

Redescription of *Irwiniella sauteri* from Taiwan and the Ryukyus (Diptera, Therevidae)*

Akira NAGATOMI** and Leif LYNEBORG***

Abstract

Irwiniella sauteri (Kröber, 1912) comb. n., known only from Formosa, is newly recorded from the Ryukyus and is here redescribed.

Key words: Taxonomy, *Psilocephala*, sea shore, Yaeyama I., Okinawa I., Amami Oshima.

Introduction

Irwiniella sauteri (KRÖBER, 1912) comb. n. from Taiwan and the Ryukyus is here redescribed.

Irwiniella is recorded from the following regions by LYNEBORG (1976, 1980, 1986): Afrotropical region: 15 species; Palaeartic region: 5 species, 2 of which are from the Canary Is., 2 from the Middle East and 1 from Central Asia.

LYNEBORG (1986: 68) wrote, "A considerable number of species of *Irwiniella* occurs in the Oriental region, and the genus penetrates east into the Australian region (Ambon, New Guinea, Bismarck Is., Solomon Is.) Most species of this genus are restricted to coastal dune localities, but several species also inhabit inland localities of a similar nature. The ecologically vicariant genus in the Palaeartic fauna is *Acrosathe* IRWIN et LYNEBORG, 1981."

The terminology of the male genitalia is in accordance with IRWIN and LYNEBORG (1981). The abbreviations used in the figures are as follows: AE, aedeagus; C, cercus; DAP, dorsal apodeme; DP, distiphallus; EAP, ejaculatory apodeme; EP, epandrium; GC, gonocoxite; GS, gonostylus; H, hypandrium; KP, knob-like process (in posterolateral part of ventral gonocoxite); PAP, parameral apoeme; PLP, posterolateral process

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** 永富昭, 鹿児島大学農学部害虫学教室

Entomological Laboratory, Faculty of Agriculture, Kagoshima University, Kagoshima 890, Japan.

*** Zoological Museum, Universitetsparken 15, DK 2100, Copenhagen, Denmark.

in aedeagus; PP, parameral process; SC, sclerotized lateral part of dorsal apodeme; VAP, ventral apodeme; VEPS, ventral epandrial sclerite; VL, ventral lobe.

Genus *Irwiniella* LYNEBORG

Irwiniella LYNEBORG, 1976, Bull. Br. Mus. nat. Hist. (Ent.) 33: 251. Type species: *Thereva nuba* WIEDEMANN, 1828 from Africa (Sudan), by original designation.

For diagnosis of *Irwiniella*, see LYNEBORG (1976, 1986).

In the Afrotropical species, "Female frons never with subshining to shining areas" (LYNEBORG, 1976: 198), but in *sauteri*, female upper frons is shining black.

Irwiniella is very similar to *Acrosathe* but may be separated from the latter by the absence of a pair of postero-lateral processes in aedeagus.

Irwiniella sauteri (KRÖBER) comb. n.

(Figs. 1-12)

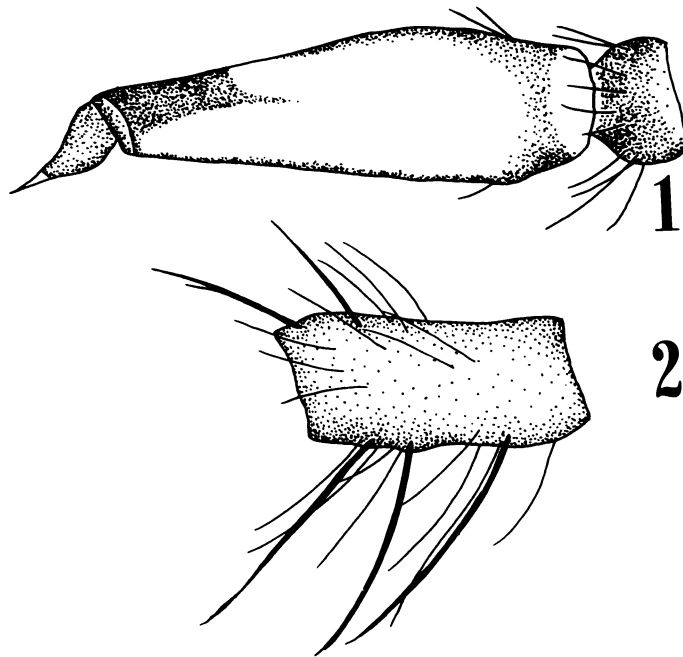
[Japanese name: Zautâ-tsurugi-abu]

Psilocephala sauteri KRÖBER, 1912, Deutsche Ent. Zeitschr., 1912: 135. Type locality: Formosa.

Among the Japanese genera and species of Therevidae, *Irwiniella sarteri* is similar to *Acrosathe* including 4 species (see NAGATOMI and LYNEBORG, in prep.). However, it is easily separated from the four *Acrosathe* species by having the following characters: (1) in both sexes, halter knob dark brown (often halter knob may have paler part which is much smaller than the rest); (2) in male genitalia, aedeagal postero-lateral processes absent and ventral lobe (in basistyle) small and knob-like; (3) in female, upper frons and usually lateral broad stripes on mesonotum shining black, and abdominal tergum 2 (except anterior part and posterior border), tergum 3 (except posterior border) and tergum 4 shining black.

In the four *Acrosathe* species, (1) in both sexes, halter knob (except base) pale brown or yellowish brown (apical pale part much larger than basal dark part); (2) in male genitalia, aedeagal postero-lateral processes present and ventral lobe large; (3) in female, upper frons and lateral broad stripes on mesonotum not shining but dull, and abdominal terga 2-4 with basal dark spots which are widely separated from the lateral margins.

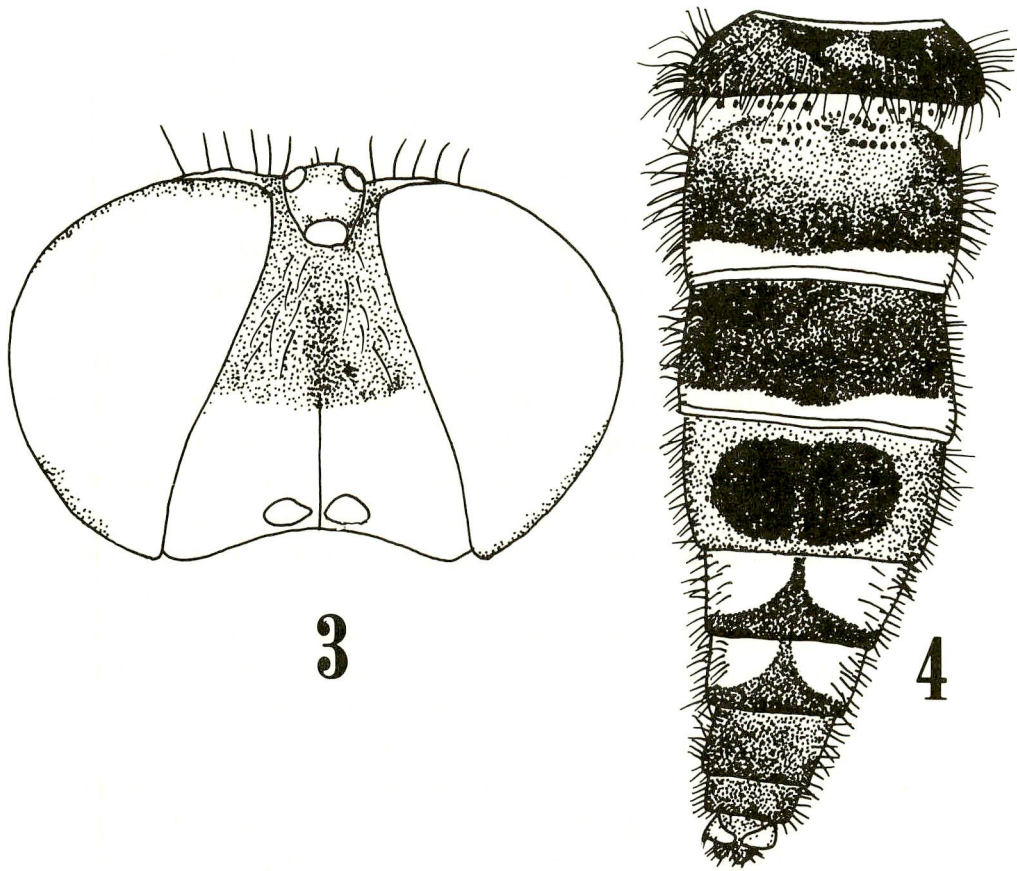
Male. Head (Figs. 1-2): Head and its appendages dark brown to black, and white gray pollinose; ocellar triangle, vertex, and antennal segments 1-2 with black hairs which are shorter on antennal segment 2 (short black hairs are also present near base of segment 3); in antennal segment 1, hairs are partly bristle-like and the longest ones are not



Figs. 1-2. Male antenna of *Irwiniella sauteri*, outer view. 1, segments 2, 3 and style; 2, segment 1.

longer than segment; occiput with a row of strong black hairs just behind upper eye (some strong hairs are also present behind the lower hairs); occiput (except cerebrale), cheek, palpus and proboscis with longer, soft white hairs (which become shorter and often change into black on labellum); frons without tufts of pile; eyes contiguous for a distance which is 0.8-1.3 times as long as ocellar triangle; total width of 2.5-3 largest facets equals width of anterior ocellus; half width of head 0.9-1.0 times distance from antenna to anterior ocellus, 1.3-1.5 times width of frons just above antennae, and 1.1-1.2 times width of face at lowest portion from a direct frontal view, which is 0.8-0.9 times distance from antenna to anterior ocellus; space between antennae 0.1-0.2 times width of ocellar triangle; space between antenna and eye 0.3 times width of frons just above antennae and 0.8-0.9 times length of antennal segment I along outer margin; ocellar triangle 1.1-1.4 times as long as wide; distance from antenna to ventral base of proboscis 0.7-0.8 times that from antenna to anterior ocellus; antenna 0.8 times as long as distance from antenna to anterior ocellus; relative lengths of antennal segments 1, 2, 3 and style (along outer surface) 100: 31(25-33): 158(150-164): 54(41-70) and their relative widths from the side (except that of style) 43(40-48): 44(42-50): 48(45-50); palpus 0.6-0.7 times as long as distance from antenna to ventral base of proboscis; proboscis measured along ventral surface 0.8-0.9 times as long as distance from antenna to ventral base of proboscis; data based on 10 specimens.

Thorax: Dark brown to black, white gray pollinose, and covered with soft white hairs which are longer on pleura and absent on ptero-, hypo-, anterior part of meso-,



Figs. 3-4. Female of *Irwiniella sauteri*. 3, head, direct frontal view (distance between antenna and anterior ocellus is kept horizontal); 4, abdomen, dorsal view.

posterior part of sterno-, posterior part of metapleura, and postscutellum; some hairs on mesonotum may often change into black; mesonotum may have 3 darker broad stripes, where pollen is less distinct; the number of black bristles on lateral border of mesonotum and margin of scutellum is as follows: 3-4 notopleurals, 2 supraalar, 1 postalar, and 2 scutellars; 1 pair of dorsocentral bristles are also present opposite posterior calli.

Wing: Apical portion of subcostal cell and narrow area just behind it (in marginal cell) yellowish brown to brown; halter yellowish brown to brown, with knob dark brown and gray pollinose.

Legs: Dark brown to black, but mid and hind tibiae and base of fore tibia yellowish brown to brown; coxa and femur white gray pollinose and with soft white hairs which are recumbent on anterior and dorsal surfaces of fore and mid femora and on hind femur (hairs on fore femur may be partly black); fore femur with 1-2 black anteroventral bristles; hind femur (except base) with a row of black anteroventral bristles (4-5 in number); relative lengths of segments (excluding coxa and trochanter) of fore leg 180(169-196): 197(186-212): 100: 38(33-40): 29(27-31): 16(14-19): 22(19-24), of mid leg

197(186–212): 226(214–238): 124(114–135): 45(43–46): 32(28–33): 15(12–17): 21(19–23), of hind leg, 259(246–281): 318(292–354): 139(128–150): 59(54–65): 36(34–38): 15(14–17): 23(19–25) and in hind leg, relative widths (from the side) of femur, tibia, and tarsal segments 1–3, 35(31–38): 22(19–24): 16(15–17): 12(12–13): 12(10–13); (N=10).

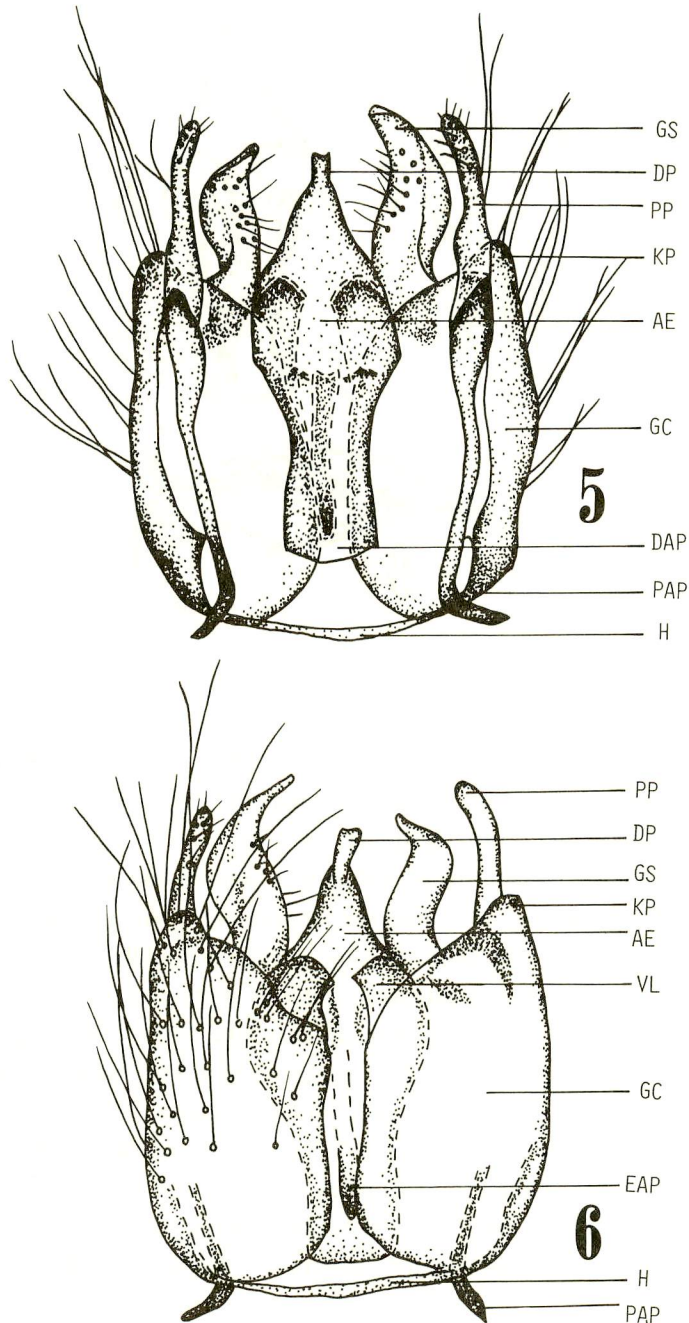
Abdomen: Dark brown to black, and white gray pollinose; above and below covered with soft white hairs which are absent on anterior part of segment 2 and which become partly black on sterna 5–7 and genitalia; hairs on dorsum recumbent but longer and erect on sides and those on venter, which are erect in middle, sparser than in dorsum.

Genitalia (Figs. 5–12): Parameral process less than 1/2 as long as lateral length of gonocoxite; ventral lobe small (as compared with those of *Acrosathe* species from Japan), knob-like, and rounded apically; postero-lateral knob-like process of ventral gonocoxite wider and rather long; parameral apodeme rather long; gonostylus wide, S-shaped, and tapering apically; distiphallus curved downward obliquely and short; aedeagal posterolateral process absent; lateral sclerotized part of dorsal apodeme narrow; apical (= anterior) part of ventral apodeme angulate; ejaculatory apodeme (in dorsal view) narrow and stick-like; epandrium short as compared with that in *Acrosathe tashimai* and with posterolateral part acutely pointed; sternum 8 elliptic. Specimens dissected: 2 ♂♂, Sonai, Iriomote I., 27 & 30. iv. 1976, A. NAGATOMI.

Length: Body 7.2–9.6 mm; wing 5.7–7.8 mm; fore basitarsus 0.9–1.1 mm.

Female. Similar to male except as follows: White soft hairs on head, thorax, legs and abdomen shorter than in male. Head (Fig.3): Upper frons shining black and with black hairs (except for middle); longest hairs on antennal segment 1 distinctly shorter than segment; upper occiput (except cerebrale) with numerous strong black hairs; upper frons (shining black part) 0.7–0.8 times as long as wide and 1.5–2.2 times as long as lower frons; width of frons just above antennae 2.5–2.9 times that at anterior ocellus, which is 1.3–1.6 times width of ocellar triangle; half width of head 1.2–1.4 times distance from antenna to anterior ocellus, 1.1–1.2 times width of frons just above antennae from a direct frontal view, and 1.0–1.1 times width of face at lowest portion from a direct frontal view, which is 1.1–1.4 times distance from antenna to anterior ocellus; space between antenna and eye 1.0–1.2 times length of antennal segment 1 along outer surface and 0.3–0.4 times width of frons just above antennae from a direct frontal view; distance from ventral base of proboscis to antenna 1.0–1.2 times distance from antenna to anterior ocellus; antenna 1.2–1.3 times as long as distance from antenna to anterior ocellus; relative lengths of antennal segments 1, 2, 3 and style (along outer surface) 100: 30(23–36): 150(138–167): 47(42–58) and their relative widths from the side (except for that of style) 43(36–50): 39(36–46): 46(43–50); in 10 specimens measured, space between antennae 0.2–0.3 times width of ocellar triangle, ocellar triangle 1.0–1.3 times as long as wide, and proboscis measured along ventral surface 0.9–1.0 times as long as distance from antenna to ventral base of proboscis.

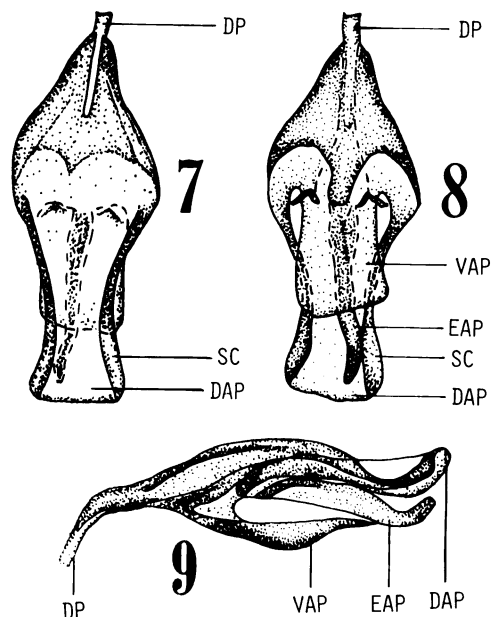
Thorax: Lateral broad stripes on mesonotum may be largely shining in certain lights



Figs. 5-6. Male genitalia of *Irwiniella sauteri*. 5, dorsal view; 6, ventral view.

and is distinct ; scutellum may have a darker midbasal spot.

Legs: Relative lengths of segments of fore leg 168(161-173): 189(184-200): 100: 38(35-40): 28(26-30): 16(13-17): 21(19-24), of mid leg 194(186-200): 225(216-237): 121(116-124): 46(42-48): 29(27-32): 14(13-17): 20(19-23), of hind leg 251(239-260):



Figs. 7-9. Aedeagus of *Irwiniella sauteri* (based on 2nd specimen). 7, dorsal view; 8, ventral view; 9, lateral view.

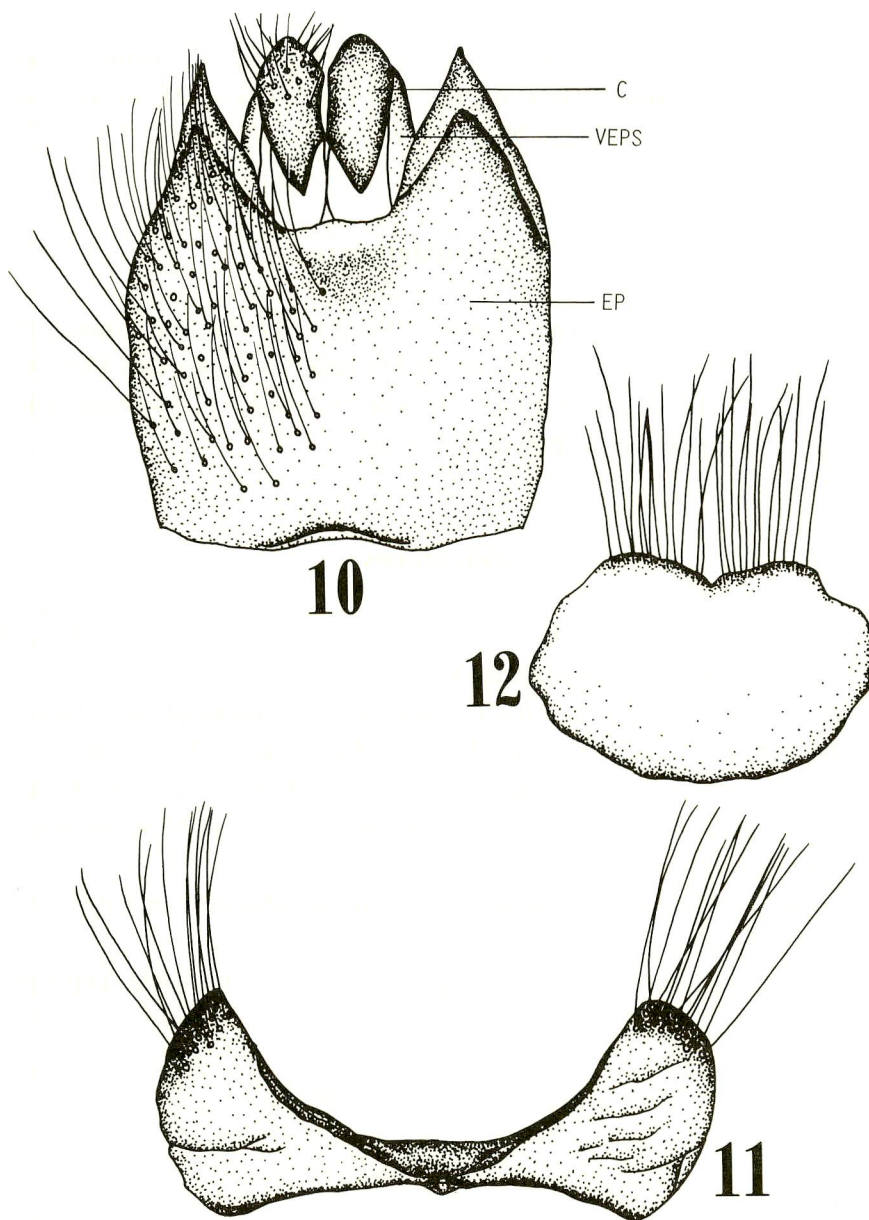
303(290-321): 131(127-138): 58(52-62): 34(32-38): 16(13-17): 22(19-24) and in hind leg, relative widths (from the side) of femur, tibia and tarsal segments 1-3, 35(32-37): 22(20-23): 16(14-17): 13(12-14): 11(10-12); (N=10).

Abdomen (Fig.4): Dorsum black and largely shining and with following white gray pollinose parts: sides of tergum 1, anterior part (before a row of sensoria) of tergum 2, posterior borders of terga 2-3 which become narrow at middle and wide at sides (each lateral pollinose part does not extend to anterior margin of segment), small postero-lateral spot of tergum 4 (which is often absent), and terga 5-6 except posterior part whose middle widely extends to anterior margin; venter dark brown to black, and more or less white gray pollinose, but posterior borders of sterna 2-3 yellowish brown (anterior part of sternum 2 and sides of sterna 2-3 may have a yellowish brown tinge); hairs on segments 5-8 and sternum 4 (or 3-4) black.

Length: Body 7.9-11.1 mm; wing 6.0-8.1 mm; fore basitarsus 1.0-1.2 mm.

Distribution. Formosa and Japan (Yaeyama Is., Miyako I., Okinawa I. and Amami Oshima).

Specimens examined (116 ♂♂, 41 ♀♀). FORMOSA (1 ♀). 1 ♀, Kokutei Park, 19. v. 1971, K. KANMIYA. YAEYAMA IS. (95 ♂♂, 29 ♀♀). *Iriomote I.* (92 ♂♂, 28 ♀♀): 1 ♀, 3. iv. 1971, N. SAKANE; 5 ♂♂, 5 ♀♀, Sonai, 27-30. iv. 1976, A. NAGATOMI; 1 ♀ Funaura, 30. iv. 1976, A. NAGATOMI; 1 ♀, Funaura, 6. viii. 1978, A. NAGATOMI; 81 ♂♂, 11 ♀♀, Ôhara, 2 & 5. iv. 1978, A. NAGATOMI; 1 ♂, 1 ♀, Toyohara, 20. v. 1981, A. NAGATOMI; 3 ♂♂, 6 ♀♀, Toyohara, 29. iv. & 2. v. 1982, A. NAGATOMI; 1 ♀, Toyohara, 30. vii. 1983, A. NAGATOMI; 1 ♂, Amitori, 5. viii. 1983, A. NAGATOMI; 1 ♀,



Figs. 10–12. Male genitalia of *Irwiniella sauteri*. 10, cerci, ventral epandrial sclerite (= sternum 10) and epandrium (=tergum 9), dorsal view; 11, tergum 8, dorsal view; 12, sternum 8, ventral view.

Amitori, 30. vii. 1985, A. NAGATOMI; 1 ♂, Amitori, 1. viii. 1985, T. KOJIMA. *Ishigaki I.* (3 ♂♂, 1 ♀) : 1 ♂, 4. iv. 1971, N. SAKANE; 1 ♂, Tsûrogawa, 8. viii. 1978, A. NAGATOMI; 1 ♂, Yoshino, 10. viii. 1978, A. NAGATOMI; 1 ♀, Yonehara, 23. vii. 1980, A. NAGATOMI. MIYAKO I. (1 ♂). 1 ♂, Yonaha, 20. vii. 1961, S. UEDA. OKINAWA I. (19 ♂♂, 10 ♀♀). 1 ♀, 8. v. 1955, S. AZUMA; 2 ♀♀, Hyakuna, 14. vi. 1972, T. TERUYA; 4 ♂♂, 1

♀, Hyakuna, 1. vii. 1972, T. TERUYA; 1 ♂, 2 ♀ ♀, Hyakuna, 8. viii. 1972, T. TERUYA; 5 ♂ ♂, 3 ♀ ♀, Hyakuna, 1. vii. 1981, A. NAGATOMI; 9 ♂ ♂, 1 ♀, Hentona, 2 & 4. vii. 1981, A. NAGATOMI. AMAMI OSHIMA (1 ♂, 1 ♀). 1 ♂, Kasari, 24. vii. 1972, K. KANMIYA; 1 ♀, Kasari, 15. viii. 1975, A. NAGATOMI.

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References

- IRWIN, M. E. and LYNEBORG, L. 1981. The genera of Nearctic Therevidae. Illinois Natural History Survey Bulletin, 32: 191–277.
- LYNEBORG, L. 1976. A revision of the Therevine stiletto-flies (Diptera : Therevidae) of the Ethiopian region. Bull. Br. Mus. nat. Hist. (Ent.), 33: 191–346.
- LYNEBORG, L. 1980. 24. Family Therevidae. In CROSSKEY, R. W., ed., Catalogue of the Diptera of the Afrotropical region. 1437 pp. British Museum (Natural History), London.
- LYNEBORG, L. 1986. Genera of Therevidae new to the Palaearctic region (Insecta, Diptera). Steenstrupia, 12: 61–71.
- NAGATOMI, A. and LYNEBORG, L. (in prep.) The Japanese *Acrosathe* (Diptera, Therevidae).

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