

Lauxaniid Flies (Diptera) of the Garden of the Imperial Palace, Tokyo

By

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Introduction

The fauna and the seasonal occurrence of the lauxaniid flies in the Imperial Palace Gardens, Tokyo, are dealt with in this paper. The taxonomical information on the 16 species has been obtained by Hayashi and Shinonaga (2000) and Sasakawa (2005). The discovery of six further lauxaniids was not surprising on account of their known distribution, and at this time the total recorded was 22.

Materials and Methods

The dried specimens of the lauxaniid flies were collected by Drs. Shinonaga and Kanmiya, members of the faunistic surveys on Diptera in the Imperial Palace Gardens, Tokyo, in 1999–2005. The male abdomen was macerated with 30% KOH and transferred to distilled water for dissection. After the examination of the genitalia the abdomen was stored in a short polyethylene tubule with glycerol and pinned with the specimen. The terms and abbreviations follow the previous paper (Sasakawa, 2005).

Taxonomy

This is the third report on the Lauxaniidae of the Garden of the Imperial Palace, Tokyo. Six species, *Homoneura hirayamae*, *insularis*, *shinonagai* and *triphylla*, *Itomyia curvata*, and *Steganopsis dichroa*, are newly recorded in this paper.

Subfamily Homoneurinae

1. *Homoneura euaresta* (Coquillett)

This species is widely distributed throughout Japan.

Imperial Palace Gardens: 2♂, 14. Mar. 2002 & 24. Mar. 2003 (Shinonaga).

2. *Homoneura hirayamae* (Matsumura)

Sapromyza hirayamae Matsumura, 1916: 425.

Homoneura hirayamae (Matsumura), Sasakawa and Ikeuchi, 1982: 482.

Euceriella hemistriata Shinji, 1939: 355.

Widespread and frequently common in Japan; new record from the Imperial Palace, Tokyo.

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- Imperial Palace Gardens: 1♂, 18. Apr. 2000 (Shinonaga).
3. *Homoneura insularis* Shatalkin
See Sasakawa, 2005: 293; new record from the Imperial Palace, Tokyo.
Imperial Palace Gardens: 1♂, 15. Mar. 2001 (Shinonaga); 1♂, 14. Mar. 2002, 1♀, 18. Apr. 2002 & 1♀, 19. Dec. 2002 (Shinonaga); 1♀, 24. Mar. 2003 & 3♂2♀, 16. Dec. 2003 (Shinonaga).
 4. *Homoneura matsumurai* Sasakawa et Ikeuchi
See Hayashi & Shinonaga, 2000: 453; Sasakawa, 2005: 293.
Imperial Palace Gardens: 3♂, 13. Oct. –13. Nov. 1998, Banana trap; 3♀, 20. Sept. 1999 (Shinonaga); 2♂, 25. Aug. 2003 & 1♀, 8. May 2003 (Shinonaga); 1♀, 24. Sept. 2003 (T. Nambu); 2♂1♀, 21. July 2005 (Shinonaga & Kanmiya).
 5. *Homoneura shinonagai* Sasakawa
Homoneura shinonagai Sasakawa, 2005: 294.
This species has been known to occur in the Akasaka Imperial Gardens in June and October. The male specimen examined was quite agreeable with the holotype; new record from the Garden of Imperial Palace, Tokyo.
Imperial Palace Gardens: 1♂, 21. July 2005 (Kanmiya).
 6. *Homoneura spinicauda* Sasakawa et Ikeuchi
See Hayashi & Shinonaga, 2000: 453; Sasakawa, 2005: 295.
Imperial Palace Gardens: 1♂, 10. May 1999, 1♂1♀, 21. June 1999, 2♀, 31. Aug. 1999, 1♀, 20. Sept. 1999 & 1♂, 19. Oct. 1999 (Shinonaga); 1♂4♀, 18. Apr. 2000 & 1♂, 7. Dec. 2000 (Shinonaga); 1♂, 15. Mar. 2001 & 2♂1♀, 14. May 2001 (Shinonaga); 9♂ 2♀, 18. Apr. 2002 & 2♂, 16. May 2002 (Shinonaga); 1♂1♀, 16. Apr. 2003, 2♂, 8. May 2003 & 2♀, 2. June 2003 (Shinonaga); 1♂1♀, 17. June 2004 & 1♀, 8. Nov. 2004 (Shinonaga); 1♀, 13. June 2005 & 1♀, 21. July 2005 (Shinonaga); 1♂2♀, 21. July 2005 (Kanmiya).
 7. *Homoneura tridentata* Sasakawa et Ikeuchi
See Hayashi & Shinonaga, 2000: 453; Sasakawa, 2005: 295.
Imperial Palace Gardens: 1♀, 18. Apr. 2000 (Shinonaga); 2♂, 15. Mar. 2001 (Shinonaga & Nambu); 1♂, 18. Dec. 2001 (Shinonaga); 3♀, 18. Apr. 2002 (Shinonaga); 1♀, 3. Aug. 2004 (Shinonaga); 3♂3♀, 21. July 2005 (Shinonaga & Kanmiya).
 8. *Homoneura triphylla* Sasakawa et Ikeuchi
Homoneura triphylla Sasakawa et Ikeuchi, 1983: 296.
This species is recorded from the Imperial Palace, Tokyo for the first time, showing the considerable variations in the external structures: gena broad in male (1/3 of eye height); first antennal flagellomere 1.5(♀)–1.8(♂) times as long as wide; mesoscutum with four rows of acr; wing smaller, 2.2–2.4 mm long, cell Sc entirely clear, apices of R₂₊₃, R₄₊₅ and M₁₊₂ faintly brownish-clouded (1/10 of whole length of wing), ultimate section of M₃₊₄ 1/3(♀)–1/4(♂) as long as the penultimate; S6 with seven apical spines on median lobe.
Imperial Palace Gardens: 1♂1♀, 21. July, 2005 (K. Kanmiya).
 9. *Homoneura unguiculata* (Kertész)
See Hayashi & Shinonaga, 2000: 453; Sasakawa, 2005: 296.
Imperial Palace Gardens: 1♂, 10. Dec. 1998 (K. Beppu); 1♀, 28. May–9. June 1999, Banana trap; 1♀, 13. Mar. 2000 (Shinonaga); 1♀, 24. Oct. 2001 (Shinonaga); 1♀, 2. June 2003 & 1♂2♀, 25. Aug. 2003 (Shinonaga); 3♂3♀, 21. July 2005 (Kanmiya).
 10. *Homoneura yamagishii* Sasakawa et Ikeuchi

See Hayashi & Shinonaga, 2000: 453; Sasakawa, 2005: 296.

Imperial Palace Gardens: 1♂, 10. May 1999, 2♂, 31. Aug. 1999 & 2♀, 20. Sept. 1999 (Shinonaga); 1♂, 2. June 2003 & 1♂, 25. Aug. 2003 (Shinonaga); 1♂, 21. July 2005 (Kanmiya).

Subfamily Lauханиinae

11. *Itomyia curvata* Sasakawa

Itomyia curvata Sasakawa, 2005: 296.

This species was described from the specimen (holotype) collected in the Akasaka Imperial Gardens, Tokyo. One male (Imperial Palace Gardens, 12. Feb. 2004, S. Shinonaga) was agreeable with the original description, but had the following variations in size and coloration: wing length 3.5 mm, maxillary palp with dark brown apex, notopleural area below level of sa distinctly paler than pleura, and blackish brown abdomen pale on lateral side but not yellowish.

12. *Steganopsis dichroa* Shatalkin

See Sasakawa, 2005: 299; new record from the Imperial Palace, Tokyo.

Imperial Palace Gardens: 1♂1♀, 21. July 2005 (Kanmiya).

13. *Luzonomyza (Tetroxyrhina) forticula* (Shatalkin)

See Hayashi & Shinonaga, 2000: 453; Sasakawa, 2005: 299.

Imperial Palace Gardens: 1♂, 16. Apr. 2000 & 1♂, 7. Dec. 2000 (Shinonaga); 1♂, 15. Jan. 2001 & 1♀, 14. Feb. 2001 (Shinonaga), 1♂4♀, 15. Mar. 2001 (Shinonaga & Nambu); 2♀, 19. Feb. 2003 (Shinonaga); 3♀, 19. Jan. 2004, 1♂1♀, 12. Feb. 2004 & 1♀, 8. Dec. 2004 (Shinonaga).

14. *Luzonomyza (Tetroxyrhina) interrupta* Sasakawa

Luzonomyza (Tetroxyrhina) interrupta Sasakawa, 2005: 299.

Imperial Palace Gardens: 1♂, 10. Feb. 1999 (Shinonaga); 1♂1♀, 7. Dec. 2000 (Shinonaga); 1♀, 14. Feb. 2001 (Shinonaga); 1♀, 14. Mar. 2001 (Shinonaga); 1♀, 1.9 Feb. 2003 & 2♂2♀, 16. Dec. 2003 (Shinonaga); 1♂, 12. Feb. 2004 & 1♂, 10. Mar. 2004 (Shinonaga).

15. *Protrigonometopus maculifrons* Hendel

See Hayashi & Shinonaga, 2000: 454; Sasakawa, 2005: 301.

Imperial Palace Gardens: 2♂, 8. Mar. 1999 (Shinonaga); 1♂, 13. Mar. 2000 (Shinonaga); 2♀, 15. Jan. 2001 (Shinonaga); 3♂2♀, 19. Dec. 2002 (Shinonaga); 1♂, 19. Feb. 2003, 2♂4♀, 24. Mar. 2003 & 1♂1♀, 16. Dec. 2003 (Shinonaga); 1♂4♀, 12. Feb. 2004 & 2♀, 8. Dec. 2004 (Shinonaga); 1♀, 21. July 2005 (Kanmiya).

16. *Minettia longipennis* (Fabricius)

See Hayashi & Shinonaga, 2000: 453; Sasakawa, 2005: 301.

Imperial Palace Gardens: 1♀, 18. Apr. 1997 (Shinonaga); 1♀, 18. Apr. 2000 (Shinonaga); 2♂3♀, 17. July 2001 (Shinonaga & Nambu); 1♂1♀, 18. Apr. 2002 & 1♂2♀, 16. May 2002 (Shinonaga); 2♂2♀, 8. May 2003, 1♂1♀, 2. June 2003 & 2♂1♀, 25. Aug. 2003 (Shinonaga); 2♂1♀, 17. May 2004, 1♂, 17. June 2004 & 2♂1♀, 2. Aug. 2004 (Shinonaga); 1♂, 13. June 2005, 1♀, 13. July 2005 & 1♀, 21. July 2005 (Shinonaga); 3♂4♀, 21. July 2005 (Kanmiya).

17. *Sapromyza takagii* Elberg

See Sasakawa, 2005: 301.

Imperial Palace Gardens: 2♀, 9. June 1998 (Shinonaga); 1♀, 28. May 1999 (Shinonaga); 2♀, 17. May 2004 (Shinonaga); 2♀, 12. May 2005 (Shinonaga).

Discussion

Faunistic account. Sixteen species, *Homoneura euaresta* (Coquillett), *extera* Czerny, *matsumurai* Sasakawa et Ikeuchi, *mayrhoferi* Czerny, *repanda* Sasa. et Ike., *spinicauda* Sasa. et Ike., *tridentata* Sasa. et Ike., *unguiculata* (Kertész), *variinervis* (Kertész) and *yamagishii* Sasa. et Ike., *Luzonomyza forficula* (Shatalkin) and *interrupta* Sasakawa, *Melinomyia flava* Kertész, *Minettia longipennis* (Fabricius), *Protrigonometopus maculifrons* Hendel, and *Sapromyza takagii* Elberg, had been known to occur in the Imperial Palace Gardens (Hayashi and Shinonaga, 2000: 12 species identified by Sasakawa; Sasakawa, 2005). In this paper, six species, *Homoneura hirayamae* (Matsumura), *insularis* Shatalkin, *shinonagai* Sasakawa and *triphylla* Sasakawa et Ikeuchi, *Itomyia curvata* Sasakawa, and *Steganopsis dichroa* Shatalkin, are added to the fauna.

Most of them are well-known to occur in Honshu, Japan. The flies are found commonly in shady undergrowth, and the larvae are mostly saprophagous, living under the leaf litter. The commonest species obtained in the Imperial Palace Gardens during the whole period of the faunistic survey (1997–2005) were as follows: *Homoneura matsumurai*, *spinicauda*, *tridentata* and *unguiculata*, and *Minettia longipennis*. Also, *Homoneura yamagishii*, *Luzonomyza forficula* and *interrupta*, *Protrigonometopus maculifrons* and *Sapromyza takagii*, were obtained commonly during the past six to eight years. Although the material was not enough, *Homoneura euaresta*, *hirayamae*, *mayrhoferi* and *variinervis* may be common through the period for their distributional records known in Japan. The following species may attract our attention to their distribution, because *Homoneura extera* has been known to occur in Hokkaido and Russia (Ussuri) (Sasakawa & Ikeuchi, 1983), *H. repanda* in Kyushu and Ryukyus (Sasakawa & Ikeuchi, 1982), and *Melinomyia flava* rarely in Honshu and commonly in Taiwan (Sasakawa, 1997). With only 22 species known in the Imperial Palace Gardens out of a total of 105 confirmed species in Japan at present, it is clear that many further species, including 9 species found already in the Akasaka Imperial Gardens and the Tokiwamatsu Imperial Villa (Sasakawa, 2005), await discovery, and it is hoped that this paper will encourage further collecting in the vast gardens of the Imperial Palace.

Seasonal prevalence. The seasonal occurrence of the 22 lauxaniid flies collected by sweeping in the Garden of the Imperial Palace, Tokyo was summarized in the following four types based on their prevalence. The common type with a continuous appearance for a long duration from spring (March–May) to autumn or early winter (Nov. or Dec.) is represented in seven species: *Homoneura euaresta* (actually collected in March and November only but on account of the well-known data on occurrence in various localities in Honshu; Sasakawa & Ikeuchi, 1982), *matsumurai*, *spinicauda*, *tridentata*, *unguiculata* and *yamagishii* (in consideration of the data obtained in the Akasaka Imperial Gardens and the Tokiwamatsu Imperial Villa; Sasakawa, 2005), and *Minettia longipennis*. The warm season (spring to summer) type in the occurrence is found in eight species: *Homoneura hirayamae*, *mayrhoferi*, *shinonagai* (in consideration of the data obtained in the Akasaka Imperial Gardens), *triphylla* (based on the data obtained already in Honshu, Sasakawa and Ikeuchi, 1983) and *variinervis*, *Steganopsis dichroa* (based on the data obtained in the Tokiwamatsu Imperial Villa), *Melinomyia flava* (based on the data obtained already in Honshu), and *Sapromyza takagii* (based on the data in the Akasaka Imperial Gardens), contrarily the cold winter season type also in five species: *Homoneura insularis*, *Luzonomyza forficula* and *interrupta*, *Protrigonometopus maculifrons* and *Itomyia curvata*. The rare (autumn only) type in the occurrence is found in two species: *Homoneura extera* and *repanda*.

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Summary

Seventeen species of the lauxaniid flies collected in the Garden of the Imperial Palace, Tokyo, are recorded. The seasonal prevalences of all the known 22 lauxaniid flies in the Imperial Palace Gardens during the years 1997–2005 are discussed.

要 約

前報につづいて、皇居に発生するシマバエ科（篠永 哲博士・上宮健吉博士ほか採集）について分類学的調査を行ったところ、計 22 種 (1997–2005) の分布を確認した。また、種ごとの経年的・季節的発生状況について論及した。

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