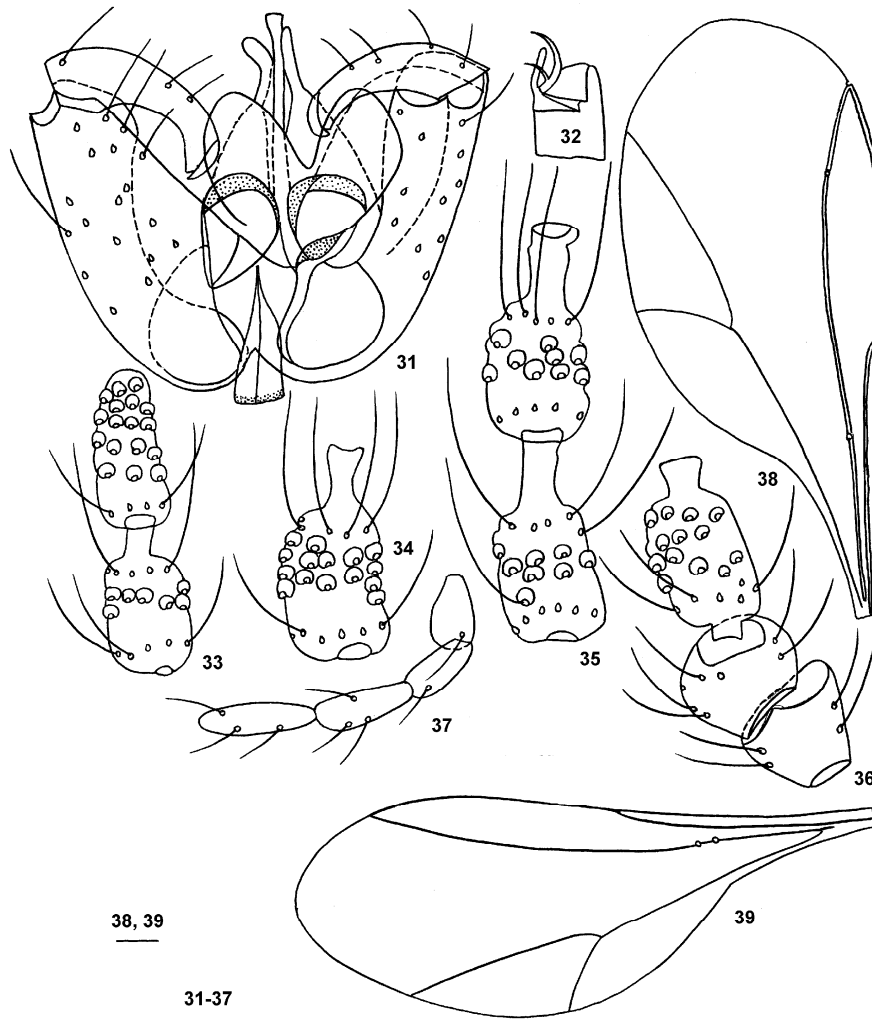
DIAGNOSIS. The new species is closest to *L. rustica* sp. n., but differs by the narrower wing, pointed apically, by slightly curved  $R_{4+5}$ , by longer stem of flagellomeres; by strongly curved and basally enlarged gonostylus and by wide and sclerotized basal processes of gonocoxites.

DESCRIPTION. MALE. Eye bridge medially 5-6 facets broad. Body length 0.85 mm, wing length 1.05 mm, wing width 0.45 mm. Antennae 2+9-segmented. Basal nodes of flagellomeres strongly enlarged, with numerous swollen peritremae of setae,



Figs 19-30. *Ledomyia rustica* sp. n., male (19-24); *L. vaga* n. sp., male (25-30): 19, 30) genitalia; 20, 29) tarsal claw; 21, 28) F8 and F9; 22, 25) F1 and F2; 23, 27) F5; 24) wing; 26) palpi. Scale line - 0.1 mm

stem of mid flagellomeres shorter than node. F1 3.0 times as long as wide, basal node 2.8 times longer than stem. F2 1.1 times longer than F1. F5 2.4 times as long as wide, basal node 1.4 times longer than stem. F9 narrowed apically, 1.2 times shorter than F8. Palpi 4-segmented, their ratio 1:1.1:1.4:2.3, last one thin, parallel-sided, rounded apically. Tarsal claws rounded medially, with thin tooth, empodium almost as long as claw. Wing slightly rounded medially, pointed apically, 2.7 times



Figs 31-39. *Ledomyia conspecta* sp. n., male (31-38); *L. vaga* sp. n., male (39): 31) genitalia; 32) tarsal claw; 33) F10 and F11; 34) F8; 35) F5 and F6; 36) scape, pedicel and F1; 37) palpi; 38, 39) wing. Scale line - 0.1 mm

as long as wide.  $R_{1+2}$  joining  $C$  far before middle of wing, 2.7 times shorter than wing;  $R_{4+5}$  slightly curved medially, joining  $C$  distinctly well before of wing apex, 1.2 times shorter than wing, with pair of pores in basal 1/3 of length.  $Cu$  forked. Genitalia strongly sclerotized. Gonocoxites 2.3 times as long as wide, with medio-basal oval lobes, Gonostylus short and strongly curved, enlarged basally and very thin apically, 1.9 times shorter than gonocoxites, 2.6 times as long as wide, with dorso-apical wide claw. Cerci cordiform, with wide triangular excision, 2.9 times wider than slightly excavated and sclerotized hypoproct. Aedeagus very thin, unsclerotized. Basal processes of gonocoxites sclerotized, slightly enlarged basally, narrowed apically, slightly longer than cerci and hypoproct.

FEMALE unknown.

DISTRIBUTION. Russia (Primorskii krai).

***Ledomyia conspecta* Fedotova et Sidorenko, sp. n.**

Figs 31-38

MATERIAL. Holotype – ♂ (slide 311/8087/1): RUSSIA, Primorskii krai, Lazovskii Reserve, cordon America, MT, forest, 19-20.VII 2005 (V. Sidorenko). Paratype – ♂ (slide 311/8087/2), the same data as holotype.

DIAGNOSIS. The new species differs from other known species by the medio-basal rounded lobes of gonocoxites; by the strongly curved  $R_{4+5}$  and by very long basal processes of the gonocoxites. Closely related to *L. rustica* n. sp., but differs by the very short stem of flagellomeres; by the elongate and strongly curved gonostylus, by absence of a sclerotized plate at base of gonocoxites, by the strongly excised cerci; by presence of 2+11-segmented antennae (not 2+10 in *rustica*).

DESCRIPTION. MALE. Eye bridge medially 5-6 facets broad. Body length 0.83-0.88 mm, wing length 0.88-0.93 mm, wing width 0.4-0.45 mm. Antennae 2+11-segmented. Basal nodes of flagellomeres strongly enlarged, with numerous swollen peritremae of setae, stem of mid flagellomeres much shorter than node. Scape widened distally, as long as transverse pedicel. F1 1.9 times as long as wide, basal node 4.9 times longer than stem. F2 1.1 times longer than F1. F5 2.0 times as long as wide, basal node 2.4 times longer than stem. F11 rounded apically, 1.1 times as long as F10. Palpi 4-segmented, their ratio 1:1.1:1.4:1.6, last segment narrow, almost parallel-sided. Tarsal claws with thin tooth, empodium almost as long as claw. Wing strongly rounded and maximally enlarged apically, 2.5 times as long as wide.  $R_{1+2}$  joining  $C$  near wing middle, 2.2 times shorter than wing;  $R_{4+5}$  strongly curved distally, joining  $C$  distinctly far before wing apex, 1.2 times shorter than wing, with two pores at basal and apical 1/3 of wing.  $Cu$  forked. Abdominal tergites with a pair of lateral lacunae. Genitalia strongly sclerotized. Gonocoxites with medio-basal sclerotized rounded lobes, enlarged basally, 3.8 times as long as wide. Gonostylus strongly curved apico-ventrally, enlarged basally, 1.8 times shorter than gonocoxites, 3.7 times as long as wide. Cerci cordiform; with wide triangular excision between oviform lobes, unsclerotized. Hypoproct indistinct. Aedeagus very long and thin, slightly sclerotized. Basal processes of gonocoxites strongly enlarged basally, thin apically, sclerotized along aedeagus.

FEMALE unknown.

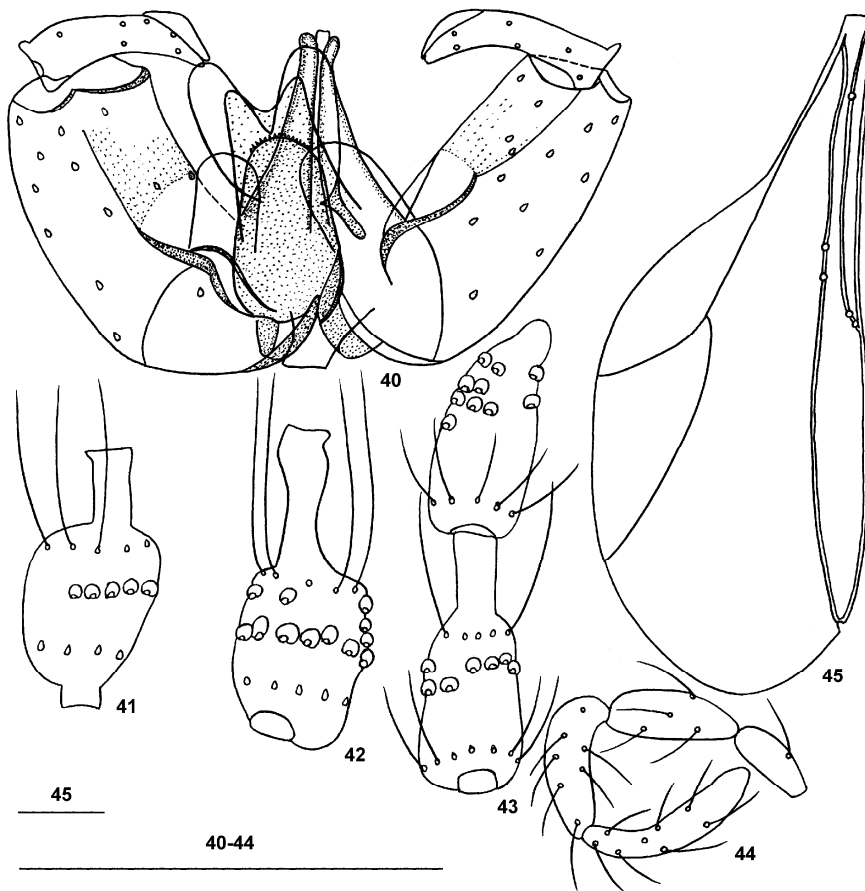
DISTRIBUTION. Russia (Primorskii krai).

***Ledomyia alterna* Fedotova et Sidorenko, sp. n.**

Figs 40-45

MATERIAL. Holotype – ♂ (slide 319/8090/1); RUSSIA, Primorskii krai, Lazovskii Reserve, Koreiskaya pad', MT, river shore, 17-18.VII 2005 (V. Sidorenko).

DIAGNOSIS. The new species differs from other *Ledomyia* species by the very small and narrow cerci and by the straight gonostylus; by the slightly curved  $R_{4+5}$  and by very narrow processes of gonocoxites. Closely related to *L. conspecta* n. sp., but differs by the very long stem of flagellomeres; by straight gonostylus, by elongate and not strongly sclerotized lobes of gonocoxites; by the less wide wing and elongate palpi; by 2+9-segmented antennae (not 2+11 in *conspecta*).



Figs 40-45 *Ledomyia alterna* sp. n., male: 40) genitalia; 41) F1; 42) F5; 43) F9 and F10; 44) palpi; 45) wing. Scale line - 0.1 mm

DESCRIPTION. MALE. Eye bridge medially 2 facets broad, posterior part of eyes divided by occipital triangular sclerotized plate without facets. Body length 1.05 mm, wing length 0.93 mm, wing width 0.38 mm. Antennae 2+9-segmented. Stem of mid flagellomeres slightly shorter than node. F1 2.0 times as long as wide, basal node 2.7 times longer than stem. F2 1.1 times longer than F1. F5 2.3 times as long as wide, basal node 1.2 times longer than stem. F9 narrowed apically, 1.2 times shorter than F8. Palpi 4-segmented, their ratio 1:1.6:1.7:2.2, last segment widened distally. Tarsi very densely covered by scales, tarsal claws with thin tooth, empodium almost as long as claw. Wing strongly rounded and maximally enlarged apically, 2.5 times as long as wide.  $R_{1+2}$  joining *C* near middle of wing, 2.2 times shorter than wing; with one pore near base of wing and two pores near apex.  $R_{4+5}$  strongly curved distally, distinctly joining *C* well before wing apex, 1.4 times shorter than wing, with two pores near middle of wing. *Cu* forked. Genitalia strongly sclerotized. Gonocoxites with medio-basal oval lobes, almost parallel-sided basally, 2.3 times as long as wide. Gonostylus straight, not enlarged basally, 1.9 times shorter than gonocoxites, 3.4-3.8 times as long as wide. Cerci narrower than gonocoxites, with elongate lobes and wide triangular excision, 1.5 times wider than slightly sclerotized small hypoproct. Aedeagus very long and thin, unsclerotized. Basal processes of gonocoxites slightly enlarged basally, with oval protuberance apically, as long as cerci and gonocoxites. Base of genitalia with wide oval sclerotized plate.

FEMALE unknown.

DISTRIBUTION. Russia (Primorskii krai).

***Ledomysia necessaria* Fedotova et Sidorenko, sp. n.**

Figs 46-52

TYPE MATERIAL. Holotype – ♂ (slide 321/8090/1): RUSSIA, Primorskii krai, Lazovskii Reserve, Koreiskaya pad', MT, river shore, 17-18.VII 2005 (V. Sidorenko).

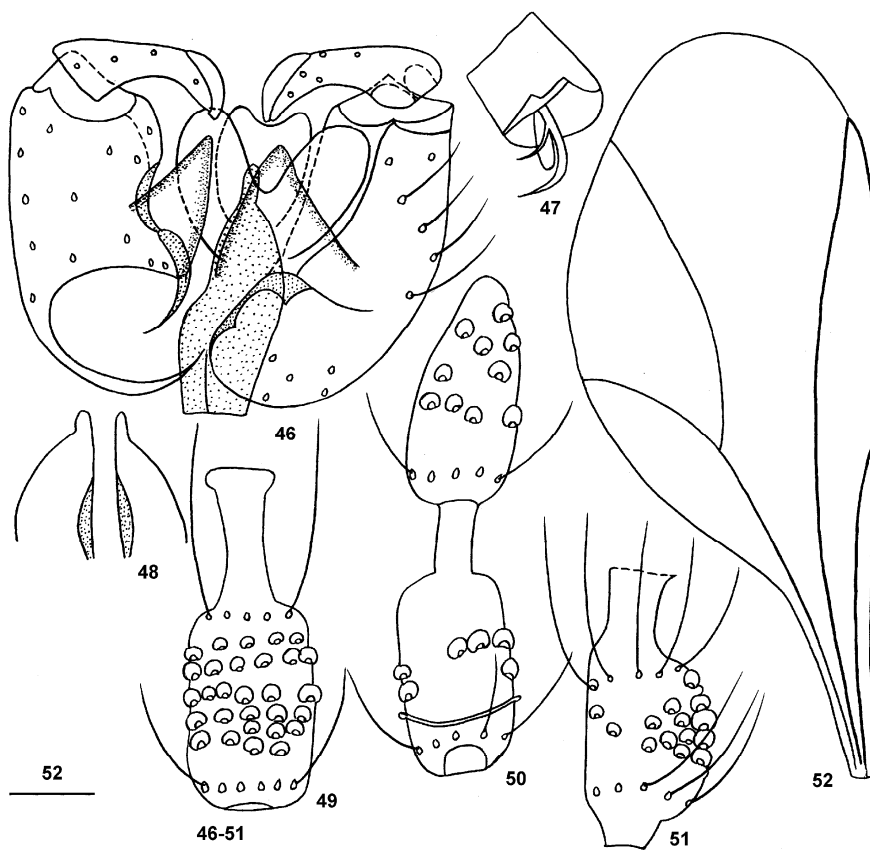
DIAGNOSIS. The new species differs from other species by the very wide and long sclerotized triangular medio-basal swelling. Closely related to *L. caespitosa* n. sp., but differs by very wide basal nodes; by the wide wing with a very long  $M_{3+4}$ ; by apically narrow basal processes of gonocoxites (not widely obtuse); by small and slightly excavated hypoproct.

DESCRIPTION. MALE. Eye bridge medially 5-6 facets broad. Body length 1.2 mm, wing length 1.02 mm, wing width 0.45 mm. Antennae 2+10-segmented. Basal nodes of flagellomeres strongly enlarged, with numerous swollen peritremae of setae, stem of mid flagellomeres much shorter than node. F1 2.1 times as long as wide, basal node 3.3 times longer than stem. F2 1.2 times longer than F1. F5 2.6 times as long as wide, basal node 1.5 times longer than stem. F10 narrowed apically, 1.2 times shorter than F9. Tarsal claws with thin tooth, empodium shorter than claw. Wing strongly rounded and maximally enlarged medially, 2.5 times as long as wide, veins without pores.  $R_{1+2}$  joining *C* near wing middle, 2.2 times shorter than wing;  $R_{4+5}$  slightly curved medially, joining *C* distinctly far before wing apex, 1.1 times shorter

than wing. *Cu* forked,  $M_{3+4}$  very long and abruptly curved. Genitalia strongly sclerotized. Gonocoxites almost straight, slightly curved laterally, 2.3 times as long as wide, with medio-basal sclerotized triangular swelling, slightly shorter than cerci and hypoproct. Gonostylus straight, slightly enlarged basally and curved ventrally, 2.0 times shorter than gonocoxites, 2.6 times as long as wide. Cerci cordiform, transverse, with elongate lobes and wide triangular excision, 1.2 times wider than slightly sclerotized hypoproct. Hypoproct slightly curved apically and rounded laterally. Aedeagus strongly sclerotized basally and narrowed subapically. Basal processes of gonocoxites strongly enlarged apically and narrowed subapically. Sclerotized plate of base of genitalia with thin apical protuberance.

FEMALE unknown.

DISTRIBUTION. Russia (Primorskii krai).



Figs 46-52. *Ledomyia necessaria* sp. n., male: 46) genitalia; 47) tarsal claw; 48) basal outgrowths of gonocoxites; 49) F5; 50) F9 and F10; 51) F1; 52) wing. Scale line - 0.1 mm



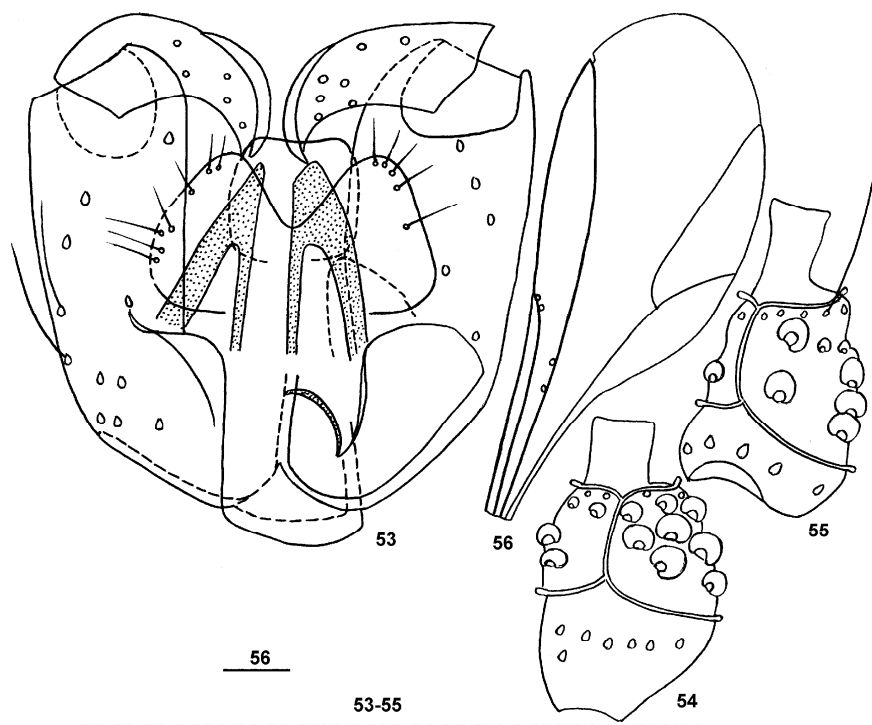
***Ledomyia obturata* Fedotova et Sidorenko, sp. n.**

Figs 53-56

TYPE MATERIAL. Holotype – ♂ (slide 339/8088/1): RUSSIA, Primorskii krai, Lazovskii Reserve, cordon America, MT, river shore, 20-21.VII 2005 (V. Sidorenko). Paratype – ♂ (slide 339/8072/2): Primorskii krai, Lazovskii Reserve, Koreiskaya pad', MT, margin of forest, 17-18.VII 2005 (V. Sidorenko).

DIAGNOSIS. The new species differs from other *Ledomyia*' species by the very small hypoproct, by the sclerotized basal processes of gonocoxites and, by the thick strongly curved gonostylus. Similar to *L. necessaria* n. sp., described above but differs by short stem of flagellomeres; by absence of basal sclerotized swelling of gonocoxites; and by wide cerci and gonostylus.

DESCRIPTION. MALE. Eye bridge medially 4 facets broad, hind part without facets. Body length 0.83-0.88 mm, wing length 0.88-0.93 mm, wing width 0.4-0.45 mm. Basal nodes of flagellomeres strongly enlarged, with numerous swollen peritremae of setae, stem of mid flagellomeres shorter than node. F1 without stem, 2.1 times



Figs 53-56. *Ledomyia obturata* sp. n., male: 53) genitalia; 54) F2; 55) F5; 56) wing. Scale line - 0.1 mm

as long as wide, basal node 3.2 times shorter than width. F2 1.1 times longer than F1. F5 1.8 times as long as wide, basal node 3.1 times longer than stem. Palpi 3-segmented. Tarsal claws with thin tooth at base, empodium equal in length with claw. Wing strongly rounded and maximally enlarged apically, 2.4 times as long as wide.  $R_{1+2}$  joining  $C$  before wing middle, 2.3 times shorter than wing, with two pores near apex.  $R_{4+5}$  strongly curved distally, joining  $C$  distinctly well before wing apex, 1.1 times shorter than wing, with two pores in basal 1/3 of wing.  $Cu$  forked,  $M_{3+4}$  abruptly joining with it. Genitalia strongly sclerotized. Gonocoxites almost parallel-sided basally, 3.0 times as long as wide, with wide rounded apical excision. Gonostylus strongly curved ventrally, 2.5 times as long as wide, with narrow dorso-apical claw, slightly enlarged basally, 2.1 times shorter than gonocoxites. Cerci transverse, with oviform lateral lobes and wide triangular excision, 2.6 times wider than slightly excavated small hypoproct. Aedeagus very long and thin, unsclerotized. Basal processes of gonocoxites strongly enlarged basally, strongly sclerotized laterally, as long as cerci, much shorter than gonocoxites.

FEMALE unknown.

DISTRIBUTION. Russia (Primorskii krai).

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#### REFERENCES

- Fedotova, Z.A. & Sidorenko, V.S. 2005. New species of gall midges of the supertribe Oligotrophidi (Diptera, Cecidomyiidae) from the Russian Far East. – Far Eastern Entomologist 146: 1-12.
- Gagné, R. J. 1985. Descriptions of new Nearctic Cecidomyiidae (Diptera) that live in xylem vessels of fresh-cut wood and a review of *Ledomyia* (s. str.). – Proceedings of the Entomological Society of Washington 87: 116-134.
- Gagné, R.J. 2004. A catalog of the Cecidomyiidae (Diptera) of the world. – Memoirs of the Entomological Society of Washington 25: 1-408.
- Kieffer, J.J. 1894. Ueber die Heteropezinae. – Wiener Entomologische Zeitung 13: 200-212, pl. 1.
- Kieffer, J.J. 1895. Changement de nom. – Bulletin de la Société Entomologique de France, 1895: cccxx.
- Mamaev, B.M. 1967. Gall-midges of the USSR. 7. New species of non gall-making gall midges of the tribe Oligotrophidi (Diptera, Cecidomyiidae). – Entomologicheskoe Obozrenie 46: 873-883.
- Mamaev B.M. 1972. The fauna and ecological relations of the insect-pests of the valley elm wood, p. 106-120. – In: Ivliev L.A., Kononova Z.A. (eds.), Proceeding of Institute Biology and Pedology (n. s.) 7(110): 106-120.

Skuhrová M. 1986. Family Cecidomyiidae, p. 72-297. – In: Soós Á., Papp L. (eds.), Catalogue of Palearctic Diptera: Sciaridae – Anisopodidae. Vol. 4. Budapest, Akadémiai Kiadó, 441 pp.

Skuhrová M. 1997. 2.7. Family Cecidomyiidae, 71-204. – In: Papp L., Darvas B. (eds.), Contribution to a Manual of Palearctic Diptera. Vol. 2: Nematocera and Lower Brachycera. Science Herald, Budapest, 592 pp.