Three new species of the biting midge *Forcipomyia* subgenus *Lasiohelea* from Honshu, Japan (Diptera: Ceratopogonidae)

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**Abstract**: Three new species of Japanese *Forcipomyia* (*Lasiohelea*) are described and illustrated. Those are *F. (L.) moriokensis* sp. n., *F. (L.) matsumurai* sp. n. and *F. (L.) nasuensis* sp. n.

**INTRODUCTION**

The genus *Lasiohelea* in the family Ceratopogonidae was erected by Kieffer (1921), but his generic diagnosis was extremely vague. In the monumental work on the family in Micronesia, Tokunaga and Murachi (1959) introduced a new concept of *Lasiohelea* as a subgenus of *Forcipomyia*. The major subgeneric characters were: distal five segments of female antenna cylindrical and distinctly longer than segment 9; long and very narrow second radial cell of female wing; paired hook-like sclerites of aedeagus; and simple arch-like parameres of male genitalia. Relegation of *Lasiohelea* to the subgeneric status under *Forcipomyia* was followed by Saunders (1964), Chan and Le Roux (1970), Debenham (1983), Boorman (1987) and Lien (1989, 1991), while Yu and Liu (1982) resurrected *Lasiohelea* as the genus. Although fifteen species of *Lasiohelea* have been described by Tokunaga (1940), when the present author follow the definition of Tokunaga and Murachi (1959), most Japanese species of *Lasiohelea* described by Tokunaga (1940) should be transferred to subgenera *Synthriomyia*, *Thridomyia*, etc., and only *F. longicornis* Tokunaga and *F. nipponica* Tokunaga seem to remain in the subgenus *Lasiohelea*.

Holotypes and allotypes used for the following description are deposited in the National Science Museum, Natural History Institute, Shinjuku, Tokyo, Japan.

**DESCRIPTION**

*Forcipomyia* (*Lasiohelea*) *moriokensis* sp. n.

Female (Fig. 1). Wing (Fig. 1E): Length 1.24 (1.20–1.32, n=11) mm.

Head brown, P/H ratio (length from the level of ventral edge to the tip of labrum/length from this level to the dorsal surface of eyes) 1.33 (1.27–1.40, n=8), eyes bare. Antenna (Fig. 1A) dark brown, basal segments 3–10 short oval, segments 11–15 distinctively elongated, segment 15 with terminal papillae; segments 3–15 in proportion of 30-22-22-22-22-22-22-26-90-86-88-92-124; AR 2.52 (2.36–2.72, n=10). Palpal segments (Fig. 1B) in proportion of 24-58-52-26-50; third segment greatly swollen, rather barrel-shaped, with small, simple and sometimes

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contiguous pits scattering in a roughly circular area on apical 2/3 of segment, PR 1.74 (1.60–1.92, n=9). Cibarial spines (Fig. 1C, F) 19 in number, thorn-like, central ones larger than lateral ones, their triangular bases joined by a fine line. Mandible with about 25 teeth.

Thorax brown, humoral area and lateral margin of scutum pale, scutellum with lines of 8 large setae and about 10 smaller setae, most of these arranged along anterior margin of scutellum. Legs yellowish brown, mid tibia and tarsi of all legs with striated scales, hind TR 2.03 (1.94–2.06, n=11). Wing with distinct bare areas along veins, CR 0.67 (0.66–0.68, n=11). Halter pale, infuscated.

Abdomen light brown. Spermatheca (Fig. 1D) dark, 80 by 76 μm, circular aperture 30 μm in diameter.

Fig. 1 Forcipomyia (Lasiohelea) moriokensis sp. n. Female.
A: antenna; B: palpal segments; C: cibarial armature; D: spermatheca; E: wing; F: cibarium.
Male. Unknown.
Remarks: F. (L.) morioakensis sp. n. is related to Chinese L. punigoensis Yu et Liu, 1982, which has 19 circarib teeth and shows similar feeding habit, but the present new species has a very high value of AR (2.52 compared to 1.9). This species seems to feed on cattle, as almost all of them were collected as engorged state in a cattle-baited trap set on the pasture in Omyojojim Farm.

Forcipomyia (Lasiohelea) matsumurai sp. n.

Female (Fig. 2). Wing: Length 1.05 (0.96–1.16, n=8) mm.

Eyes bare, P/H ratio 1.03 (1.00–1.05, n=7). Antenna (Fig. 2A) dark brown, segments 3–15 in proportion of 38-26-26-28-30-30-34-86-86-86-86-110; AR 1.89 (1.82–2.02, n=8). Palpal segments (Fig. 2B) in proportion of 22-32-52-20-48; third segment greatly swollen innerly and roughly triangular in outline, sensory pit deep and pouch-like, opening through small circular aperture, PR 1.47 (1.37–1.55, n=7). Cibarial spines (Fig. 2C) 13 to 18 in number, heavily chitinized and thorn-like, with contiguous triangular bases, central spines distinctively longer than lateral ones, each with basal apodeme longer than spines.

Thorax brown, with row of 9 setae and scattered small setae. Legs brown in color, tarsi of all legs with striated scales, hind TR 1.80. Wing with broad bare areas along veins, CR 0.59. Halter infuscated, paler at apex of knob.

Spermatheca (Fig. 2D) 108 by 96 μm, circular aperture 20 μm in diameter.

Male (Fig. 4). Wing: Length 1.02 and 1.10 mm.

Palpal segments (Fig. 4A) in proportion of 14-34-42-22-40; third segment less swollen than that of female and small pouch-like sensory pit; PR 1.85. Antennal segments 12–15 in proportion of 96-90-72-96. Cibarial spines reduced to about eight small ones. Hind TR 1.70.

Genitalia (Fig. 4B): Ninth sternite moderately short, basistyle cylindrical; dististyle slender, gently arched, shorter than basistyle. Aedeagus consisting of approximately triangular sclerites, each with heavily chitinized basal arm and two prominent hooks; para- meres bridge-like, arcuate.

Remarks: F. (L.) matsumurai sp. n. is morphologically unique in the structure of subtriangular third palpal segment with deep pouch-like sensory pit. Similar deep sensory pit is seen in the Australian species russelli Debenham, 1983 and puteus Debenham, 1983, but the outline of third segment of these two species is different from that of the present new species. The structure of male genitalia of the new species is distinctive.

Forcipomyia (Lasiohelea) nasuensis sp. n.

Female (Fig. 3). Wing: Length 0.85 (0.82–0.90, n=3) mm.

Head brown, P/H ratio 1.10, eyes bare. Antenna (Fig. 3A) dark brown, segments 3–15 in proportion of 35-20-20-20-20-20-24-56-66-66-66-82, AR 1.91 (1.85–1.96, n=3). Palpal segments (Fig. 3B) in proportion of 20-34-38-22-34; third segment moderately and evenly swollen, maximum breadth 2/3 length of segment, with shallow circular sensory pit on apical half of segment, bearing capitate sensilla; PR 1.55. Cibarial spines (Fig. 3C) 23 in number, central ones longer than lateral ones, each with basal apodeme at a half of length of spines lying on boom-erang-shaped, chitinized edge and projecting slightly above and below apodeme.

Thorax brown, scutellum with row of 9
Fig. 2 *Forcipomyia (Lasiohelea) matsumurai* sp. n. Female.
A: antenna; B: palpal segments; C: cibarial armature; D: spermatheca.

Fig. 3 *Forcipomyia (Lasiohelea) nasuensis* sp. n. Female.
A: antenna; B: palpal segments; C: cibarial armature; D: spermatheca.
or 10 long setae and scattering small setae. Legs pale brown, tarsi of all legs with striated scales; hind TR 1.82. Wing with distinct bare areas along veins, CR 0.60. Halter pale brown. Abdomen light brown. Spermatheca 72
by 74 μm, circular aperture in diameter of 24 μm.

Male (Fig. 5). Palpal segments (Fig. 5A) in proportion of 18-34-43-28-50, PR 2.3, third segment less swollen than that of female and with shallow, circular sensory pit on apical half of segment. Antennal segments 12–15 in proportion of 90-82-70-92. Gibarial spines reduced to 12–17 small spines. Hind TR 1.83, CR 0.56.

Genitalia (Fig. 5B): Ninth sternite moderately short, basistyle subcylindrical, dististyle nearly straight, shorter than basistyle. Aedeagus consisting of a pair of fishhook-like sclerites, each with heavily chitinized basal arm curved ventrad to triangular tip; median portion tapering to triangular tip curved laterad.

Holotype: ♀, Shiobara-machi, Tochigi, 26 September 1985, T. Matsumura leg.


Paratypes: ♂, Shiobara-machi, 4 July 1985; ♂ and ♀, 29, 20 September 1985; all T. Matsumura leg.

Remarks: F. (L.) nasuensis sp. n. is very similar to divergens Yu et Wu, 1982 in the morphological characters of female, but those of male genitalia are different. This new species resembles longicornis Tokunaga, 1940, being caught commonly in the same samples. The structure of male genitalia is similar to each other in general, but the median portion of aedeagus of nasuensis sp. n. is shorter than that of longicornis and the basal arm of the former curved ventrad to triangular tip.

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References


摘要

本州産吸血性プモドキ Forcipomyia (Lasiohelea) の3新種
（翅目の：スキカ科）

本州北部の2地点で吸血性プモドキの3新種が発見された。盛岡外で放牧牛に飛来したミオカプモドキ F. (L.) moriokenisp n. は、近似の習性で知られた中頭産 punogobiosi と比べ著しく大きな触角比をもつ。那須の放牧草地で採集されたマツムラプモドキ F. (L.) matsumurai p n. は触角第3節の輪郭が正三角形で構造の感覚孔を有し、他のナスプモドキ F. (L.) nasuensis p n. は既知種 longicornis と雄ではごく近似し、雌では尾器の形態が相違している。