

The Formosan Rhagionidae Described by BEZZI (Diptera)*

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Abstract

Some taxonomic notes and illustrations are given to 7 *Chrysopilus* and 1 *Rhagio* species collected from Formosa by SAUTER and described by BEZZI (1907, 1912), based on the syntypes or the specimens determined by BEZZI, together with additional material taken from Formosa and Yaeyama Is. *Chrysopilus amamiensis* and *C. matsumurai*, both from Japan, are synonymized with *poecilopterus* and *sauteri* respectively.

Key words : Taxonomy, *Chrysopilus* and *Rhagio*, New synonyms, Yaeyama Is.

Introduction

BEZZI (1907, 1912) described 6 *Chrysopilus* and 1 *Rhagio* species from Formosa as new to science. BEZZI (1912) also recorded *Chrysopilus ferruginosus* WIEDEMANN, 1819, *C. luctuosus* BRUNETTI, 1909, and *C. marmoratus* var. *trypetopterus* BEZZI, 1912 from Formosa. Some notes and illustrations are given to BEZZI's species, based on the specimens determined by BEZZI, which I have borrowed from Museo Civico di Storia Naturale, Milano, through the courtesy of Dr. Carlo LEONARDI, together with the material taken from Formosa and Yaeyama Is. and preserved in the National Institute of Agro-Environmental Sciences, Yatabe, Ibaraki, Japan. It has proved that *Chrysopilus poecilopterus* and *C. sauteri* are identical with *amamiensis* and *matsumurai* (both from Japan) respectively and the latter two have to be treated as synonyms.

HENNIG (1941) and NAGATOMI (1975) catalogued the Formosan and Oriental Rhagionidae respectively and the former listed the distributional data within Formosa in each species.

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***Chrysopilus ditissimis* BEZZI**

Chrysopilus ditissimis BEZZI, 1912, Ann. Mus. Nat. Hung. 10 : 451. Type locality : Toyenmongai or Kosempo, Formosa.

Chrysopilus apyros SÉGUY, 1948, Notes Ent. chin. 12 : 154. Type locality : Nikko, Honshu, Japan.

This species was redescribed by NAGATOMI (1968) and NAGATOMI and KANMIYA (1968). The diagnostic characters are given in the key (NAGATOMI, 1968).

This species is very similar to *griseipennis* but may be separated from the latter by the abdominal venter with black erect hairs (sternum 1 bare and sternum 2 often yellow pilose) in both sexes and by the female front (except just above antennae) shining. The body of *ditissimis* is also larger than that of *griseipennis* at least on an average.

Length (in the specimen from Formosa) : ♂, body 10.2 mm, wing 9.2 mm.

Distribution. Formosa and Japan (Honshu, Shikoku, Kyushu).

Specimen examined : 1 ♂, Hsitou, Central Taiwan, 6. v. 1971, N. FUKUHARA.

There are the specimens from Amami Ōshima (3 ♂♂, 1 ♀, Shinokawa, 9 & 11, v. 1953, T. SHIRAKI). In ♂, no significant difference is found between the material above (from Amami Ōshima) and that from Formosa and Japan (Honshu and Kyushu) (= *ditissimis*). Whereas in female specimen (from Amami Ōshima), the front is pale gray pollinose and upper occiput erect black haired (in female *ditissimis*, the front is shining and upper occiput yellow recumbent pilose). It remains undetermined whether the specimens from Amami Ōshima differ specifically or subspecifically from *ditissimis*.

***Chrysopilus fenestratus* BEZZI**

(Fig. 1)

Chrysopilus fenestratus BEZZI, 1912, Ann. Mus. Nat. Hung. 10 : 448. Type locality : Toyenmongai or Fuhosho, Formosa.

Leptis sanjodakeana MATSUMURA, 1916, Thous. Ins. Jap. Addit. 2 : 348. Type locality : Hakone, Honshu, Japan.

This species was redescribed by NAGATOMI (1968, 1978) and NAGATOMI and KANMIYA (1968). The diagnostic characters are given in the key (NAGATOMI, 1968).

This species is very similar to *nigripalpis* but may be separated from the latter by the abdominal terga 2-6 (in ♂) or 2-4 (in ♀) with broad, dark brown to black, basal bands (Fig. 1) [in *nigripalpis*, the basal darkened bands are obscure or very narrow (Fig. 7)] and by the stigma of the wing and area behind stigma darker than rest of membrane.

Length (in the specimen from Formosa) : ♂, body 8.4 mm, wing 7.5 mm.

Distribution. Formosa and Japan (Honshu, Kyushu, Amami Ōshima, Okinawa I.,

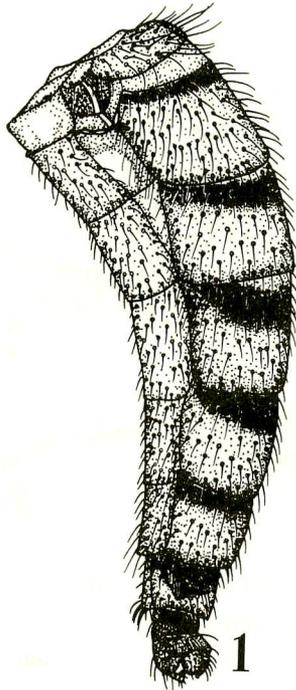


Fig. 1. *Chrysopilus fenestratus* BEZZI, male (from Formosa). Abdomen, lateral view.

and Yaeyama Is.).

Specimen examined : 1 ♂, Lishan, Central Taiwan, 14. v. 1971, N. FUKUHARA.

Chrysopilus griseipennis BEZZI

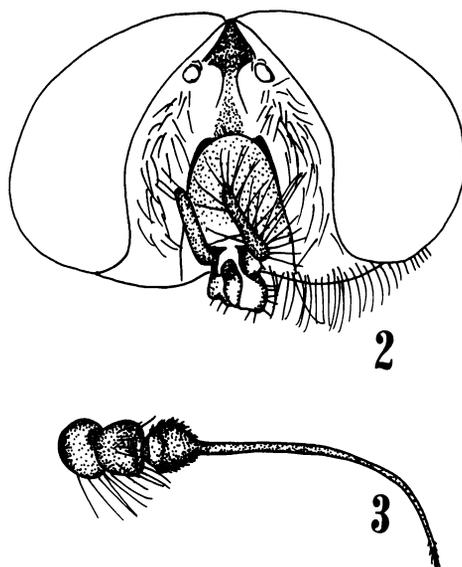
(Figs. 2-3)

Chrysopilus griseipennis BEZZI, 1912, Ann. Mus. Nat. Hung. 10 : 451. Type locality : Kosempo, Formosa.

Dark brown to black ; legs (except coxa, trochanter, tarsomeres 2-5, and apical portion of basitarsus) yellowish brown ; mesonotum, scutellum, and abdominal dorsum somewhat sooty and with golden yellow, chiefly recumbent pile ; wing yellowish brown to brown fumose, and stigma elongate and slightly darker than rest of membrane.

This species is very similar to *ditissimis* but may be separated from the latter by the abdominal venter with pale hairs, some of which are recumbent, by the body smaller on an average, and by the female front pale gray pollinose.

There are a good series of specimens from the Yaeyama Is. which appear to belong in *griseipennis*, and the following description is based on them. One male specimen (syn-type) of *griseipennis* from Formosa, at hand, differs from the material of Yaeyama Is. in



Figs. 2-3. *Chrysopilus griseipennis* BEZZI, male (from Formosa). 2. Head, direct facial view. 3. Antenna, inner view.

some respects discussed below. However, the differences in question may not be significant in separating species.

Male. Head (Figs. 2-3) : head and its appendages dark brown to black, and pale gray pollinose ; antennal segments 1-2 with short, black hairs which are longer on segment 1 and bare on dorsoinner part of segment 1 ; ocellar triangle and vertex with longer, erect, black (pale in Formosan specimen on hand) hairs, some of which may be recumbent on vertex ; occiput (except upper part and cerebrale, which are bare), cheek, side of face and proboscis with pale pile which is shorter on occiput (except lower part) and proboscis and may become black on area just below antenna ; palpus with black hairs (which become pale in the specimen on hand from Formosa) ; pile on side of face abundant and pilose area extending to antenna ; eyes narrowly separated and narrowest point of front 0.1-0.2 times width of ocellar triangle ; difference in size of upper and lower facets slight ; width of one eye on a mid line from a direct frontal view 1.3-1.5 times distance from antenna to median ocellus, 1.0-1.1 times width of face at lowest portion from a direct frontal view, and 1.8-2.1 times (2.6 times in the Formosan syntype on hand) width of front just above antenna ; width of ocellar triangle 0.9-1.0 times its length and 0.3-0.5 times width of front just above antenna ; face tapering on upper portion ; distance from proboscis to antenna 0.9-1.0 times that from antenna to median ocellus ; width of facial swelling 0.8-1.0 times its length, 0.4-0.5 times width of face at top portion of facial swelling and 1.5-1.9 times width of side of face on a mid line ; length of facial swelling 0.7-0.8 times distance from proboscis to antenna ; when measured along midinner surface, relative lengths of antennal segments 1-3, 60(50-70) : 100 :

104(100–111) and their relative widths 111(100–122) : 113(100–133) : 85(73–111) ; arista 1.9–2.5 times as long as rest of antenna, which is 0.3–0.4 times as long as distance from antenna to median ocellus ; palpus 0.9–1.1 times as long as facial swelling and 0.7–1.0 times as wide as antennal segment 3; space between antennae 0.6–0.9 times width of ocellar triangle ; structural characters are based on 10 specimens.

Thorax : dark brown to black ; mesonotum and scutellum somewhat sooty and with golden yellow recumbent hairs which are partly erect and longer ; pleura more or less pale gray pollinose ; pro-, anterior, posterior and upper borders of meso-, lower part of sterno-, pteropleura below spiracle, and metapleura with longer pale pile ; halter yellowish brown.

Wing : membrane yellowish brown or brown fumose ; stigma elongate and slightly darker than rest of membrane ; anal cell closed before wing margin.

Legs : yellowish brown ; coxa and trochanter dark brown to black, and pale gray pollinose ; tarsal segments 2–5 and apical portion of basitarsus darkened ; coxa and femur with pale hairs which are shorter and may become partly black on femur ; (1) relative lengths of segments (excluding coxa and trochanter) of fore leg 97(89–103) : 151(143–156) : 100 : 30(28–34) : 21(19–24) : 11(9–13) : 19(17–22), (2) of mid leg 114(105–119) : 176(169–184) : 89(86–92) : 26(24–29) : 18(16–20) : 10(8–12) : 17(16–19), (3) of hind leg 148(141–157) : 212(198–222) : 92(86–97) : 36(32–43) : 25(22–29) : 12(11–14) : 18(16–20) and in hind leg viewed from the side, (4) relative widths of femur, tibia, and tarsomeres 1–3, 19(17–20) : 11(11–12) : 8(7–9) : 7(6–8) : 6(5–7) ; (N=10) ; (in Formosan syntype on hand, they are as follows : (1) 82–131–100–31–22–10–16, (2) 96–153–87–22–18–8–13, (3) 124–189–87–29–22–9–16, (4) 16–11–7–6–6).

Abdomen : dark brown to black ; dorsum somewhat sooty and terga 1–7 with golden yellow recumbent hairs which become partly erect and long especially on sides ; sternum 2–7 with pale recumbent pile (in the Formosan specimen on hand, segment 7 with black hairs) ; genitalia with black hairs.

Length : body 6.2–8.5 mm ; wing 5.7–7.5 mm.

Female (here described for the first time ; no Formosan specimen on hand). Similar to male except as follows : Head : a band of golden yellow recumbent pile present at vertex ; hairs on ocellar triangle shorter than in ♂ ; width of front just above antenna 0.9–1.1 times that at median ocellus which is 3.6–4.9 times width of ocellar triangle ; width of one eye on a mid line from a direct frontal view 1.0–1.1 times distance from antenna to median ocellus, 0.5–0.6 times width of face at lowest portion from a direct frontal view, and 0.6–0.7 times width of front just above antenna ; distance from proboscis to antenna 1.1–1.4 times that from antenna to median ocellus ; ocellar triangle 0.2–0.3 times as wide as front just above antenna ; antenna (minus arista) 0.6–0.7 times as long as distance from antenna to median ocellus ; arista 1.6–2.1 times as long as rest of antenna ; relative lengths of antennal segments 1–3, 60(40–75) : 100 : 127(111–140) and their relative widths 111(100–138) : 114(125) : 99(89–113) ; in 10 specimens meas-

ured, ocellar triangle 0.9–1.1 times as wide as long, facial swelling 0.5–0.6 times as wide as face at top portion of facial swelling and 1.6–2.1 times as wide as side of face on a mid line, palpus 0.7–0.9 times as long as facial swelling and 0.6–0.9 times as wide as antennal segment 3.

Legs : hairs on coxa partly black ; relative lengths of segments of fore leg 101(97–110) : 157(148–170) : 100 : 29(25–32) : 21(19–24) : 12(10–14) : 20(18–22), of mid leg 126(119–134) : 187(176–197) : 90(85–95) : 27(22–32) : 19(16–21) : 11(9–12) : 18(16–21), of hind leg 164(156–173) : 224(205–234) : 98(85–106) : 37(34–39) : 27(22–31) : 13(12–15) : 18(16–21) and in hind leg viewed from the side, relative widths of femur, tibia, and tarsomeres 1–3, 21(18–23) : 12(12–14) : 9(7–10) : 7(6–9) : 7(6–8); (N=10).

Abdomen : segments 5–8 and terminalia pale gray pollinose, and with short, black hairs which may be pale on tergum 5.

Length : body 6.7–10.0 mm; wing 5.8–8.5 mm.

Distribution. Formosa and Japan (Yaeyama Is.).

Specimens examined : *Formosa*: 1 ♂ (syntype), Kosempo, 10. iii. 1908, SAUTER. *Yaeyama Is.* (15 ♂♂, 14 ♀♀) : 2 ♂♂, Ohama, Ishigaki I., 29. i. 1953, T. SHIRAKI; 9 ♂♂, 6 ♀♀, Kainan, Ishigaki I., 8. ii. 1953, T. SHIRAKI; 3 ♂♂, 6 ♀♀, Takeda, Ishigaki I., 9. ii. 1953, T. SHIRAKI; 1 ♂, 2 ♀♀, Takeda, Ishigaki I., 14. ii. 1953, T. SHIRAKI.

The Formosan specimen (♂ syntype) differs from the material of Yaeyama Is. in the following points : front distinctly narrower, and femur and tibia distinctly shorter than in the specimens of Yaeyama Is. and pile on palpus pale in colour. However, it appears that the differences above are not significant in separating species.

Chrysopilus nigripalpis BEZZI

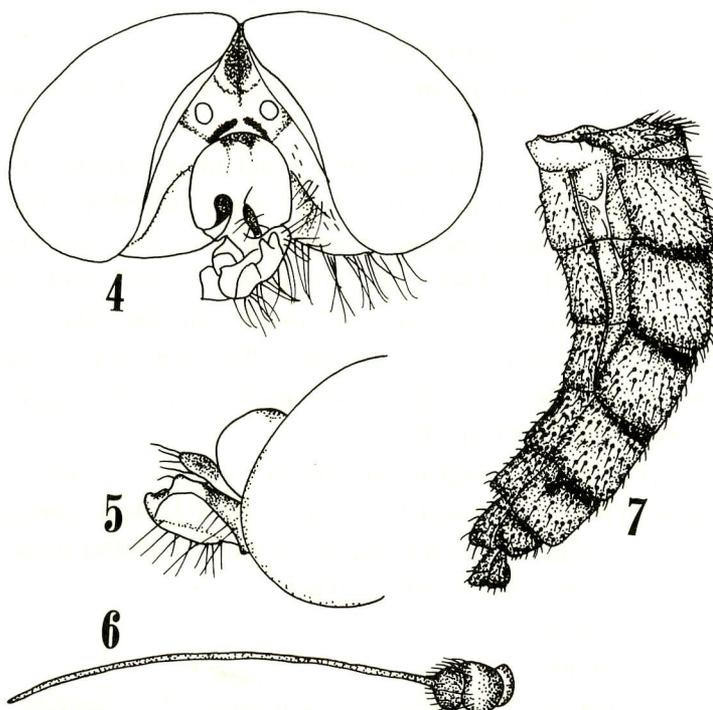
(Figs. 4–7)

Chrysopilus nigripalpis BEZZI, 1912, Ann. Mus. Nat. Hung. 10 : 448. Type locality : Kanshirei or Toyenmongai, Formosa.

Yellowish brown; head (except facial swelling, proboscis, and basal portion of palpus) dark brown to black; tarsus (except basal portion of basitarsus) darker; wing brown fumose, and stigma indistinct and almost concolorous with rest of membrane.

This species is very simijar to *fenestratus* but may be separated from the latter by the basal darkened bands on abdominal terga 3–6, obscure or very narrow, and by the stigma of wing almost concolorous with rest of membrane.

Male. Head (Figs. 4–6) : dark brown to black, and pale gray pollinose; facial swelling, proboscis and base of palpus yellowish brown; in antenna, segment 1 bare, segment 2 with shorter black hairs at apical portion, and segment 3 short pale pilose; ocellar triangle and vertex with shorter black hairs; occiput, cheek, proboscis, palpus, and lower portion of side of face with pale pile which becomes shorter on upper occiput; eyes



Figs. 4-7. *Chrysopilus nigripalpis* BEZZI, male (from Formosa). 4. Head, direct facial view. 5. Head, lateral view (showing facial swelling, palpus, and proboscis). 6. Antenna, inner view. 7. Abdomen, lateral view (based on 2nd specimen).

joined for a distance which is 1.8-2.0 times length of ocellar triangle; difference in size of upper and lower facets not conspicuous; width of one eye on a mid line from a direct frontal view 1.0-1.1 times distance from antenna to median ocellus, 1.3 times width of face at lowest portion from a direct frontal view, and 2.1-2.2 times width of front just above antenna; width of ocellar triangle 0.9 times its length and 0.4 times width of front just above antenna; face tapering on upper portion; distance from proboscis to antenna 0.5 times that from antenna to median ocellus; width of facial swelling 0.9-1.0 times its length, 0.7 times width of face at top portion of facial swelling, and 2.5-3.0 times width of side of face on a mid line; length of facial swelling 0.9 times distance from proboscis to antenna; when measured along midinner surface, relative lengths of antennal segments 1-3, 25(25) : 100 : 100(100) and their relative widths 144(138-150) : 132(125-138) : 132(125-138); arista 4.1-5.0 times as long as rest of antenna, which is 0.2 times as long as distance from antenna to median ocellus; palpus 0.6-0.7 times as long as facial swelling and 0.4-0.5 times as wide as antennal segment 3; space between antennae 0.9-1.1 times width of ocellar triangle; structural characters are based on 2 specimens.

Thorax: yellowish brown; mesonotum and scutellum with black erect hairs which often change into pale behind humeral callus and with shorter recumbent pale pile;

pro-, upper part of meso-, lower part of sterno-, ptero- (before hypo-), and metapleura pale pilose; halter yellowish brown.

Wing: brown fumose; stigma almost concolorous with rest of membrane; petiole of anal cell long.

Legs: yellowish brown; tarsal segments 2-5 and apical portion of basitarsus darker; coxa with pale pile; femur with shorter, pale, chiefly recumbent pile which becomes black on hind femur; relative lengths of segments (excluding coxa and trochanter) of fore leg 71(69-72) : 131(127-134) : 100 : 31(30-31) : 19(19) : 8(8) : 8(8), of mid leg 78(77-78) : 151(146-156) : 105(100-110) : 17(16-17) : 9(8-10) : 5(4-5) : 7(6-8), of hind leg 104(102-105) : 171(165-177) : 105(104-106) : 29(28-29) : 17(17) : 6(6) : 8(8) and in hind leg viewed from the side, relative widths of femur, tibia, and tarsomeres 1-3, 13(12-13) : 8(8) : 6(5-6) : 4(3-4) : 3(3); (N=2).

Abdomen (Fig. 7): yellowish brown; anterior margins of terga 3-6 may be dark brown to black; dorsum with erect black hairs and with short recumbent yellow pile (which may not be recognized in some angles); venter with shorter black hairs.

Length: body 6.6-8.8 mm; wing 6.2-8.0 mm.

Female. Not examined.

Distribution. Formosa.

Specimens examined: 1 ♂ (syntype), Toyenmongai; 1 ♂, Sanping, nr. Liukuei, S. Taiwan, 21-23. vi. 1985, N. FUKUHARA.

Chrysopilus poecilopterus BEZZI

(Figs. 8-13)

Chrysopilus poecilopterus BEZZI, 1912, Ann. Mus. Nat. Hung. 10 : 450. Type locality: Toyenmongai or Fuhosho, Formosa.

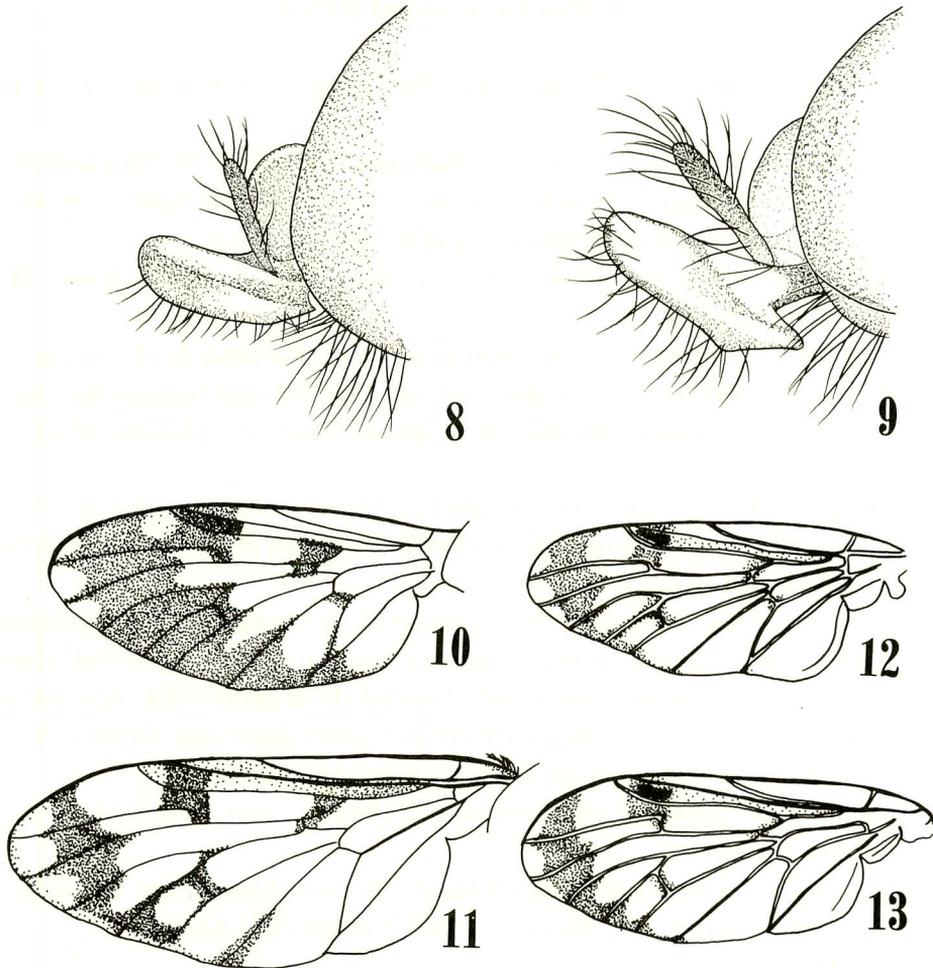
Chrysopilus amamiensis NAGATOMI, 1968, Mushi 42 : 33. Type locality: Amami Ōshima, Japan. **Syn. n.**

NAGATOMI (1978) recorded *amamiensis* from Okinawa I. *C. amamiensis* is here synonymized with *poecilopterus*. In the specimens (2 ♂♂, 1 ♀) from Formosa, at hand, the darkened part of wing is more extensive in area than in those from Okinawa I. and Amami Ōshima (see Figs. 10-13). However, this difference may not be significant in separating species.

Among the Formosan and Japanese species, *poecilopterus* is characterized by the wing marking shown in Figs. 10-13.

The palpus, proboscis, and facial swelling are shown in Figs. 8-9, based on the specimens from Formosa.

This species was described in more detail by NAGATOMI (1968, 1978) and NAGATOMI and KANMIYA (1968) as *amamiensis*, based on the material from Amami Ōshima and



Figs. 8–13. *Chrysopilus poecilopterus* BEZZI (8, 10, 12, male; 9, 11, 13, female) (8–11, from Formosa; 12–13, from Okinawa I.). 8–9. Head, lateral view (showing facial swelling, palpus, and proboscis). 10–13. Wing.

Okinawa I.

Length (in the specimens from Formosa): ♂, body 6.1–6.7 mm, wing 5.7–6.4 mm; ♀, body 6.7 mm, wing 6.7 mm.

Distribution. Formosa and Japan (Okinawa I. and Amami Ôshima).

Specimens examined: 1♂, Gebiet des Shishastammes, Formosa, v–vi, 1912, H. SAUTER; 1♀ (syntype), Toyenmongai, Formosa; 1♂, Sungkan, Central Taiwan, 9. v. 1971, N. FUKUHARA.

Chrysopilus sauteri BEZZI

Chrysopilus sauteri BEZZI, 1907, Ann. Mus. Nat. Hung. 5 : 564. Type locality: Takao, Formosa.

Leptis basalis MATSUMURA, 1915, Kontyu-bunruigaku, Part 2, p. 39. Type locality: Sapporo, Hokkaido, Japan. (This name is preoccupied by *Leptis basalis* PHILIPPI, 1865 from Chile and *Chrysopilus basalis* WALKER, 1860 from Mexico).

Chrysopilus matsumurai NAGATOMI, 1968 : 42 (new name for *Leptis basalis* MATSUMURA, 1915). **Syn. n.**

NAGATOMI (1978) recorded *matsumurai* from the Yaeyama Is. *C. matsumurai* is here synonymized with *sauteri*. No significant difference is found between the specimens (1 ♂, 1 ♀) from Formosa and those from Japan (Hokkaido, Honshu, Kyushu, and Yaeyama Is.).

This species was described in more detail by NAGATOMI (1968) and NAGATOMI and KANMIYA (1968) as *matsumurai*. The diagnostic characters are given in the keys prepared by NAGATOMI (1968, 1978).

This species is easily separated from *griseipennis* by having the following characters: stigmal spot of wing distinct and apical part of marginal cell pale; antennal segment 1 bare; side of face bare (except lower part); hairs on cheek partly black; body not sooty; abdominal dorsum without yellow recumbent pile; halter knob dark brown to black; in ♂, difference of size between upper and lower facets conspicuous.

Length (in the specimens from Formosa): ♂, body 6.2 mm, wing 5.3 mm; ♀, body 6.2 mm, wing 5.6 mm.

Distribution. Formosa and Japan (Hokkaido, Honshu, Kyushu, and Yaeyama Is.).

Specimens examined: 1♂, Koshun, iii. 1909, SAUTER; 1♀, SAUTER.

Chrysopilus trypetopterus BEZZI, Stat. n.

(Figs. 14–17)

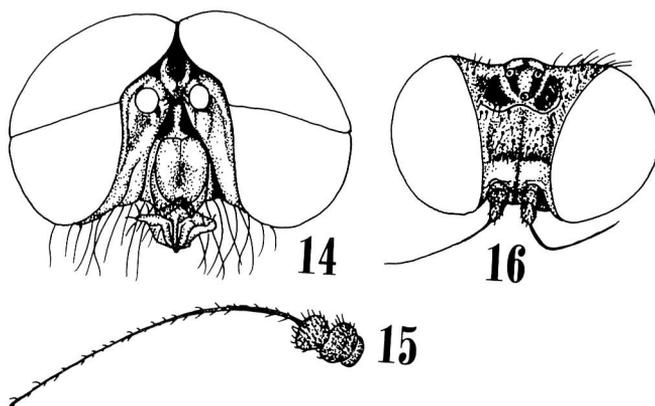
Chrysopilus marmoratus var. *trypetopterus* BEZZI, 1912, Ann. Mus. Nat. Hung. 10 : 449.

Type locality : Toyenmongai or Fuhosho, Formosa.

In *Chrysopilus marmoratus* BRUNETTI, 1909 (Rec. Ind. Mus. 2 : 429) from Assam, the vein R₄ is straight, judging from the figure by BRUNETTI (1920), whereas in *trypetopterus*, vein R₄ is distinctly sinuate. So, *trypetopterus* is here treated as distinct species. However, a direct comparison is very necessary for final determination.

Among the Formosan and Japanese species, *trypetopterus* is characterized by having the mottled wing and sinuate vein R₄ (Fig. 17).

Male. Head (Figs. 14–15): dark brown to black, and pale gray pollinose; antennal segments 1–2, basal portion of palpus, and facial swelling may be brown rather than



Figs. 14–16. *Chrysopilus trypetopterus* BEZZI (from Formosa) (14–15, male; 16, female). 14. Head, direct facial view. 15. Antenna, inner view. 16. Head, direct frontal view.

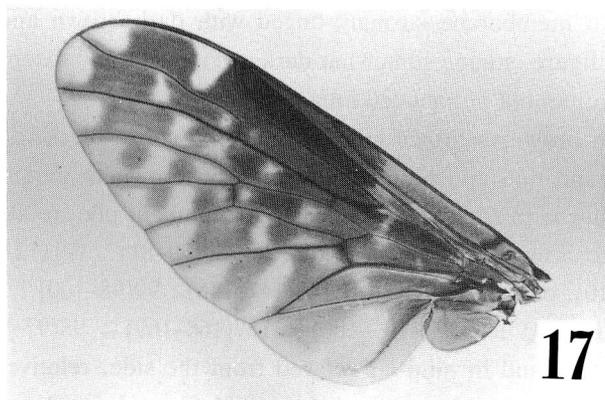


Fig. 17. *Chrysopilus trypetopterus* BEZZI, male (from Formosa) (based on 2nd specimen). Wing.

dark brown and proboscis may be yellowish brown to brown; antennal segment 1 bare, segment 2 with short black hairs at apical portion, and segment 3 and arista with short pale pile; ocellar triangle and vertex with short black hairs; occiput (except large upper part), cheek, palpus, and proboscis with black hairs which are longer on cheek; side of face (except lower part) bare; eyes joined for a distance which is 1.6–2.0 times length of ocellar triangle; difference in size of upper and lower facets conspicuous and divided line situated opposite antenna; width of one eye on a mid line from a direct frontal view 1.1 times distance from antenna to median ocellus, 1.2–1.4 times width of face at lowest portion from a direct frontal view, and 1.8–2.1 times width of front just above antenna; width of ocellar triangle 1.0 times its length and 0.4–0.5 times width of front just above antenna; face nearly parallel sided; distance from proboscis to antenna 0.6–0.7 times that from antenna to median ocellus; width of facial swelling 0.9–1.0 times its length, 0.6

times width of face at top portion of facial swelling, and 2.0–2.1 times width of side of face on a mid line; length of facial swelling 0.7 times distance from proboscis to antenna; when measured along midinner surface, relative lengths of antennal segments 1–3, 36(29–43) : 100 : 93(86–100) and their relative widths 129(114–143) : 143(143) : 114(114); arista 4.3 times as long as rest of antenna, which is 0.2 times distance from antenna to median ocellus; palpus 0.7 times as long as facial swelling and 0.5 times as wide as antennal segment 3; space between antennae 0.7–0.8 times width of ocellar triangle; structural characters are based on 2 specimens.

Thorax: dark brown to black, and more or less pale gray pollinose; mesonotum and scutellum with erect black hairs at least at side (before suture) and at posterior border of scutellum [the hairs are rubbed off in the specimens at hand and the presence of recumbent yellow pile uncertain]; pro-, upper part of meso-, lower part of sterno-, hypo- (below spiracle), and metapleura with black hairs; halter with stem yellowish brown and with knob dark brown to black.

Wing (Fig. 17): memberane strongly tinged with dark brown and with many pale spots shown in the figure; stigme somewhat darker, elongate and extending to wing margin; vein R_4 sinuate; petiole of anal cell long.

Legs: yellowish brown to brown but coxa dark brown to black, tarsomeres 2–5 and apex of basitarsus and mid and hind femora may be brown to dark brown; coxa with black hairs and femur with shorter, black, chiefly recumbent pile; relative lengths of segments (excluding coxa and trochanter) of fore leg 80(79–81) : 121(121) : 100 : 27(27) : 19(19) : 8(8) : 10(10), of mid leg 84(84) : 148(147–148) : 99(98–100) : 19(19) : 14(13–15) : 6(5–6) : 8(8), of hind leg 106(105–106) : 169(168–169) : 98(97–98) : 22(21–23) : 14(13–15) : 6(6) : 8(8) and in hind leg viewed from the side, relative widths of femur, tibia, and tarsomeres 1–3, 13(13) : 8(8) : 6(5–6) : 5(4–5) : 4(3–5); (N=2).

Abdomen: dark brown to black, and more or less pale gray pollinose; anterior border (before sensory pits) of tergum 2 paler; dorsum with erect black hairs [the hairs are mostly rubbed off on terga 2–4 in the specimens at hand and the presence of recumbent pile is uncertain]; venter with black hairs which are somewhat shorter.

Length: body 5.1–5.9 mm; wing 5.2–5.3 mm.

Female. Similar to male except as follows: Head (Fig. 16): upper occiput behind eye margin with black hairs; width of front just above antenna 0.8 times that at median ocellus which is 2.6–2.7 times width of ocellar triangle; width of one eye on a mid line from a direct frontal view 1.1–1.2 times (almost as in ♂) distance from antenna to median ocellus, 1.1 times width of face at lowest portion from a direct frontal view, and 1.3–1.4 times width of front just above antenna; distance from proboscis to antenna 1.2 times that from antenna to median ocellus; ocellar triangle 1.1–1.2 times (almost as in ♂) its length; facial swelling 0.8 times as wide as face at top portion of facial swelling and 4.3–4.7 times as wide as side of face on a mid line; relative lengths of antennal segments 1–3, 36(33–38) : 100 : 134(100–167) and their relative widths 146(125–167) : 146(125–

167) : 146(125–167); arista 3.3–3.7 times as long as rest of antenna, which is 0.5 times distance from antenna to median ocellus; palpus 0.6–0.7 times (as in ♂) as long as facial swelling and 0.6 times (almost as in ♂) as wide as antennal segment 3; space between antennae 0.4–0.5 times width of ocellar triangle; structural characters are based on 2 specimens.

Thorax: mesonotum and scutellum with shorter, yellow recumbent pile in addition to somewhat longer, black, erect hairs.

Legs: relative lengths of segments of fore leg 83(82–84) : 128(125–130) : 100 : 26(25–27) : 18(18) : 8(7–9) : 10(8–11), of mid leg 89(87–90) : 162(162) : 98(95–100) : 19(18–20) : 14(13–15) : 6(5–7) : 9(8–9), of hind leg 106(105–107) : 173(173) : 99(95–102) : 25(24–25) : 16(15–16) : 7(7) : 9(8–9) and in hind leg viewed from the side, relative widths of femur, tibia, and tarsomeres 1–3, 17(16–17) : 9(8–9) : 6(5–6) : 5(4–5) : 4(3–5); (N=2).

Abdomen: hairs on dorsum may be shorter than in ♂ and chiefly recumbent and those on tergum 2 may often be chiefly pale yellowish.

Length: body 4.5–5.1 mm; wing 4.8–5.2 mm.

Distribution. Formosa.

Specimens examined (2♂♂, 3♀♀) : 1♂, 1♀, Kosempo, v. 1912, H. SAUTER; 1♂, Kukuan, Central Taiwan, 14. v. 1971, N. FUKUHARA; 2♀♀, Chihpen, S. E. Taiwan, 10. iv. 1971, N. FUKUHARA.

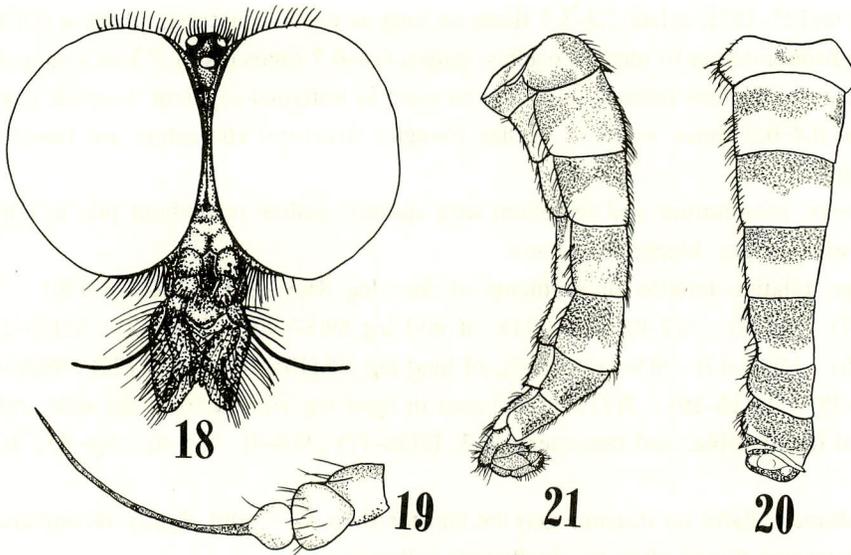
Rhagio formosus BEZZI

(Figs. 18–21)

Rhagio formosus BEZZI, 1912, Ann. Mus. Nat. Hung. 10 : 445. Type locality: Kosempo, Formosa.

Yellowish brown; in abdomen terga 6–7 (except posterior borders), anterior parts of terga 3–5, and midanterior and anterolateral spots of tergum 2 dark brown to black; antennal arista and tarsus darkened; wing brown fumose and stigma elongate and slightly darker than rest of membrane.

Head (Figs. 18–19) : Head except appendages dark brown, and pale gray pollinose; antenna except arista, palpus, and proboscis yellowish brown; antennal arista dark brown; antennal segments 1–3, ocellar triangle, vertex, occiput behind upper eye margin with shorter black hairs; occiput, cheek, side of face, palpus and proboscis pale pilose; eyes narrowly separated and narrowest point of front less than width of median ocellus; no difference in size of upper and lower facets; width of one eye on a mid line from a direct frontal view 1.1 times distance from antenna to median ocellus, 1.4 times width of face at lowest portion from a direct frontal view and 3.0 times width of front just above antenna; width of ocellar triangle 0.9 times its length and 0.6 times width of front just



Figs. 18-21. *Rhagio formosus* BEZZI, male (from Formosa). 18. Head, direct frontal view. 19, Antenna, inner view. 20. Abdomen, dorsal view. 21. Abdomen, lateral view.

above antenna; face tapering on upper portion; distance from proboscis to antenna 0.5 times that from antenna to median ocellus; width of facial swelling 0.9 times its length, 0.9 times width of face at top portion of facial swelling, and 3.4 times width of side of face on a mid line; length of facial swelling 0.9 times distance from proboscis to antenna; when measured along midinner surface, relative lengths of antennal segments 1-3, 43-100-71 and their relative widths 86-86-86; arista 1.8 times as long as rest of antenna, which is 0.4 times distance from antenna to median ocellus; palpus 2 times as long as facial swelling and 0.8 times as wide as antennal segment 3; space between antennae 0.3 times width of ocellar triangle; structural characters are based on 1 specimen.

Thorax: yellowish brown; mesonotum with 3 narrow pale gray pollinose stripes; mesonotum and scutellum with black hairs; propleura and anterior swollen part of metapleura with pale pile; pleura otherwise bare; halter yellowish brown.

Wing: membrane brown fumose; stigma slightly darker and elongate; anal cell narrowly open in one wing and closed just before wing margin in another in this specimen.

Legs: yellowish brown, but tarsus darkened; coxa pale pilose; femur with shorter black hairs which change into pale on ventral surfaces of fore and mid femora; relative lengths of segments (excluding coxa and trochanter) of fore leg 136-171-100-40-31-21-19, of mid leg 152-186-95-33-24-12-17, of hind leg 214-243-100-38-26-12-19 and in hind leg viewed from the side, relative widths of femur, tibia, and tarsomeres 1-3, 29-19-12-10-8; (N=1).

Abdomen (Figs. 20-21): yellowish brown, but terga 6-7 (except posterior borders),

anterior parts of terga 3–5, and midanterior and anterolateral spots of tergum 2 dark brown to black; in each lateral margin of terga 2–5, darkened part nearly extending to posterior margin; dorsum with black hairs (which may change into pale in posterior margins of terga 5–7) and venter pale pilose.

Length: body 9.0 mm; wing 8.9 mm.

Female. Unknown.

Distribution. Formosa.

Specimen examined: 1 ♂, Kosempo, 10. iii. 1908, SAUTER.

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