

*Jpn. J. Ent.*, 60 (1): 229-237. March 25, 1992

## Notes on the Genus *Loxocera* MEIGEN (Diptera, Psilidae) from Japan, Sakhalin and the Kuril Islands<sup>1)</sup>

Mitsuhiro IWASA

Laboratory of Entomology, Obihiro University of Agriculture and  
Veterinary Medicine, Obihiro, Hokkaido, 080 Japan

**Abstract** Six species including three new species of the genus *Loxocera* MEIGEN are recorded from Japan, Sakhalin and the Kuril Islands: *L. (Platystyla) matsumurai* n. sp. from Japan and Sakhalin, *L. (P.) monstrata* n. sp., and *L. (L.) lutulenta* n. sp. from Japan. *L. (L.) achaeta* SHATALKIN, *L. (L.) fulviventris* MEIGEN and *L. (L.) maculipennis* HENDEL and newly recorded from Japan. A key to the Japanese species is also presented.

**Key words:** Diptera; Psilidae; *Loxocera*; Japan; Sakhalin; the Kurils.

### Introduction

Flies of the genus *Loxocera* MEIGEN are distributed in the Holarctic, Oriental and Afrotropical Regions. The larvae of some species are phytophagous, living in stems and roots of plants (BRINDLE, 1965). The taxonomy of the Palaearctic species has been comprehensively studied by HENNIG (1941), COLLIN (1944), LYNEBORG (1964), SOÓS (1984) and SHATALKIN (1983, 1989). The Oriental species have been reported by HENDEL (1913), MEIJERE (1916), HENNIG (1940), FREY (1955) and COGAN (1977). However, no species has been recorded from Japan until now.

Recently, I examined a series of *Loxocera* specimens collected by many entomologists in Japan, Sakhalin and the Kuril Islands. In the present paper, I describe three new species from Japan and Sakhalin, and record three species for the first time from Japan.

### Genus *Loxocera* MEIGEN

[Japanese name: Chôkaku-haneorebae-zoku]

*Loxocera* MEIGEN, 1803, Mag. Insektenk., 2: 275. Type species: *Musca aristata* PANZER, 1801, Faunae insect. germ., Fasc. 73: 24.

The genus *Loxocera* probably represents an intermediate group between the genera *Psila* and *Chyliza*, and differs from them by its remarkably lengthened 3rd antennal segment. This genus comprises 3 subgenera, *Loxocera*, *Tropeopsila* and *Platystyla* (HENNIG, 1941; SHATALKIN, 1989). In the subgenus *Platystyla*, 1st

1) Contribution No. 144 from the Laboratory of Entomology, Obihiro University of Agriculture and Veterinary Medicine.

and 2nd antennal segments are also long, and the arista is thick and diverges on the portion from middle to apical part of 3rd segment. In the course of the present study, I found two species with the characteristic arista stated above, but without long 1st and 2nd antennal segments. The structures of 3rd antennal segment including arista and male genitalia show that those are the members of subgenus *Platystyla*. Then, the characteristics of the genus *Loxocera* are defined as follows: occiput flat or somewhat concave; 1st and 2nd antennal segments variable from short to long; 3rd antennal segment 3–14 times its breadth at base; arista short-haired or pubescent; *pvt* and *vt* present or absent; thorax yellow to black; *n*, *sa* and *dc* present or absent; *1 pa* and *1 sc* usually present; wing hyaline or often maculate; legs mostly yellow to brown; abdomen yellow to black; parameres often developed.

#### Key to the species of the genus *Loxocera* from Japan

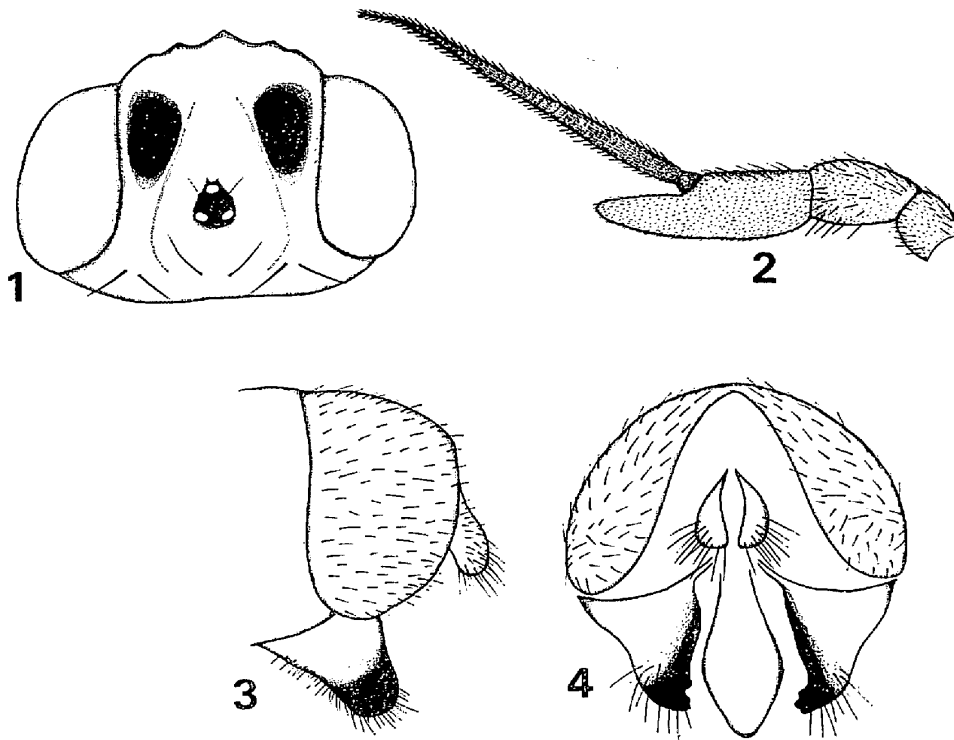
1. Third antennal segment about 3–3.3 times as long as its breadth at base; arista thick and diverges at middle or apex of 3rd segment ..... Subgenus *Platystyla* .... 2
- Third antennal segment about 9–14 times as long as its breadth at base; arista slender, arising at base of 3rd segment ..... 3
2. Frons yellow with a pair of black suboval spots; arista apically slender and pointed ..... *L. (Platystyla) matsumurai* n. sp.
- Frons dark brown to black; arista apically not so slender ..... *L. (Platystyla) monstrata* n. sp.
3. *Dc* present ..... *L. (Loxocera) fulviventris* MEIGEN
- *Dc* absent ..... 4
4. *Vt* and *n* present ..... *L. (Loxocera) maculipennis* HENDEL
- *Vt* and *n* absent ..... 5
5. Wing with diffused maculae at middle and apical part; 2nd to 5th tergites laterally yellow; epandrium broad in lateral view ..... *L. (Loxocera) lutulenta* n. sp.
- Wing with brownish marginations along veins; tergites wholly brown; epandrium narrow in lateral view ..... *L. (Loxocera) achaeta* SHATALKIN

#### *Loxocera (Platystyla) matsumurai* n. sp.

[Japanese name: Matsumura-chôkaku-haneorebae]

(Figs. 1–4)

♂♀. Head: eyes brown; frons yellow, with a pair of black suboval spots (Fig. 1); ocellar triangle small and black; face, facial orbit, gena and occiput yellow; 1st to 3rd antennal segments yellow to light brown, 3rd segment about 3 times as long as its breadth at base (Fig. 2); arista dark brown, thick and pubescent, and



Figs 1-4. *Loxocera (Platystyla) matsumurai* n. sp. — 1, Head, dorsal view; 2, antenna, lateral view (left); 3, male genitalia, lateral view (left); 4, ditto, posterior view.

diverged from near middle part of 3rd antennal segment; palpi wholly yellow; 1 *oc*; 2 *vt*, 1 *pvt*; *or* vestigial.

Thorax: mesonotum, scutellum and pleura wholly yellow; 1 *sa*, 1 *pa*, 1 *dc*, 1 *sc*; *n* absent. Wing: hyaline; veins brownish yellow; vein  $M_{1+2}$  slightly curved; halter yellow. Legs: all femora, tibiae and tarsi yellow.

Abdomen: tergites brown, shiny and clothed with minute hairs; epandrium and surstylus as shown in Figs. 3-4.

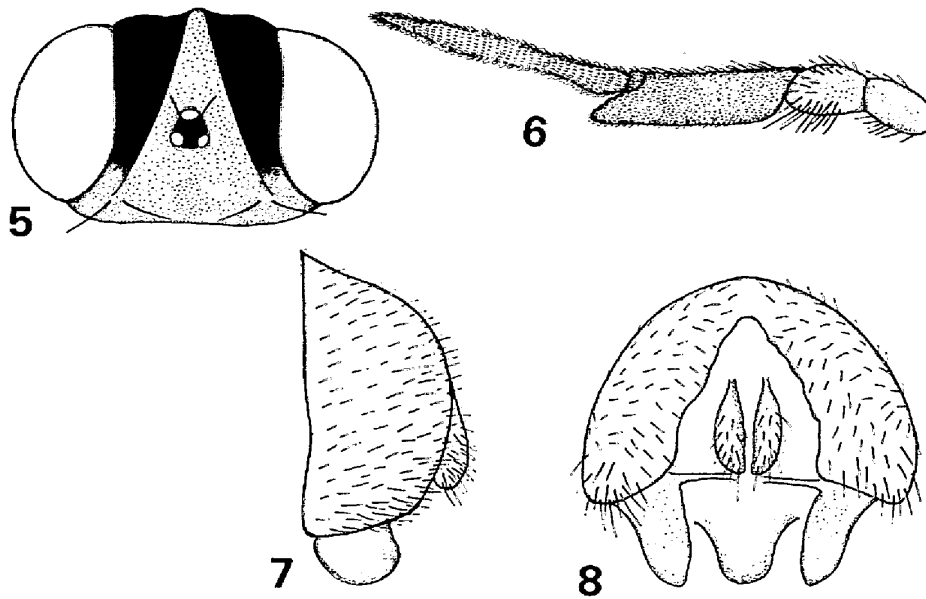
Body length, 10-11 mm; wing length, 7 mm.

Holotype: ♂, Toyohara, Sakhalin, 24 Aug. 1914, ADACHI & ISSHIKI (preserved in Entomological Institute, Hokkaido University). Paratypes: [Hokkaido]—1 ♀, Taniyama, Hokkaido, 29 Aug. 1904, S. MATSUMURA; 1 ♀, Ishiyama, Sapporo, 26 Aug. 1904, S. MATSUMURA.

*Distribution.* Sakhalin and Japan (Hokkaido).

*Remarks.* This species seems to be related to the Palearctic *L. (P.) hoffmannseggi* MEIGEN, but is distinctive in its short 1st and 2nd antennal segments.

The present new species is named in honor of the late Prof. S. MATSUMURA of Hokkaido University.



Figs. 5–8. *Loxocera (Platystyla) monstrata* n. sp. — 5, Head, dorsal view; 6, antenna, lateral view (left); 7, male genitalia, lateral view (left); 8, ditto, posterior view.

*Loxocera (Platystyla) monstrata* n. sp.

[Japanese name: Kushigemati-chōkaku-haneorebae]

(Figs. 5–8)

♂♀. Head: eyes brown; frons dark brown with developed ocellar triangle which is light brown (Fig. 5); face black; facial orbit and gena yellow; occiput dark brown; 1st and 2nd antennal segments light brown, 3rd segment brown and about 3.3 times as long as its breadth at base (Fig. 6); arista dark brown, thick and pubescent, and diverged from apical part of 3rd antennal segment; palpi yellow, darkened apically; 1 *oc*; 2 *vt*; *or* and *pvt* vestigial.

Thorax: mesonotum, scutellum and pleura wholly yellow; metanotum dark brown; 1 *n*, 1 *pa*, 1 *dc* and 1 *sc*; *sa* absent. Wing: hyaline, tinged with light brown; veins brown; vein  $M_{1+2}$  slightly curved; halter wholly light brown. Legs: all femora yellow, only hind femur with narrow black band at distal end; fore tibia yellow, middle and hind tibiae light brown; tarsi light brown, darkened apically.

Abdomen: wholly dark brown and shiny; tergites clothed with short hairs; epandrium and surstylus as shown in Figs. 7–8.

Body length, 8 mm; wing length, 5.5–6.0 mm.

Holotype: ♂, Mt. Gassan, Honshu, 2 Sep. 1966, K. KUSIGEMATI (preserved in Entomological Institute, Hokkaido University). Paratype: 1 ♀, same data as the holotype.

*Distribution.* Japan (Honshu).

*Remarks.* This species is separable from *matsumurai* n. sp. by the characters given in the key.

*Loxocera (Loxocera) fulviventris* MEIGEN, 1826

[Japanese name: Hitosuji-chôkaku-haneorebae]

(Figs. 9–11)

*Loxocera fulviventris* MEIGEN, 1826, Syst. Besch., 5: 365.

*Loxocera fulviventris*: HENNIG, 1941, Flieg. palaearkt. Reg., 41: 28; Soós, 1984, Catalog. Palaearkt. Dipt., 9: 34.

♂. Head wholly black; 1st and 2nd antennal segments light brown; 3rd segment dark brown to black and 14 times as long as its breadth at base (Fig. 9), arista pale yellow, pubescent and about half length of 3rd antennal segment; palpi brown; 1 *oc*, 2 *vt*; *pvt* absent; mesonotum black in anterior half and yellow in posterior half and centrally with a longitudinal black stripe; scutellum brown; pleura almost yellow; 1 *n*, 1 *sa*, 1 *pa*, 1 *dc*, 2 *sc* (one pair small); wings hyaline, tinged with brown; legs almost yellow except black apical segments of tarsi; abdomen almost black; male genitalia as shown in Figs. 10–11. Body length, 4–5 mm; wing length, 4 mm.

*Specimens examined.* [Kurils]—1 ♂, Kunashiri, Harukamappu, 15 Aug. 1940, S. KAWAMURA & Y. SUGIHARA. [Sakhalin]—1 ♂, Sakaegaoka, 19 Aug. 1914, ADACHI & ISSHIKI. [Hokkaido]—1 ♂, Nakasatsunai, 13 Aug. 1968, H. TORIKURA. [Kyushu]—1 ♂, Gokanoshô, Kumamoto, 12 Sep. 1971, K. KANMIYA.

*Distribution.* North and Central Europe, USSR and Japan (Hokkaido and Kyushu). New to Japan.

*Loxocera (Loxocera) maculipennis* HENDEL, 1913

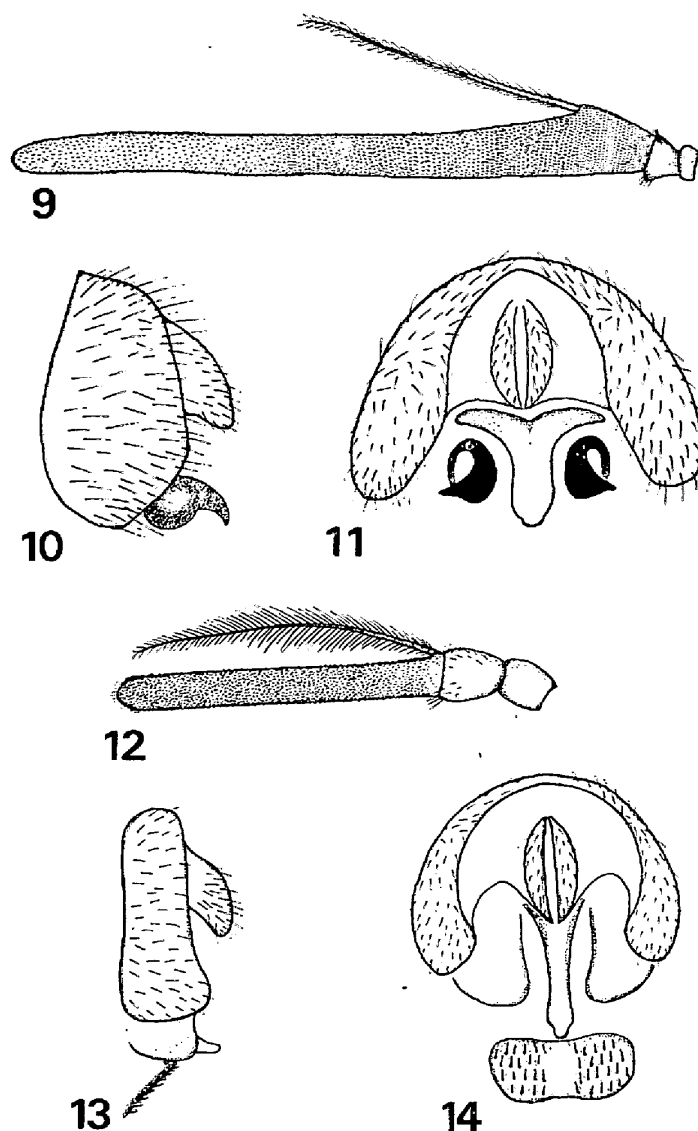
[Japanese name: Kiïro-chôkaku-haneorebae]

(Figs. 12–14)

*Loxocera maculipennis* HENDEL, 1913, Supplta. ent., 2: 86.

*Loxocera maculipennis*: COGAN, 1977, Catalog. Dipt. orient. Reg., 3: 25.

♂♀. Head yellow except black ocellar triangle; 1st antennal segment brown, 2nd segment yellow, 3rd segment black and about 9 times as long as its breadth at base; arista short-haired and almost same length as 3rd antennal segment; palpi yellow; 1 *oc*, 2 *vt*; *pvt* absent; mesonotum yellow with 2 longitudinal stripes from humeral calli to scutellum; scutellum yellow; mesopleuron, sternopleuron and anterior half of pteropleuron yellow; posterior half of pteropleuron, hypopleuron and metanotum black; 1 *n*, 1 *sa*, 1 *pa*, 1 *sc*; *dc* absent; wing hyaline with a diffused dark spot on central part; legs yellow; abdomen dark brown; male genitalia and 5th sternite as shown in Figs. 13–14. Body length, 4.5 mm; wing length, 4 mm.

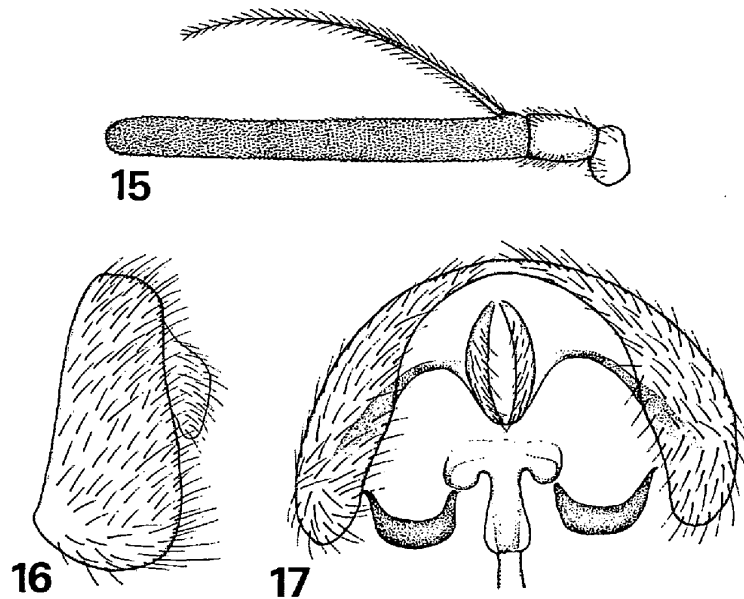


Figs. 9-11. *Loxocera (Loxocera) fulviventris* MEIGEN. — 9, Antenna, lateral view (left); 10, male genitalia, lateral view (left); 11, ditto, posterior view.

Figs. 12-14. *Loxocera (Loxocera) maculipennis* HENDEL. — 12, Antenna, lateral view (left); 13, male genitalia and 5th sternite, lateral view (left); 14, ditto, posterior view.

*Specimens examined.* 1 ♂, Mt. Omoto, Ishigaki Is., Okinawa, 20 May 1975, H. MAKIHARA; 1 ♂, 2 ♀, Ushiku-mori, Iriomote Is., Okinawa, 11 March 1964, Y. MIYATAKE.

*Distribution.* Japan (Okinawa: Ishigaki and Iriomote Islands) and Taiwan. New to Japan.



Figs. 15–17. *Loxocera (Loxocera) achaeta* SHATALKIN. — 15, Antenna, lateral view (left); 16, male genitalia, lateral view (left); 17, ditto, posterior view.

*Loxocera (Loxocera) achaeta* SHATALKIN, 1989

[Japanese name: Kyokutô-chôkaku-haneorebae]

(Figs. 15–17)

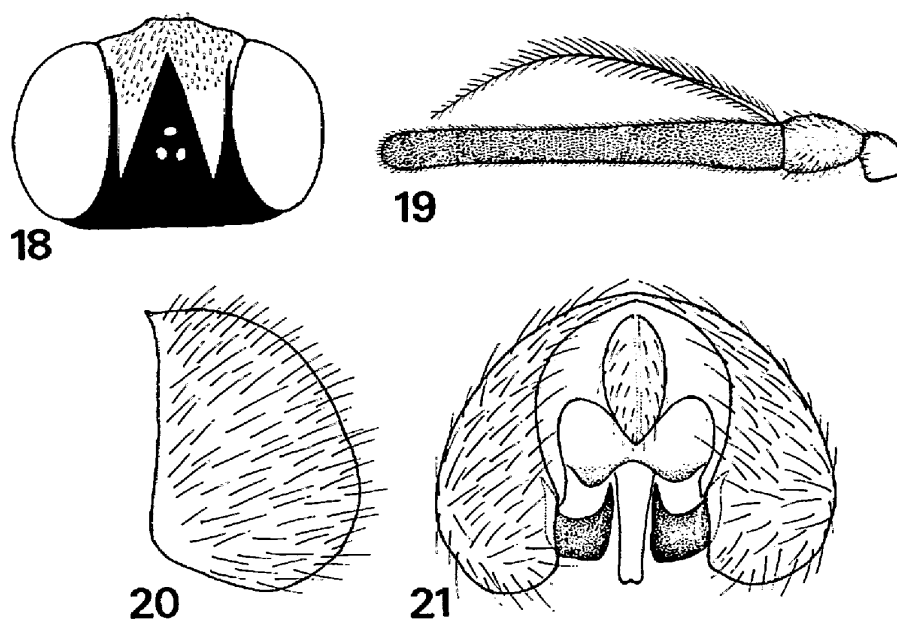
*Loxocera (Loxocera) achaeta* SHATALKIN, 1989, Archs. zool. Mus. Moscow State Univ., 27: 97.

♂♀. Frons dark brown; face, facial orbit and gena yellow; antennal segments brown to dark brown, 3rd segment about 9 times as long as breadth at base (Fig. 15); arista yellow and short-haired; palpi yellow; 1 *oc*; *or*, *vt*, *pvt* absent; mesonotum and scutellum dark brown to black; pleura almost yellow, only metapleuron black; 1 *sa*, 1 *pa*, 1 *sc*; *n* and *dc* absent; wing with brownish marginations along veins; halter yellow; legs almost yellow, only hind tibia light brown to brown in middle part; abdominal tergites dark brown, clothed with hairs; epandrium and parameres as shown in Figs. 16–17. Body length, 5–6 mm; wing length, 5 mm.

*Specimens examined.* [Kurils]—1 ♂, Shikotan, 23–27 July 1935, Y. SUGIHARA. [Hokkaido]—1 ♂, Aizankei, 15 July 1960, K. KAMIJÔ; 1 ♀, Mt. Daisetsu, 28 July 1951, Y. NISHIJIMA; 1 ♀, Mt. YUBARI, 10 Aug. 1966, K. KUSIGEMATI. [Honshu]—1 ♂, Oze, Gunma Pref., 7 July 1951, H. HASEGAWA; 1 ♂, Tokyo, 20 May 1951, H. HASEGAWA; 1 ♂, Takatsuki, Osaka Pref., 10 May 1948, S. IRÔ; 1 ♀, Kôbe, Hyôgo Pref., 30 April, 1966, A. TANAKA.

*Distribution.* USSR (Far East) and Japan (Hokkaido and Honshu). New to Japan.

*Remarks.* This species is variable in colour of mesonotum and wing, but no distinct difference is found among the specimens in the structure of male genitalia.



Figs. 18–21. *Loxocera (Loxocera) lutulenta* n. sp. — 18, Head, dorsal view; 19, antenna, lateral view (left); 20, male genitalia, lateral view (left); 21, ditto, posterior view.

*Loxocera (Loxocera) lutulenta* n. sp.

[Japanese name: Takagi-chōkaku-haneorebae]

(Figs. 18–21)

♂♀. Head: eyes brown; frons light brown with developed dark ocellar triangle (Fig. 18); face, facial orbit and gena yellow; occiput dark brown; 1st to 3rd antennal segments brown to dark brown, 3rd segment about 9 times as long as breadth at base (Fig. 19); arista yellow and short-haired; palpi yellow; 1 *oc*; *or*, *vt*, *pvt* absent.

Thorax: mesonotum black with yellowish posterior callus; scutellum black; pleura almost yellow, only metapleuron black; 1 *sa*, 1 *pa*, 1 *sc*; *n* and *dc* absent. Wing: hyaline, with diffused maculae in middle and apical part; veins brown; halter yellow. Legs: almost yellow, only hind tibia light brown in middle part.

Abdomen: tergites dark brown, 2 to 5th segments laterally yellow; epandrium broad in lateral view (Figs. 20–21).

Body length, 5.5–6.0 mm; wing length, 5 mm.

Holotype: ♂, Sapporo, 10 July 1958, S. TAKAGI (preserved in Entomological Institute, Hokkaido University). Paratypes: [Hokkaido] — 11 ♂, 6 ♀, same data as the holotype; 1 ♂, Sapporo, 10 July 1958, S. TAKAGI; 2 ♂, Maruyama, Sapporo, 11 July 1961, S. TAKAGI; 1 ♂, 3 ♀, Sapporo, 5–8 July 1959, S. UEDA; 2 ♂, 2 ♀, Maruyama, Sapporo, 3 Aug. 1931, OKADA; 1 ♀, Mt. Satsunai, 26 July 1967, M. YAFUSO. [Honshu] — 1 ♀, Mt. Hayachine, Iwate Pref., 31 July 1966, K. KUSIGEMATI; 1 ♀, Kōbe, Hyōgo Pref., 28 July 1965, A. TANAKA.

*Distribution.* Japan (Hokkaido and Honshu).



*Remarks.* This species is closely related to *L. (L.) achaeta* SHATALKIN, but different from it in wing pattern and shape of epandrium.

### Acknowledgments

I wish to express my sincere thanks to Dr. A. L. SHATALKIN of Zoological Museum, Moscow, for his kind help in identification of the species. I am also much grateful to Dr. R. DANIELSSON of Zoological Museum, Lund University, Sweden, and Mr. A. C. PONT and Dr. B. R. PITKIN of the British Museum (Natural History), England, for their kindness in sending the European specimens of *Loxocera*. My thanks are also due to Drs. S. TAKAGI, M. SUWA and T. KUMATA of Hokkaido University, Y. NISHIJIMA of the Laboratory of Insect Natural History in Hokkaido, K. KANMIYA of Kurume University, N. FUKUHARA and T. MATSUMURA of National Institute of Agro-Environmental Sciences, and A. NAKANISHI of Natural History Museum of Hyôgo Prefecture for their kindness in offering the valuable materials. I also wish to express my sincere appreciation to Prof. K. HORI of Obihiro University of Agriculture and Veterinary Medicine and Dr. S. SHINONAGA of Tokyo Medical and Dental University for their valuable suggestions and reading the manuscript.

### References

- BRINDLE, A., 1965. Taxonomic notes on the larvae of British Diptera. No. 22 Psilidae. *Entomologist*, **98**: 169–173.
- COGAN, B. H., 1977. Family Psilidae. In DELFINADO, M. D., & D. E. HARDY (eds.), *Catalog. Dipt. Orient. Reg.*, **3**: 24–27. Univ. Hawaii Press, Honolulu.
- COLLIN, J. E., 1944. The British species of Psilidae (Diptera). *Entomologist's mon. Mag.*, **80**: 214–224.
- FREY, R., 1955. Studien über ostasiatische Dipteren. V. Psilidae, Megamerinidae. *Notul. ent.*, **35**: 122–137.
- HENDEL, F., 1913. H. Sauter's Formosa-Ausbeute. Acalyprate Musciden (Dipt.). II. *Supplta. ent.*, **2**: 77–112.
- HENNIG, W., 1940. Aussereuropäische Psiliden und Platystomiden im Deutschen Entomologischen Institut (Diptera). *Arb. morph. taxon. Ent. Berlin.*, **7**: 304–318.
- 1941. Family Psilidae. In LINDNER, E. (ed.), *Flieg. palaearkt. Reg.*, **41**: 1–38. Stuttgart.
- LYNEBORG, L., 1964. Danske acalypterata fluer. 2. Psilidae, Platystomidae og Otitidae (Diptera). *Ent. Meddr.*, **32**: 365–384.
- MEIJERE, J. C. H. de, 1916. Studien über südasiatische Dipteren. XI. Zur Biologie einiger javanischen Dipteren nebst Beschreibung einiger neuen javanischen Arten. *Tijdschr. Ent.*, **59**: 184–213.
- SHATALKIN, A. I., 1983. New species of flies of the family Psilidae (Diptera) from the Far East. *Ent. Obozr.*, **62**: 360–366.
- 1989. Notes on the Palaeartic Psilidae (Diptera). *Archs. zool. Mus. Moscow State Univ.*, **27**: 88–113.
- Soós, A., 1984. Family Psilidae. In Soós, A., & L. PAPP (eds.), *Catalog. Palaeart. Dipt.*, **9**: 28–35. Elsevier Sci. Pub., Budapest.

(Received October 30, 1991; Accepted January 9, 1992)