

# *Symphoromyia crassicornis* (Panzer), New to Japan (Diptera, Rhagionidae)

Akira NAGATOMI and Kenkichi KANMIYA<sup>1</sup>

(Entomological Laboratory)

Only one species of the genus *Symphoromyia* is present in Japan. This species is new to Japan and is here treated tentatively as *S. crassicornis* (Panzer, 1806) known from Europe and central Asia.

We wish to express our sincere thanks to Mr. Harold Oldroyd (British Museum (Natural History), London), Dr. L. L. Pechuman (Cornell University, Ithaca, New York), Mr. Takao Okuno (Agricultural and Forest Technical Center of Osaka Prefecture, Habikino, Osaka), Mr. Toyohei Saigusa and Mr. Hiroshi Shima (Kyushu University, Fukuoka) for the gift or loan of the material, to Mr. Junichi Yukawa (Kagoshima University, Kagoshima) for his help in studying the ♂ genitalia, and to Dr. Masatate Shibuya (Professor Emeritus at Kagoshima University) and Dr. Keizo Yasumatsu (Kyushu University) for their encouragement and support.

## Genus *Symphoromyia* Frauenfeld

*Symphoromyia* Frauenfeld, 1867, Verh. zool.-bot. Ges. Wien 17 : 496.

*Parapheromyia* Becker, 1921, Zeitschr. f. wiss. Insektenbiologie 16 : 59.

Head about as wide as or wider than thorax; in ♂ eyes contiguous or very narrowly separated but in ♀ eyes widely separated and front considerably wider at vertex; in ♀, mid face not divided into an upper and a lower part; in antenna 3rd segment dilated on underside and with a slender subapical arista and 1st segment elongate and usually thickened; palpus consisting of 2 segments of which 1st is shorter than 2nd. Tibial spurs 0 : 2 : 1; hind coxa with one antero-terminal process which is very broad at base and produced forward. Wing with 5 posterior cells, and 4th posterior cell and anal cell open (the former sometimes closed). Abdomen attenuate posteriorly.

Type-species : *Atherix melaena* Meigen, 1820

The diagnoses mentioned above are based on 2 species, namely, *crassicornis* (♂♂, ♀♀) and *atripes* Bigot, 1887 from North America determined by Dr. L. L. Pechuman (1♀) and the literature (Aldrich, 1915 and Lindner, 1924-25).

This genus is similar to *Atherix* s. lat. (including *Suragina* and *Atrichops*) in the shape

---

1) Present address of junior author : Hikosan Biological Laboratory, Kyushu University, Hikosan.

of 3rd antennal segment, but in the latter, 1st antennal segment not so elongate and thickened, hind tibia with two apical spurs, anal cell closed, and ♂ genitalia very different (see Nagatomi, 1958-62 and Rozkošný and Spitzer, 1965).

*Symphoromyia* is restricted to the Holarctic region and contains 25 species from North America (after James, 1965) and 3 species from Europe (after Szilády, 1935) (of which *crassicornis* is widely distributed in Europe, central Asia, and Japan).

Some species (in ♀) from North America and no ones from Europe and Asia are recorded as blood-sucker. It is probable that the presence or absence of this habit varies with the species.

The larvae are not aquatic but live in the damp soil, and are very different in shape as well as the pupae from the genus *Atherix* s. lat. (see Sommerman, 1962 and Nagatomi, 1958-62).

### *Symphoromyia crassicornis* (Panzer)

*Atherix crassicornis* Panzer, 1806, Fauna Germ., H. 105.

For synonyms see Kertész (1905), Lindner (1924-25), and Szilády (1934).

This species is at once distinguishable from all other Rhagionidae from Japan by having the antenna whose segment 1 is greatly elongated and swollen and whose segment 3 is dilated on underside (Fig. 1).

♂. Head: Head and its appendages dark brownish to blackish, pale gray pollinose; head with black hairs which are long on antennal segment 1, palpus, ocellar triangle, occiput just behind upper margin of each eye and cheeks and change into pale yellowish in color on area below proboscis (hairs on proboscis sometimes pale yellowish); frontal triangle, face, antennal segment 3, and arista bare; eyes usually separated and in this case space between eyes at most as wide as median ocellus; width of one eye on a mid line from a direct frontal view less than width of face at lowest portion from a direct frontal view (0.8 times), twice or roughly so width of front just above antenna (1.8-2.2 times), and over 1 1/2 distance from antenna to median ocellus (1.6-1.7 times); distance from proboscis to antenna longer than that from antenna to median ocellus (1.1-1.3 times); facial swelling about as wide as long (1.0-1.1 times) and 1/2 as wide as face at upper margin of facial swelling (although facial swelling often not so distinctly constricted at its upper margin) and over 1/2 as long as distance from proboscis to antenna (0.6-0.7 times); when measured along mid-inner surface (length of segment 3 means space between base and arista), antenna (minus arista) as long as or somewhat longer than distance from antenna to median ocellus (1.0-1.2 times), its segment 2 over 1/2 as long as wide (0.6-0.7 times), 1/5 or less (0.15-0.2 times) as long as and about 1/2 (0.4-0.5 times) as wide as segment 1, as long as or roughly so (usually 0.8-1.0 times) and 1/2 or somewhat more (0.5-0.7 times) as wide as segment 3, and arista about as long as rest of antenna (0.9-1.0 times); palpus about as long as distance from proboscis to antenna (0.9-1.0 times), its segment 2 roughly twice (1.8-2.3 times) as long as and roughly as wide as (0.7-1.2 times) segment 1; proboscis measured along dorsal surface over 1/2 as long as distance from proboscis to antenna (0.6-0.8 times); space between antennae over 1/2 as wide as ocellar triangle (0.6-0.9 times).

Thorax : Dark brownish to blackish, pale gray pollinose ; mesonotum with 3 broad, indistinct darker stripes of which median one is divided by a thin vitta ; mesonotum and scutellum with long, erect, black hairs ; pro- and lower part of metapleura with erect, pale yellowish hairs which are long and sometimes partially black on metapleura ; upper- and posterior part of meso-, and lower portion and upper margin of sternopleura with erect black hairs which are sparse and may be pale on upper margin of sternopleura ; haltere dark brownish and pale gray pollinose.

Leg : Dark brownish to blackish ; coxa and femur pale gray pollinose and with black hairs which are sometimes intermixed with pale ones on hind coxa and which are longer on coxa, posterior surface of fore-, posterior- and ventral surface of mid-, and ventral surface of hind femur ; relative length of segments (excluding coxa and trochanter) of fore leg 139 (132-151) : 172 (161-187) : 100 : 38 (35-40) : 28 (26-30) : 18 (15-20) : 26 (24-28), of mid leg 143 (134-154) : 191 (178-205) : 83 (77-87) : 35 (31-38) : 25 (23-28) : 15 (12-17) : 24 (22-26), of hind leg 199 (190-223) : 227 (212-245) : 109 (102-114) : 44 (38-53) : 28 (24-33) : 18 (15-21) : 25 (22-28) and in hind leg from a lateral view relative width of femur, tibia, and tarsal segments 1-3, 26 (24-30) : 17 (15-20) : 12 (11-13) : 10 (8-13) : 9 (8-10) (tarsal segment 1, 0.1, segment 2, 0.2-0.25, segment 3, 0.3-0.35 times as wide as long), these were calculated from 10 specimens.

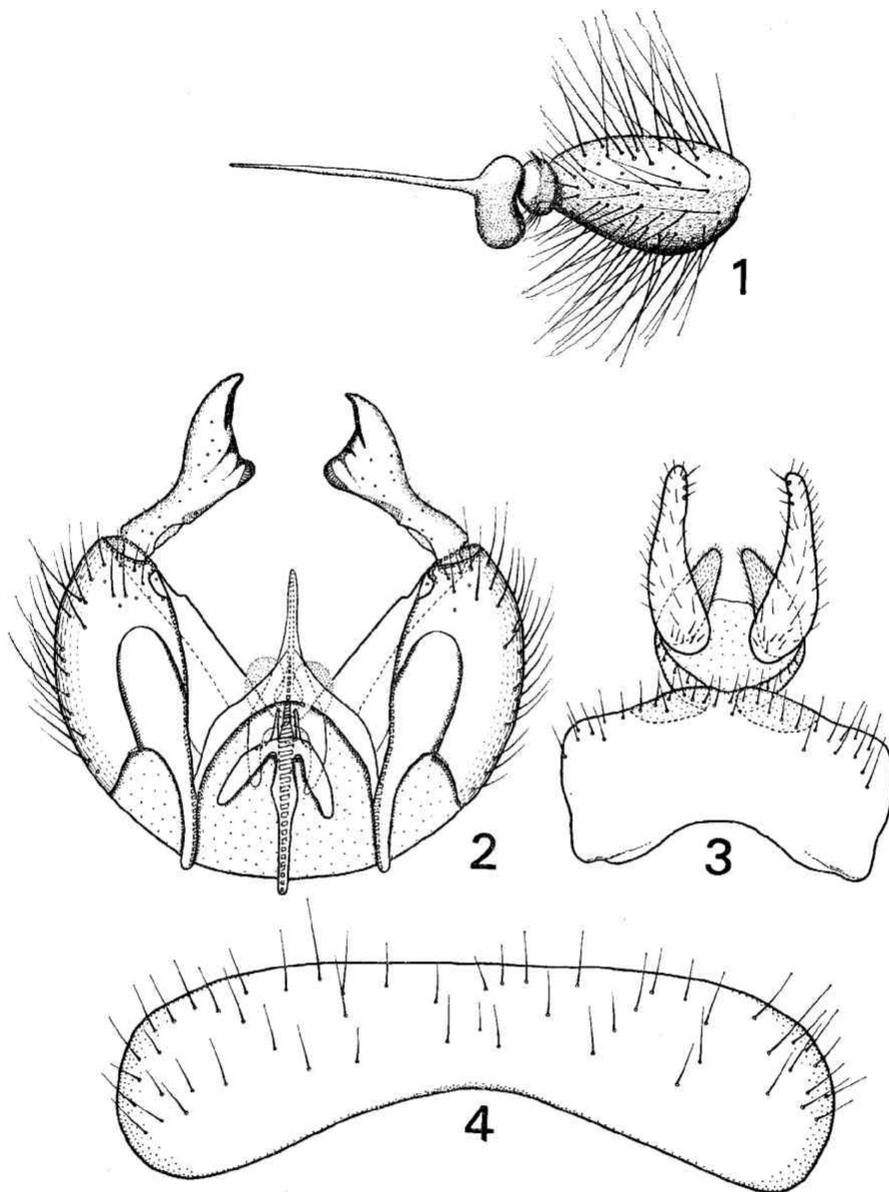
Wing : Membrane evenly tinged with dark brown ; veins reddish brown to dark brown ; stigma elongate and slightly darker.

Abdomen : Dark brownish to blackish and pale gray pollinose ; above and below clothed with erect, pale or pale yellowish hairs which are long near sides of dorsum and which change into black on segments 6-7 and genitalia and in middle of dorsum ; black haired area in middle of dorsum variable and sometimes practically not present.

Genitalia : As in Figs. 2-4.

Length : Body (without antenna) 5.5-8 mm ; wing 5-7 ; fore basitarsus 1.0-1.2.

♀. Similar to ♂ except as follows : Head : Hairs on antennal segment 1, ocellar triangle, occiput, and segment 2 of palpus shorter than in ♂, and those on cheeks and segment 1 of palpus pale in color but those on segment 2 of palpus either chiefly black (1♀ from Kyushu) or pale (1♀ from Honshu and 1♀ from Europe) ; front except just above antenna (below transverse suture) with abundant, fairly long black hairs ; face may have a few black or pale hairs (this may be true of ♂) ; antennal segment 3 yellowish brown (1♀ from Kyushu) or dark brownish to blackish as in ♂ (1♀ from Honshu and 1♀ from Europe) ; width of one eye on a mid line from a direct frontal view 0.5 times width of face at lowest portion from a direct frontal view, 0.75 times width of front at narrowest point (at transverse suture) (which is 0.85 times that at median ocellus), and 1.2 times distance from antenna to median ocellus ; width of front at median ocellus 3.8 times width of ocellar triangle ; distance from proboscis to antenna 1.35 times that from antenna to median ocellus and 1.3 times width of facial swelling ; antenna (minus arista) 1.15 times distance from antenna to median ocellus as in ♂ ; antennal segment 2, 0.6 times as long as wide as in ♂, 0.3 times as long as and 0.65 times as wide as segment 1, 0.8 times as long as and 0.6 times as wide as segment 3 as in ♂ ; arista 1.3 times as long as rest of antenna ; palpus as long as distance from proboscis to antenna as in ♂, its segment 2, 2.5 times as long as and 0.9 times as wide as segment 1 ; proboscis measured along dorsal surface 0.9 times as long as distance



*Symphoromyia crassicornis* (Panzer), ♂. 1: antenna, outer view; 2: genitalia in which cerci, proctiger, and epandrium are excluded, dorsal view; 3: cerci, proctiger, and epandrium (=tergum 9), dorsal view; 4: tergum 8, dorsal view.

from proboscis to antenna; space between antennae 1.3 times as wide as ocellar triangle. (structural characters are based on 1 ♀ from Kyushu)

Thorax: Hairs on mesonotum and scutellum fairly long but shorter than in ♂ and pile on meso- and sternopleura pale in color; haltere yellowish brown (in 1 ♀ from Europe knob of haltere infuscated with dark brownish).

Leg: Knee yellowish brown (this may be true of ♂) (in 1 ♀ from Europe tibia and basitarsus except apex with a yellowish brown tinge); pile on coxa pale in color, but sometimes (1 ♀ from Kyushu and 1 ♀ from Europe) that on mid coxa partially black; pile on femur fairly long but shorter than in ♂ and partially pale in color (pile on

mid- and hind femur in 1♀ from Kyushu and 1♀ from Honshu almost wholly pale); relative length of segments of fore leg 132-170-100-36-27-18-30, of mid leg 145-195-89-36-25-16-25, of hind leg 195-223-111-43-30-16-25 and in hind leg from a lateral view relative width of femur, tibia, and tarsal segments 1-3, 27-18-11-11-10 (tarsal segment 1, 0.1, segment 2, 0.25, segment 3, 0.35 times as wide as long) (based on 1♀ from Kyushu).

Abdomen: Hairs on abdomen almost wholly pale and those on sides of dorsum fairly long but shorter than in ♂.

Length: Body (without antenna) 6 mm; wing 6.5; fore basitarsus 1.1.

The descriptions given above are based on the material from Chikuzen (Fukuoka-Pref.), Kyushu. We have 9♂♂, 1♀ from Shinano (Nagano-Pref.), Honshu and 2♂♂, 1♀ from Europe. The differences among the materials from these 3 localities are mentioned below.

♂. *Specimens on hand from Honshu*: Width of one eye on a mid line from a direct frontal view 1.7-2.0 times distance from antenna to median ocellus (in 10 specimens measured from Kyushu, 1.6-1.7 times); distance from proboscis to antenna 1.2-1.5 times that from antenna to median ocellus (in specimens from Kyushu, 1.1-1.3 times); antenna minus arista 1.2-1.3 times distance from antenna to median ocellus (in Kyushu, 1.0-1.2 times); antennal segment 2, 0.2-0.25 times as long as segment 1 (in Kyushu, 0.15-0.2 times); relative length of segments of fore leg 149 (137-157) : 182 (176-190) : 100 : 36 (33-41) : 27 (24-28) : 18 (17-21) : 29 (27-31), of mid leg 155 (141-166) : 205 (189-226) : 87 (83-91) : 36 (33-38) : 24 (22-27) : 16 (15-18) : 26 (24-28), of hind leg 215 (198-226) : 246 (230-266) : 115 (108-129) : 47 (44-51) : 29 (24-32) : 19 (16-20) : 27 (24-30) and in hind leg from a lateral view, relative width of femur, tibia, and tarsal segments 1-3, 28 (27-31) : 18 (17-20) : 13 (11-15) : 11 (9-14) : 10 (8-11) (tarsal segment 1, 0.1, segment 2, 0.2-0.3, segment 3, 0.3-0.4 times as wide as long), these were calculated from 9 specimens; body (without antenna) 5.5-7 mm, wing 5.5-7, fore basitarsus 0.8-1.1 in length. *Specimens on hand from Europe*: Width of one eye 1.8 times distance from antenna to median ocellus as in specimens from Honshu; relative length of segments of fore leg 148-177-100-39-30-18-?, of mid leg 148-193-82-34-23-16-23, of hind leg 205-227-109-43-27-18-27 and in hind leg the relative width 25-16-14-11-10; body 7.5 mm, wing 6.5, fore basitarsus 1.1 in length; based on 1 individual. *No differences have been found in genitalia among the specimens from the 3 localities.*

♀. *Specimen on hand from Honshu*: Antennal segment 3 dark brownish as in ♂; width of front at median ocellus 3.6 times width of ocellar triangle; arista 1.1 times as long as rest of antenna; segment 2 of palpus 2.0 times as long as segment 1; relative length of segments of fore leg 156-194-100-38-29-21-29, of mid leg 176-224-91-35-24-18-29, of hind leg 235-265-118-44-29-18-29 and in hind leg from a lateral view relative width of femur, tibia, and tarsal segments 1-3, 35-21-15-12-12 (tarsal segment 1, 0.1, segment 2, 0.3, segment 3, 0.4 times as wide as long); body (without antenna) 6 mm, wing 6, fore basitarsus 0.85 in length. *Specimen on hand from Europe*: Antennal segment 3 dark brownish as in ♂; haltere with knob dark brownish; tibia and basitarsus with a yellowish brown tinge; width of front at transverse suture (A) 1.7 times width of one eye on a mid line from a direct frontal view and (B) 2.1 times distance from antenna to median ocellus; distance from proboscis to antenna (C) 1.5 times that from antenna to median ocellus and (D) 1.5 times width of facial swelling; width of front

at median ocellus (E) 4.1 times width of ocellar triangle; antennal segment 2, (F) 0.5 times as long as wide and (G) 0.6 times as long as segment 3; arista (H) 1.4 times rest of antenna; space between antennae (I) 1.5 times width of ocellar triangle; relative length of segments of fore leg 173-188-100-34-24-17-29, of mid leg 178-207-80-34-22-15-27, of hind leg 241-256-115-46-27-20-29 and in hind leg the relative width 37-21-15-12-12 (tarsal segment 1, 0.1, segment 2, 0.25, segment 3, 0.45 times as wide as long); body 8 mm, wing 7.5, fore basitarsus 1.0 in length. [in specimens from Kyushu and Honshu, (A) 1.2-1.3, (B) 1.4-1.6, (C) 1.3-1.35, (D) 1.2-1.3, (E) 3.6-3.8, (F) 0.6-0.7, (G) 0.8-1.0, (H) 1.1-1.3, and (I) 1.3-1.4]

Distribution: Europe, central Asia, and Japan (Honshu and Kyushu).

Specimens examined (36 ♂♂, 3 ♀♀): *Kyushu* (25 ♂♂, 1 ♀): 1♂, 1♀, Tachibanayama, Chikuzen, 23. iv. 1950, A. Nagatomi; 2♂♂, Yamada-machi, Kasuya-gun, Chikuzen, 17. iv. 1952, Nagatomi; 9♂♂, Mt. Wakasugi, Chikuzen, 12. v. 1962, T. Saigusa; 13♂♂, Mt. Wakasugi, 25. iv. 1966, H. Shima. *Honshu* (9 ♂♂, 1 ♀): 2 ♂♂, Kiso-komagatake, Shinano, 10. viii. 1953, Nagatomi; 2 ♂♂, 1 ♀, Renge-ōike (2400 m), Shinano, 21. vii. 1955, T. Okuno; 2 ♂♂, Mt. Hakuba (2933 m), Shinano, 21. vii. 1955, Okuno; 1♂, Tokuzawaen (1570 m), Shinano, 24. vii. 1955, Okuno; 2 ♂♂, Tokuzawa-Mt. Otaki, Shinano, 24. vii. 1955, Okuno. *Europe* (2 ♂♂, 1 ♀): 1♂, 1♀, 21. vii. 1898; 1♂, 26. vi. 1900. [we could not read further data]

### Discussion

The species described above has been found in the vicinities of Fukuoka (less than 500 m in altitude), northern Kyushu and in the so-called "Japan Alps" (over 1500 m), central Honshu, while it has not yet been collected from Sasayama and its neighborhood (Hyogo-Prefecture, Honshu), and Kagoshima and its suburbs (southern Kyushu) each of which has frequently been visited by ourselves.

As already demonstrated, there are some differences among each material from the vicinities of Fukuoka, the Japan Alps, and Europe. The differences appear to be conspicuous in ♀ as summarized in the following key.

1. Width of front at narrowest point (at transverse suture) less than 1 1/2 width of one eye on a mid line from a direct frontal view (1.2-1.3 times) and about 1 1/2 distance from antenna to median ocellus (1.4-1.5 times) ..... *Specimens from Japan* ..... 2
- Width of front at narrowest point over 1 1/2 width of one eye on a mid line from a direct frontal view (1.7 times) and about twice distance from antenna to median ocellus (2.1 times) ..... *Specimen from Europe*
2. Antennal segment 3 yellowish brown ..... *Specimen from northern Kyushu*
- Antennal segment 3 dark brownish to blackish as in ♂ ..... *Specimen from central Honshu*

The available material from each locality is only a single specimen, so it is difficult to determine whether or not the differences in question are clear cut and are of specific- or subspecific importance.

References

- ALDRICH, J. M.: The dipterous genus *Symphoromyia* in North America. *Proc. U. S. Nat. Mus.* **49**: 113-142. (1915).
- JAMES, M. T.: In *Stone et al.* A catalog of the Diptera of America north of Mexico. Washington, D. C. p. 343-344. (1965).
- KERTÉSZ, C.: *Catalogus diptero-um huusque descriptorum*. Vol. **3**: 328-330. (1908).
- LINDNER, E.: Die Fliegen der palaearktischen Region. 20. Rhagionidae. Stuttgart. 49 p. (1924-25).
- NAGATOMI, A.: Studies in the aquatic snipe flies of Japan (Diptera, Rhagionidae). *Mushi* **32**: 47-67, **33**: 1-3, **35**: 11-27, **35**: 29-38, **36**: 103-149. (1958-62).
- ROZKOŠNÝ, R. und SPITZER, K.: Schnepfenfliegen (Diptera, Rhagionidae) in der Tschechoslowakei. *Acta ent. bohemoslovaca* **62**: 340-368. (1965).
- SOMMERMAN, K. M.: Alaskan snipe fly immatures and their habitat (Rhagionidae: *Symphoromyia*). *Mosquito News* **22**: 116-123. (1962).
- SZILÁDY, Z.: Die palaearktischen Rhagioniden. *Ann. Mus. Nat. Hung.* **28**: 229-270. (1934).