

notes on the five Japanese species of the genus *Fucellia* Rob.-Desvoidy (Dipt., Anthomyiidae)

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Notes on the five Japanese species of the genus *Fucellia*

Rob.-Desvoidy (Dipt., Anthomyiidae)

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The *Fucellia* which is considered to be a group of the more primitive of the Calyptratae consists of small grayish flies with the following characteristics: thoracic squamae usually vestigial or reduced to a narrow stripe; abdomen with 4-5 visible segments; cruciate bristles on frontal stripe present in both sexes; wings with distinct costal spine close to apex of *sc*; fourth longitudinal vein straight; male eyes widely separated as well as female.

The present genus which belongs to the subfamily Fucelliinae is distinguished from the Anthomyiinae by the thoracic squamae much shorter than alar squamae and widely set spinular bristles on the under surface of wings and from the Scatophagidae by the presence of costal spine and of cruciate bristles on frontal stripe in female.

Fucellia species here treated occur along sea coast, and are frequently found on carcasses or heaps of rotting seaweed thrown up by the tide on the seashore.

Stein (1918) reported two Japanese species *F. apicalis* and *F. maritima* from Shimonoseki, Honshu. The latter is recorded based on 1♀. It is likely that the female is not *F. maritima* but such a common form as *F. boninensis*.

Séguy (1936) described a new species *Protofucellia syuitimorii* from Hokkaido, which is found to be conspecific with *F. kamtschatica* Ringdahl in the present study.

Hori (1961), senior author of this paper, contributed to the general morphology and internal anatomy of *F. apicalis* studying the materials collected from the eastern coast of the Noto Peninsula, Honshu.

Family ANTHOMYIIDAE

Subfamily FUCELLIINAE

Japanese name: Isobae-aka

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Genus *Fucellia* Rob.-Desvoidy

Japanese name: Isobae-zoku

Fucellia Rob.-Desvoidy, 1842. Ann. Soc. Ent.
France 10(1841):269. Type-species: *F. arenaria* Rob.-Desvoidy, 1841.

Halithea, 1837. in Curtis, Guide Brit. Ins., ed.
2.:279 (preocc.).

Parachortophila Bigot, 1885. Ann. Soc. Ent.
France (6) 4:280.

Fucellina Schnabl et Dziedzicki, 1911. Nova
Acta Leop. Carol. Akad. Naturf. 95:123.

Protofucellia Ségué, 1936. Bull. Soc. Ent.
France 41:281.

Key to the Japanese species of *Fucellia*

1. Legs and palpi entirely black (2)
- Legs brownish at least on mid and hind tibiae, or palpi pale at least on basal half (3)
2. Fore tibia with 2 *pd*; if 1 *pd* present, it is located as shown in Fig. 1, A; parafacialia, vibrissaria and anterior parts of jowls dark; *st* 2-3+2; hind femur in ♂ with a wart-like swelling at the base of ventral surface, on which are several spinules; ovipositor as illustrated in Fig. 3 A & B *F. fucorum* (Fallén)
- Fore tibia with only 1 *pd*, as shown in Fig. 1 B; parafacialia, vibrissaria and anterior part of cheeks pale brown; *st* 2+1-2; hind femur in ♂ without a chitinous swelling at the base of ventral surface; ovipositor as illustrated in Fig. 3, C & D *E. kamtschatica* Ringdahl
3. Fore tibia usually with only 1 *pd*, as shown in Fig. 1, C; palpi fuscous apically; wings in ♂ with a large round brown spot near tip *F. apicalis* Kertész
- Fore tibia with 2 *pd*, as shown in Fig. 1, D & E; palpi entirely fulvous or almost so; wings in both sexes unspotted (4)
4. Parafacialia broad in profile, subequal to the width of third antennal segment (Fig. 2,B); male hypopygium prominent with large GS₂ and remarkably elongated ninth coxites; ovipositor as illustrated in Fig. 3, G & H

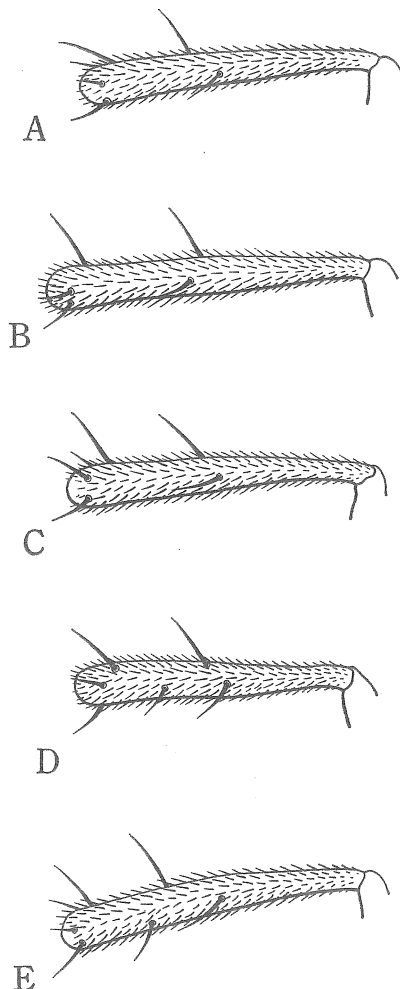


Fig. 1 Fore tibiae of male

A, *Fucellia fucorum*; B, *F. kamtschatica*;
C, *F. apicalis*; D, *F. boninensis*; E, *F. hypopygialis*.

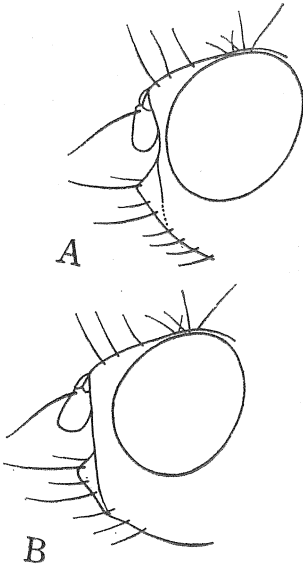


Fig. 2 Heads of male in lateral view.

A, *F. boninensis*; B, *F. hypopygialis*

..... *F. hypopygialis* Ringdahl
Parafacialia remarkably narrow in profile (Fig.
2, A); male hypopygium normal in size, with
branched ninth coxites; ovipositor as illustrated
in Fig. 3, E & F *F. boninensis* Snyder

***Fucellia apicalis* Kertész**

Japanese name: Noto-tsumaguro-isobae (Hori, 1961)

Fucellia apicalis Kertész, 1908. Wien Ent. Zeitg.
27:71.

Fucellia apicalis: Stein, 1918. Ann. Mus. Nat.
Hung. 16:179.

Fucellia apicalis: Hori, 1961. Ann. Rep. Noto Mar.
Lab. 1:36.

Type-locality: Swatow, China. Type in the Unga-
rischen Nationalmuseum, Budapest.

Length: 4.5-5.5 mm in both sexes.

Specimens examined: HOKKAIDO: 21 ♂♂, 17
♀♀, Omu Beach, 14. ix. 1968 (S. Takano); 1 ♂, Monbetsu, 15. ix. 1968 (S. Takano),
1 ♂ 2 ♀♀, Noboribetsu, 2. vii. 1968 (H. Kurahashi), HONSHU: 13 ♂♂ 10 ♀♀, Noto-
ogi, ? v. 1956 (K. Hori); 31 ♂♂ 32 ♀♀, Kanaiwa Beach, Kanazawa, 17. x. 1965 (H.
Kurahashi), 18. v. 1966 (H. Kurahashi), 30. v. 1967 (K. Hori); 3 ♂♂ 8 ♀♀, Nishiura
Beach, Aichi Pref., 15. v. 1965 (H. Kurahashi); 13 ♂♂ 2 ♀♀, Sakurajima, Kagoshima
Pref., 27. iii. 1963 (H. Kurahashi).

Geographical distribution: Japan (Hokkaido, Honshu, Kyushu, Bonin Is.), and
China.

***Fucellia fucorum* Fallén**

Japanese name: Takano-isobae

Fucellia fucorum Fallén, 1819. Dipt. Suec., Scatomyz. :5.

Type-locality: Baltic Coast, Sweden. Type ?

Length: 5.0-6.0 mm in both ♂ and ♀.

Specimens examined: HOKKAIDO: 25 ♂♂ 18 ♀♀, Omu Beach, 14. ix. 1968 (S. Ta-
kano), 3 ♂♂ 5 ♀♀, Monbetsu, 15. ix. 1968 (S. Takano), 7 ♂♂ 11 ♀♀, Noboribetsu, 2.
vii. 1966 (H. Kurahashi).

Geographical distribution: Japan (Hokkaido), Kuril Is. (Hennig 1966), Sakhalin
(Hennig 1966), Kamchatka (Komandorskiye Os.: Ringdahl 1930 & Hennig 1966),
Bering Str. (Stein 1910, Aldrich 1918), Alaska (Huckett 1965), Canada (de Meijère
1909), U.S.A. (Washington State: Aldrich 1918), Greenland (Henriksen 1939, Huckett
1965), Iceland (Ringdahl 1954), Faeroe Is. (Stein 1915, Ringdahl 1925, Hennig 1966),

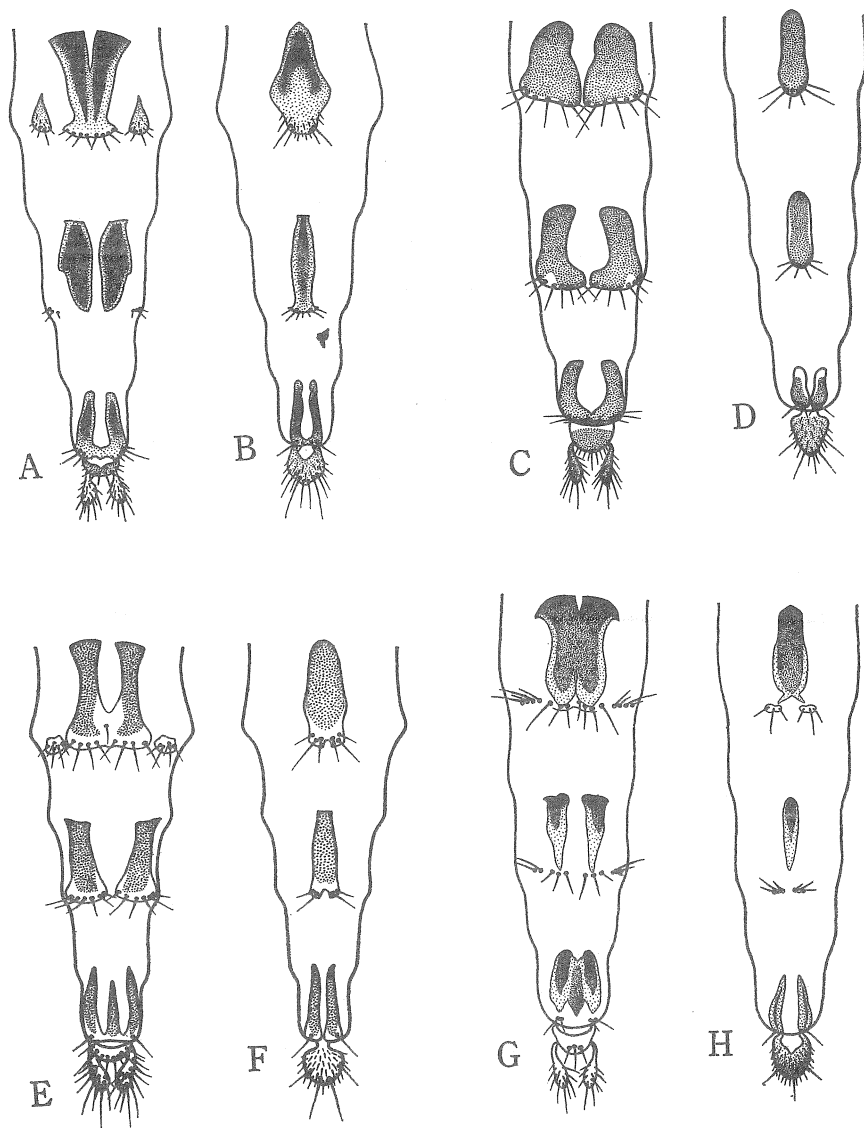


Fig. 3 Ovipositors of female

A-B, *Fucellia fucorum*; C-D, *F. kamtschatica*; E-F, *F. boninensis*; G-H, *F. hypopygialis*.

England (Audcent 1935, Fordham 1945, Parmenter 1959), France (Dunkerque: Séguy 1923), Denmark (Ardö 1957), Germany (Stein 1910, Karl 1928, Hennig 1966), Courland (Hennig 1966), Karelia (Backlund 1945), Kola Peninsula (Hennig 1966), Finland (Tiensuu 1935), Sweden (Ringdahl 1945), Norway (Ringdahl 1928 & 1944) and Spitzbergen (Hennig 1966).

Fucellia kamtchatica Ringdahl

Japanese name: Mori-isobae

Fucellia kamtchatica Ringdahl, 1930. Ark. Zool. 21 A (20): 7.*Protofucellia syuitimorii* Séguy, 1936. Bull. Soc. Ent. France 41:282. **Syn.nov.**, 1937. Séguy. Annot. Zool. Japon. 16: 1.Type-locality: Kamchatka Peninsula. *Type* in the Riksmuseum, Stockholm.

♂.-Head: fuscous; eyes bare; frons at vertex about 0.42-0.47 of head width; frontal stripe about five times the width of one of the parafrontalia, with one pair of cruciate bristles; frons brown pruinose, reddish orange at the base of antennae; parafrontalia dark gray; face gray; parafacialia and epistome orange; occiput gray, pruinose, with a row of post-orbital bristles; *ors* 3; *ori* usually 2 (Fig. 4, B); a few black setulae

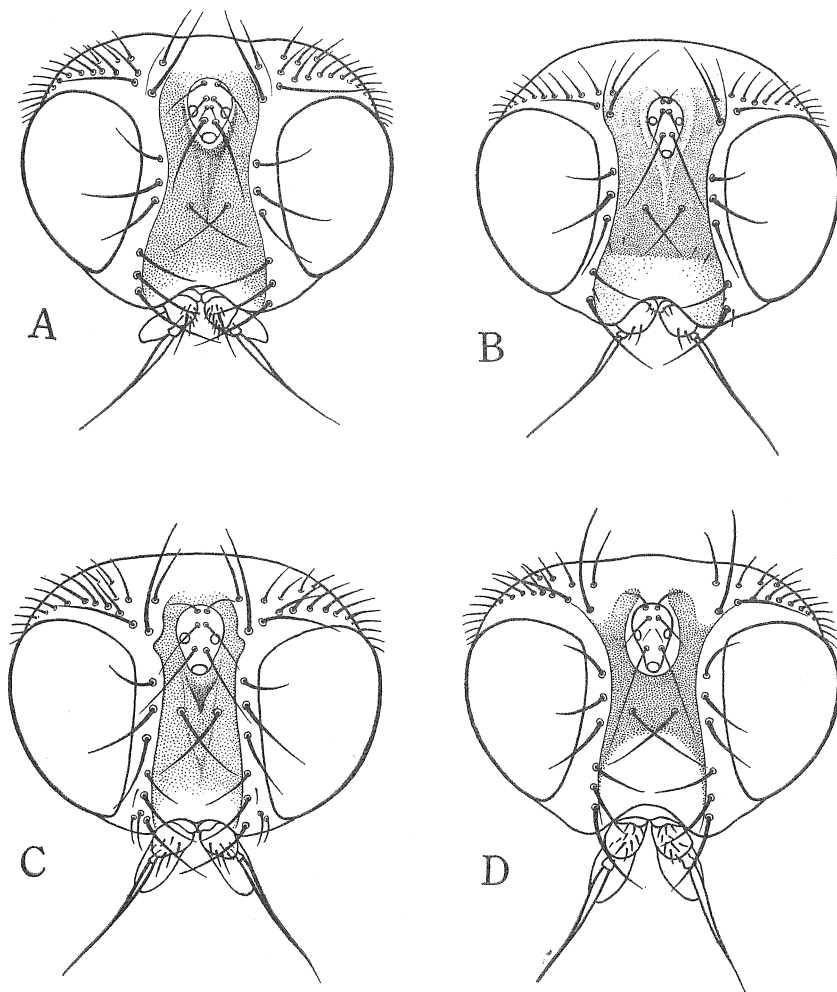


Fig. 4 Male heads in frontal view.

A, *Fucellia fucorum*; B, *F. kamtchatica*; C, *F. bominensis*; D, *F. hypopygialis*.

present on lower part of parafrontalia; cheeks with a row of strong bristles along ventral margin; vibrissae strong; antennae black, the second segment relatively long, sometimes reddish distally, the third segment one and a half times as long as the diameter, terminating below the lower eye margin; arista bare, thickened proximally; palpi black.

Thorax: fuscous, gray pruinulent; mesonotum pale fulvous with three indistinct yellowish-gray streaks; humeral calli, notopleura, and posterior calli gray; *ac* weak and irregularly paired, 2-3+4-5; *dc* 2+3, some short hairs developed among the posterior row on scutum; *st* 2+2-1, lower ones weaker than upper ones, or sometimes undeveloped; notopleura without adventitious hairs; hypopleura bare; meso- and metathoracic spiracles with unenlarged openings.

Legs: entirely black; *f*₁ with a row of *pd* and *pv*; *t*₁ with a submedian *ad* and a submedian *pd*, apical *d* longer than *t*₁ diameter, apical *pv* short; *f*₂ with a row of subdorsal bristles; *t*₂ with a submedian *ad* and 2 *p*, but without any *av* except strong apical one (Fig. 5, B); *f*₃ without any swelling at the base of ventral surface, but with a row of *av* and a row of short *pv*, with 2-4 short *d* and a small *pd* apically, and also with a row of *ad*; *t*₃ with 4 *ad*, 2 short *av* and 3 strong *pd*; tarsi usual; pulvilli pale brown.

Wings: hyaline, unspotted; costal spine strong; basicosta yellow; both alar and thoracic squamae white. Halteres yellow.

Abdomen: fuscous, gray pruinulent, with dorsal bluish checkerings; sixth tergite broad, gray in colour, with a row of marginal bristles and short hairs; GS₁ rather large, dark gray in colour, with twenty or more strong bristles; GS₂ black; basal sternite with a few hairs; fifth sternite black. Male genitalia as shown in Fig. 6; anal cerci and ninth coxites black.

♀: similar to male; frons at vertex about 0.45-0.52 of head width. Ovipositor

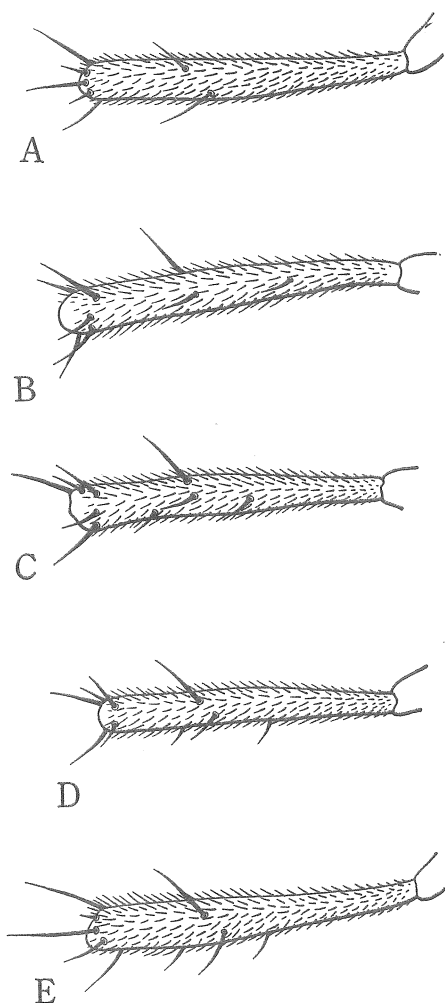


Fig. 5 Mid tibiae of male.

A, *Fucellia fucorum*; B, *F. kamichatica*; C, *F. apicalis*; D, *F. boninensis*; E, *F. hypopygialis*.

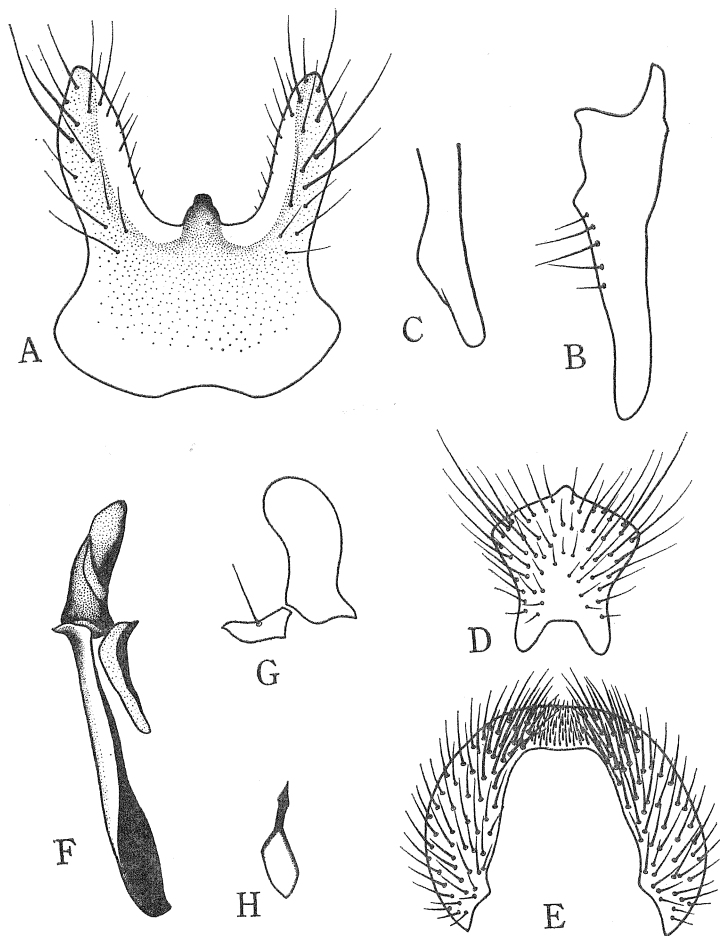


Fig. 6 Male genitalia of *Fucellia kamtschatica* Ringdahl.

A, fifth sternum; B, ninth coxite; C, distal part of the same; D, anal cerci; E, GS₂ (dorso-caudal view); F, phallosome and its apodeme; G, parameres; H, ejaculatory apodeme.

illustrated in Fig. 3, C & D.

Length: 4.0-5.5 mm in ♂, 4.5-5.5 mm in ♀.

Specimens examined: HOKKAIDO: 8♂♂ 12♀♀, Omu Beach, 14. ix. 1968 (S. Takano); 33♂♂ 21♀♀, Monbetsu, 15. ix. 1968 (S. Takano); 3♂♂, Abashiri, 25. ix. 1968 (Y. Kato); 2♂♂, Akkeshi, 18. vii. 1966 (M. Suwa); 29♂♂ 59♀♀, Noboribetsu, 2.vii. 1966 (H. Kurahashi). HONSHU: 30♂♂ 24♀♀, Kanaiwa Beach, Kanazawa, 30. v. 1967 (K. Hori), 31. v. 1968 (K. Hori).

Geographical distribution: Japan (Hokkaido, Honshu), Kamchatka (Hennig 1966), Aleutian (Hennig 1966), and Alaska (Huckett 1965).

Fucellia boninensis Snyder

Japanese name: Ogasawara-isobae

Fucellia boninensis Snyder, 1965. Insects Micronesia 13 (6): 203.

Type-locality: Chichi Jima, Bonin Is. *Type* in the U.S. National Museum, Washington.

♂. -Head: eyes bare; frons at vertex about 0.41-0.46 of head width; frontal stripe distinct, almost parallel-sided, with one pair of cruciate bristles, about two and a half times the width of one of the parafrontalia; frons reddish to fulvous at base of antennae, blending to brownish gray posteriorly; parafrontalia brownish, with grayish reflections; face dark gray; cheeks dark gray pruinulent; occiput gray pruinulent, usually with two rows of post-orbital bristles, but posterior row weak or sometimes irregular:

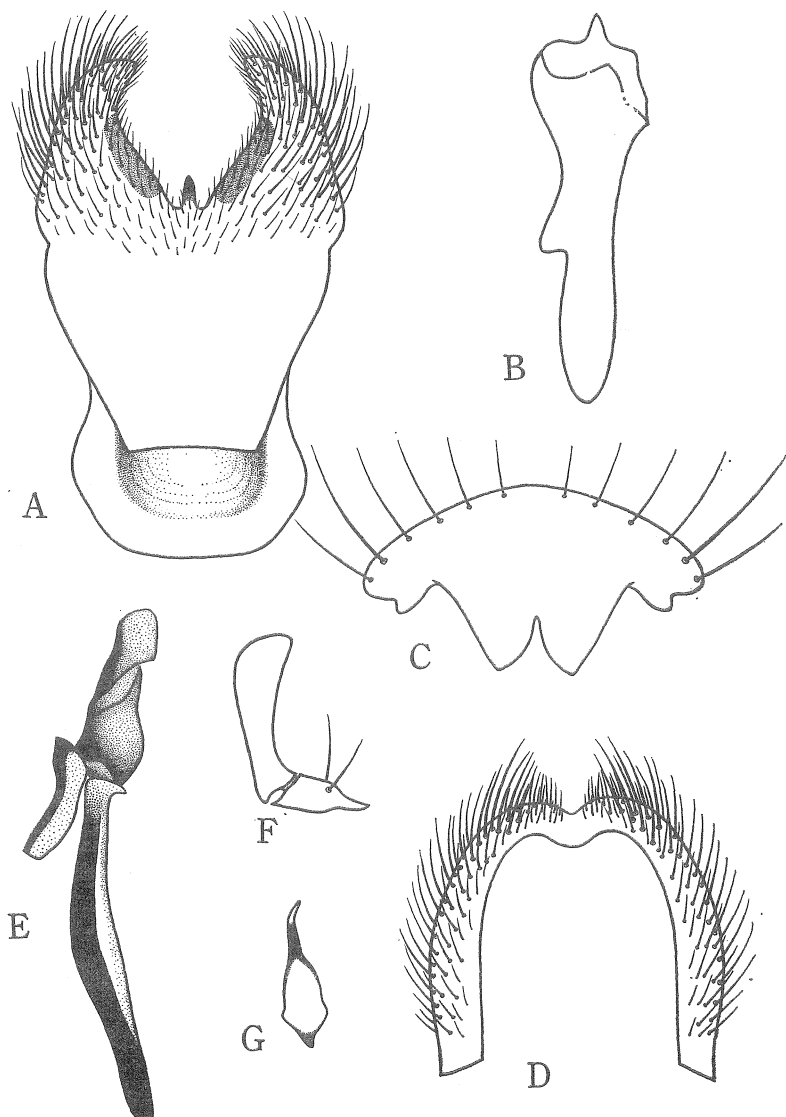


Fig. 7 Male genitalia of *Fucellia boninensis* Snyder.

A, fifth sternum; B, ninth coxite; C, anal cerci; D, GS_2 (dorso-caudal view); E, phallosome and its apodeme; F, parameres; G, ejaculatory apodeme.

ors 3, three pairs of convergent *ori* present in most cases (Fig. 4, C); a few short hairs lateral to the parafrontals; cheeks with a row of almost uniform bristles along ventral margin; vibrissae strong; antennae dark brown, the distal margin of second segment sometimes reddish, the third segment one and a half times the diameter, terminating below the lower eye margin; arista bare, thickened proximally; palpi yellow, sometimes darker distally.

Thorax: fuscous, gray pruinulent, with an indistinct median and two submedian dark yellowish-gray streaks on mesonotum; humeral calli, notopleura, and posterior calli gray; *ac* weak and irregularly paired, 2-3+4-5; *dc* 2+3; notopleura without adventitious hairs; *st* 2+2, lower ones weaker than upper ones; hypopleura bare; meso- and metathoracic spiracles unenlarged.

Legs: black, t_1 , t_2 and t_3 usually dark brown to yellow; f_1 with a row of *pd* and *pv*; t_1 with a submedian *ad* and two *pd*, apical *d* and *pv* longer than t_1 diameter (Fig. 1, D); f_2 with a row of subdorsal bristles; t_2 with a long submedian *ad*, 1 submedian *pd* and 2 submedian *p*, without any *av* except a strong apical one (Fig. 5, D); f_3 without any chitinous swelling at the base of ventral surface, but with a row of *av*, a row of *ad*; t_3 with 4-5 *ad* and 3 *pd*, of which the basal one weaker; tarsi usual; pulvilli pale brown.

Wings: hyaline, unmarked; costal spine distinct; alar squamae similar in colour to the wing membrane; thoracic squamae white; basicosta yellow. Halteres yellow.

Abdomen: seen from above oblong and truncated at apex, depressed on proximal half and thickened caudad, sparsely bristled; dorsal surface gray pruinulent, with indistinct dark marks; sixth tergite narrow, bare gray in colour; GS_1 black, with ten or more strong bristles; GS_2 black, hairy; basal sternite with a few hairs; fifth sternite brown distally. Male genitalia as shown in Fig. 7; anal cerci and ninth coxites yellow.

♀: similar to male except for sexual characters. Ovipositor illustrated in Fig. 3, E & F.

Length: 3.5-5.0 mm in ♂, 4.0-6.0 mm in ♀.

Specimens examined: HOKKAIDO: 3♂♂ 4♀♀, Noboribetsu, 2. vii. 1966 (H. Kurahashi). HONSHU: 16♂♂ 35♀♀, Kanaiwa Beach, Kanazawa, 17. x. 1965 (H. Kurahashi), 17. v. 1966 (H. Kurahashi), 13. vi. 1966 (H. Kurahashi), 30. v. 1967 (K. Hori), 31. v. 1968 (K. Hori). KYUSHU: 1♀, Sahura-jima, Kagoshima Pref., 27. iii. 1963 (H. Kurahashi); 2♂♂, Fukiage, Kagoshima Pref., 8. v. 1967 (M. Suwa).

Geographical distribution: Japan (Hokkaido, Honshu, Kyushu) and Bonin Is.

Fucellia hypopyialis Ringdahl

Japanese name: Ohotsuku-ispbae

Fucellia hypopyialis Ringdahl, 1930. Ark. Zool. 21 A (20): 7.

Type-locality: Kamchatka. *Type* in the Riksmuseum, Stockholm.

♂.- Head: eyes bare; frons at vertex about 0.41-0.46 of head-width; frontal stripe black, largely fulvous anteriorly, about two and a half times the width of one of parafrontalia with a pair of cruciate bristles; parafrontalia dark, with gray pruinescence, a few setulae present on lower parts; parafacialia dark except for fulvous anterior margin, slightly covered with silver gray pruinescence; cheeks large, silver gray pruinescent with a row of almost uniform bristles along ventral margin; jowls and occiput dark, gray pruinescent, sparsely haired, usually with a row of post-orbital bristles: *ors* 3, one reclinate, two proclinate; *ori* usually 3 (Fig. 4, D); vibrissae strongly developed; antennae black, the third segment slightly more than one and a half times the diameter, terminating below the lower eye margin; arista bare, blackish, thickened on basal half; palpi fulvous, sometimes slightly fuscous at the extremity.

Thorax: fuscous, gray pruinescent, with an indistinct median and two submedian

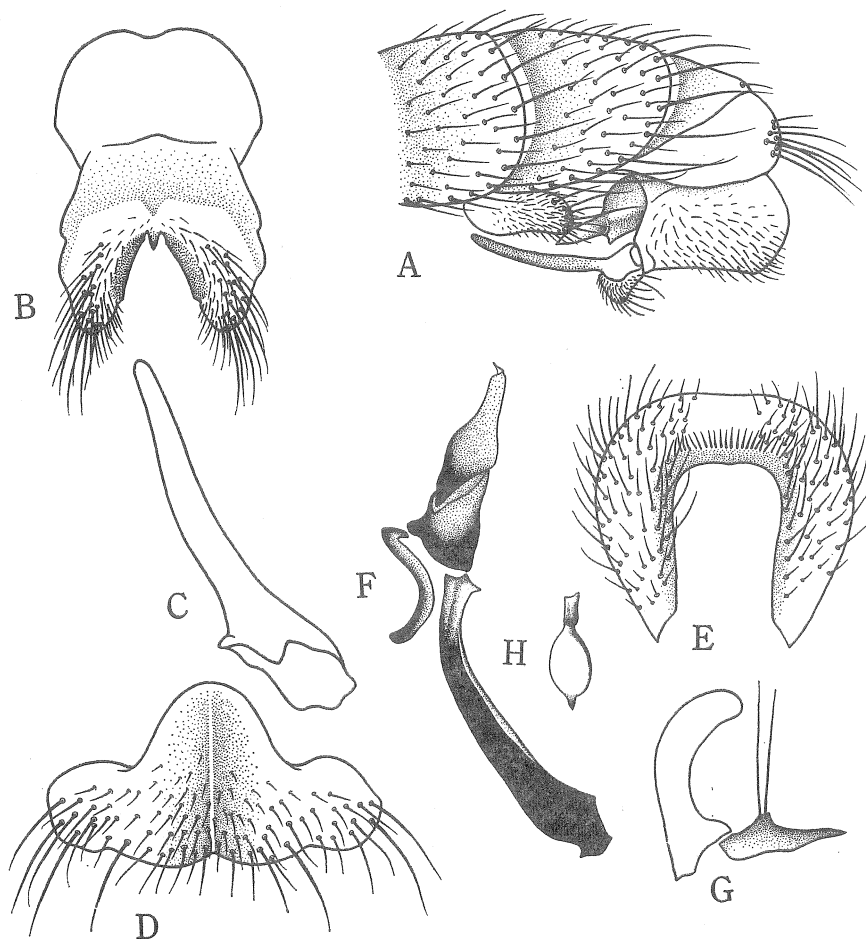


Fig. 8 Male genitalia of *Fucellia hypopygialis* Ringdahl.

A, distal part of abdomen (lateral view); B, fifth sternum; C, ninth coxite; D, anal cerci; E, GS₂ (dorso-caudal view); F, phallosome and its apodeme; G, parameres; H, ejaculatory apodeme.

brownish gray streaks on mesonotum; *ac* weak and irregularly paired, 2-3+4-5; *dc* 2+3; *st* 2+2, lower ones slightly weaker than upper ones; notopleura and hypopleura bare; meso- and metathoracic spiracles unenlarged.

Legs: black, t_1 , t_2 and t_3 sometimes more or less brown; f_1 with a row of *pd* and *pv*; t_1 with a submedian *ad*, 1 *p* and *pv*, apical *d* and *pv* present (Fig. 1, E); f_2 with a row of subdorsal bristles; t_2 with a long submedian *ad*, 1 *pd* and 2 *p*, without any *av* except for strong apical *av* (Fig. 5, E); f_3 without any chitinous swelling at the base of ventral surface, but with a row of *av*, a short row of fine preapical *pv*, 2-3 *d* and 1 *pd* present on apical portion, and a short row of *ad* also located on the same portion; t_3 with 4-5 *ad*, 4 *pd* and several *av*.

Wings: hyaline, unmarked; costal spine distinct; alar squamae similar in colour to the wing membrane; thoracic squamae narrow, whitish; basicosta brown. Halteres yellow.

Abdomen: seen from above oblong and truncated at apex, depressed on proximal half and thickened caudad, sparsely bristled, dorsal surface gray pruinose, with indistinct dark marks; second to fifth tergites each with a row of fine marginal bristles; sixth tergite narrow, bare, gray in colour, basal sternite black with a few hairs; fifth sternite black, slightly brownish distally. Hypopygium prominent, black, gray pruinose; GS_1 large with ten or more strong bristles; GS_2 hairy, without any bristle, larger than GS_1 . Male genitalia as shown in Fig. 8; anal cerci brown; ninth coxites remarkably elongated, black, strongly sclerotized.

♀: similar to male except for sexual characters. Ovipositor illustrated in Fig. 3, G & H.

Length: 4.0-5.5 mm in ♂, 4.5-6.0 mm in ♀.

Specimens examined: HOKKAIDO: 1♀ Omu Beach, 14. ix. 1968 (S. Takano); 3♀♀ Monbetsu 15. ix. 1968 (S. Takano); 5♂♂, Abashiri, 25. ix. 1968 (Y. Kato); 3♂♂ 4♀♀, Noboribetsu, 2. viii. 1966 (H. Kurahashi).

Geographical distribution: Japan (Hokkaido), Kamchatka (Hennig 1966, Hockett 1965), Alaska (Hockett 1965), and Greenland (Hockett 1965).

Acknowledgements

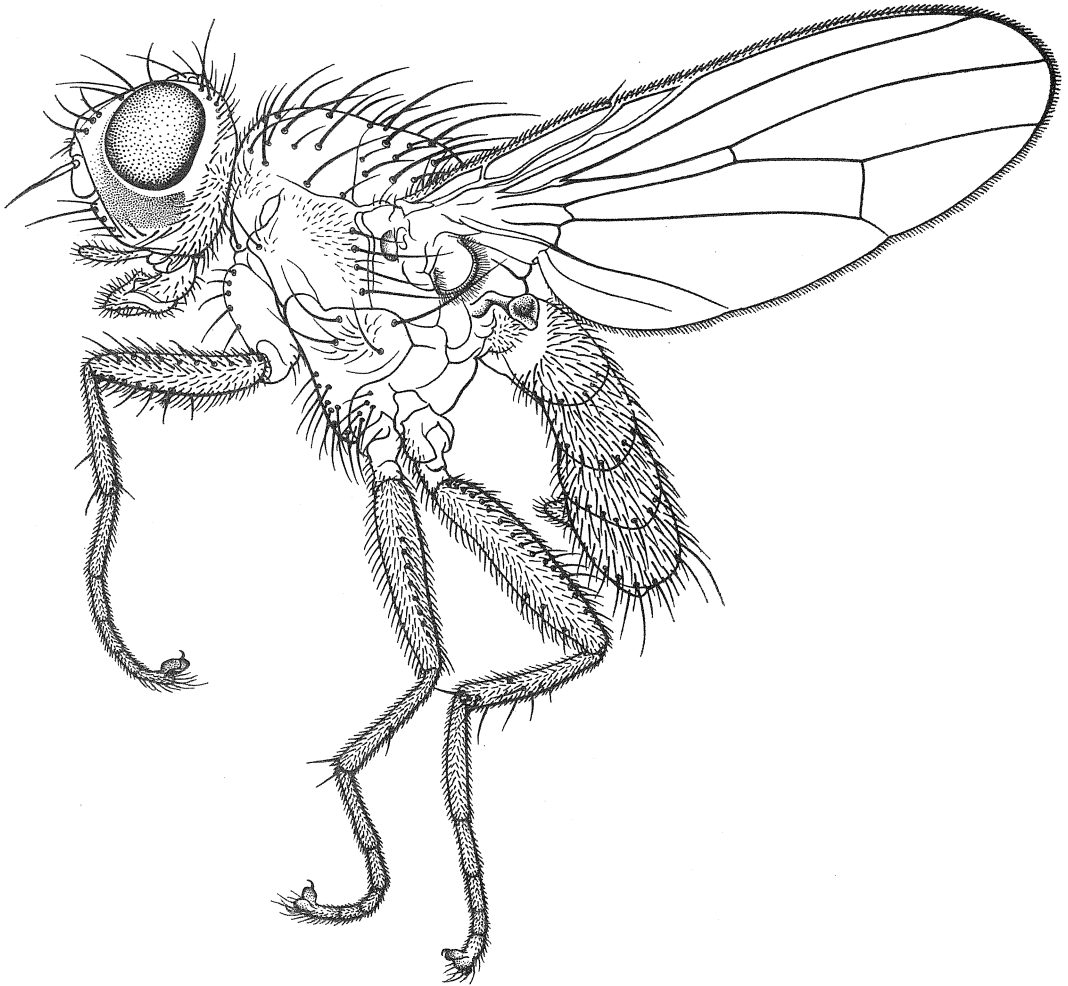
The authors are very grateful to Dr. J. L. Gressitt, Department of Entomology, Bernice P. Bishop Museum, Honolulu for the kindness in offering the chance to examine the types of *F. boninensis* Snyder. For the kindness in offering the materials, the authors also express their sincere gratitude to the following entomologists: Dr. Syuzo Takano, Sapporo; Mr. Masaaki Suwa, Ent. Inst., Fac. Agr., Hokkaido Univ.; Mr. Yoshihiro Kato, Dept. Biol., Fac. Sci., Kanazawa Univ.

References

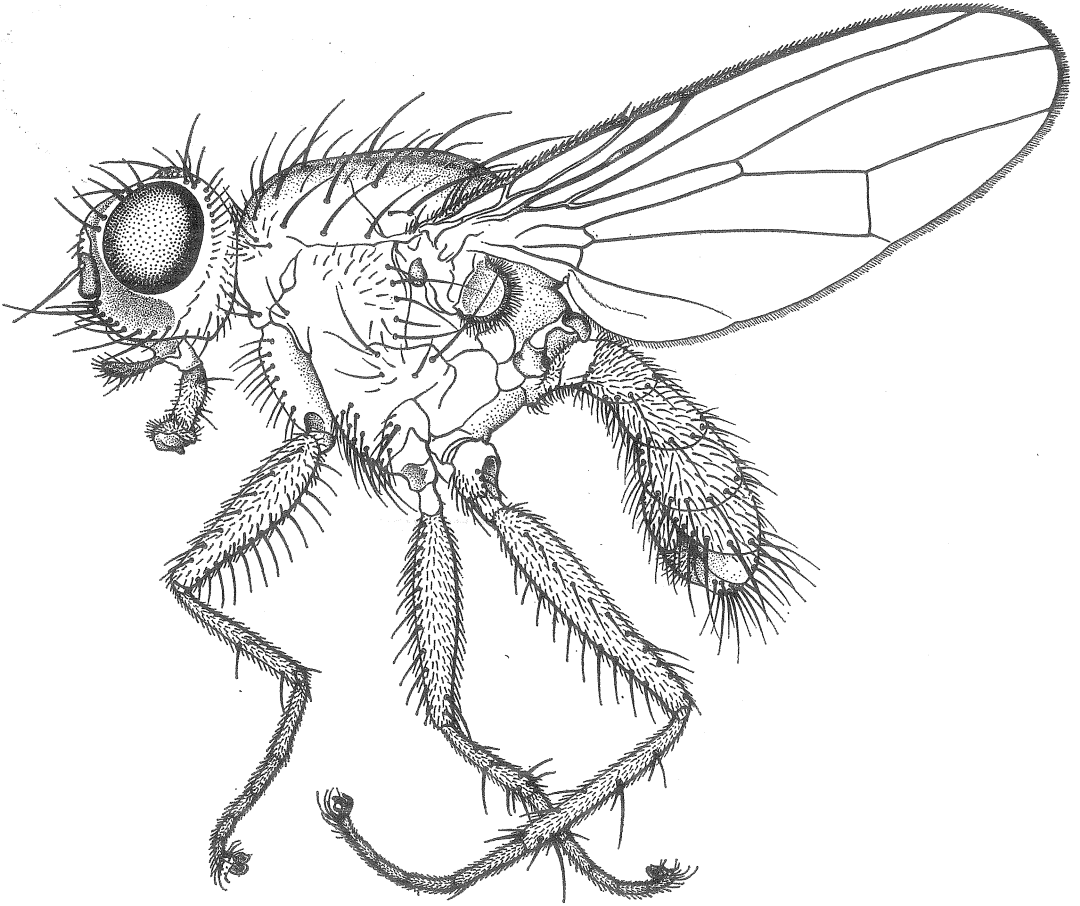
- Hennig, W. (1966) Anthomyiidae in Lindner's Die Fliegen der palaearktischen Region, 63a: 1-48.
- Hori, K. (1961) Taxonomical studies on the Muscoid flies in Japan, X. The discovery of *Fucellia apicalis* Kertész, 1908 from the east coast of the Noto Peninsula (Dipt., Muscidae). Ann. Rep. Noto Mar. Lab., 1:36-39.
- Huckett, H. C. (1965) The Muscidae of Northern Canada, Alaska, and Greenland (Diptera). Mem. Ent. Soc. Canada, no. 42: 369 pp.,
- Séguy, E. (1936) Un nouveau Fucellinae asiatique (Dipt. Muscidae). Bull. Soc. Ent. France, 41:281-282.
- (1937) Un nouveau genre de Fucellinae du Japon (Diptera, Muscidae). Annot. Zool. Jap., 16 (1):1-4.
- Snyder, F. M. (1965) Diptera: Muscidae in Insects of Micronesia, 13, (6): 191-327.,
- Stein, P. (1918) Zur weitem Kenntnis aussereuropaeischer Anthomyiden. Ann. Mus. Nat. Hung, 16:147-244.

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PLATH 1



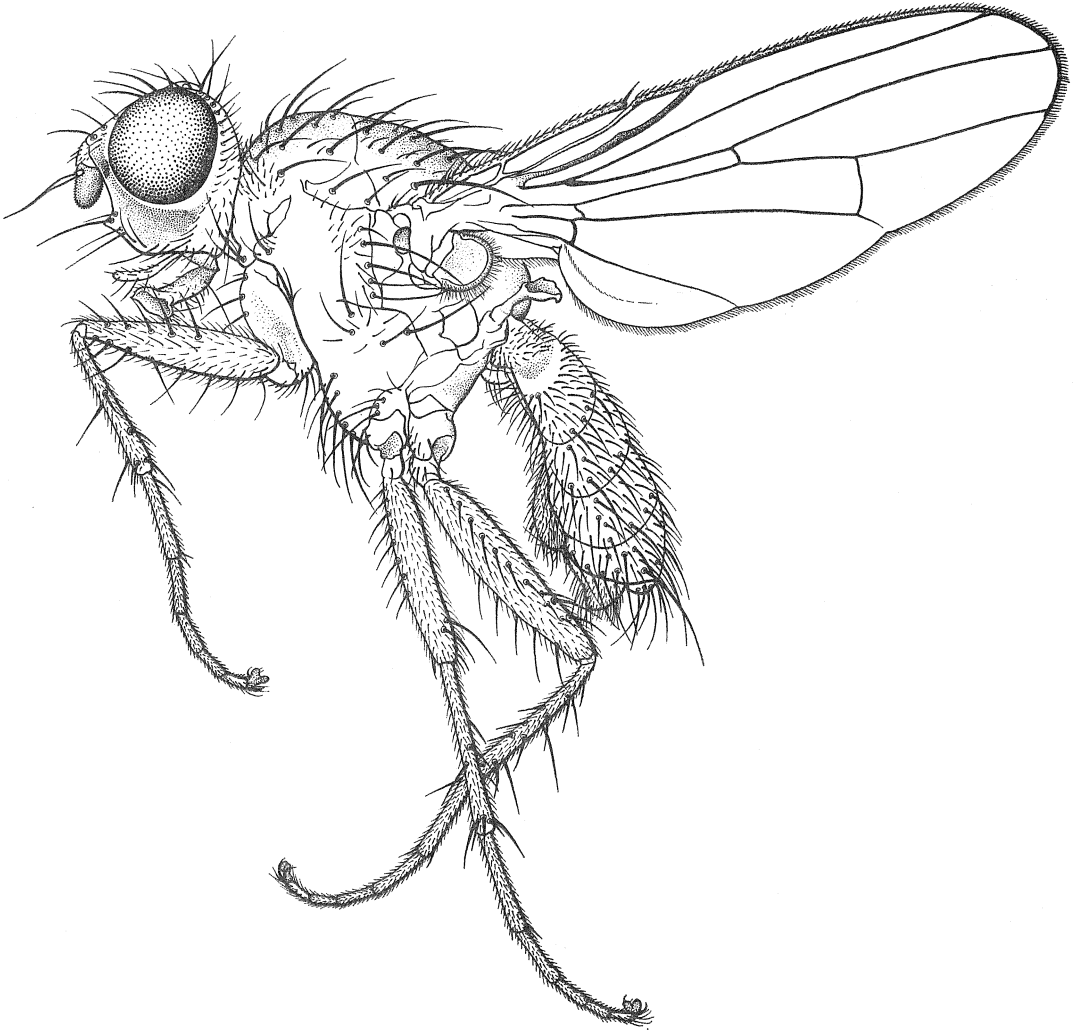
Fucellia fucorum Fallén



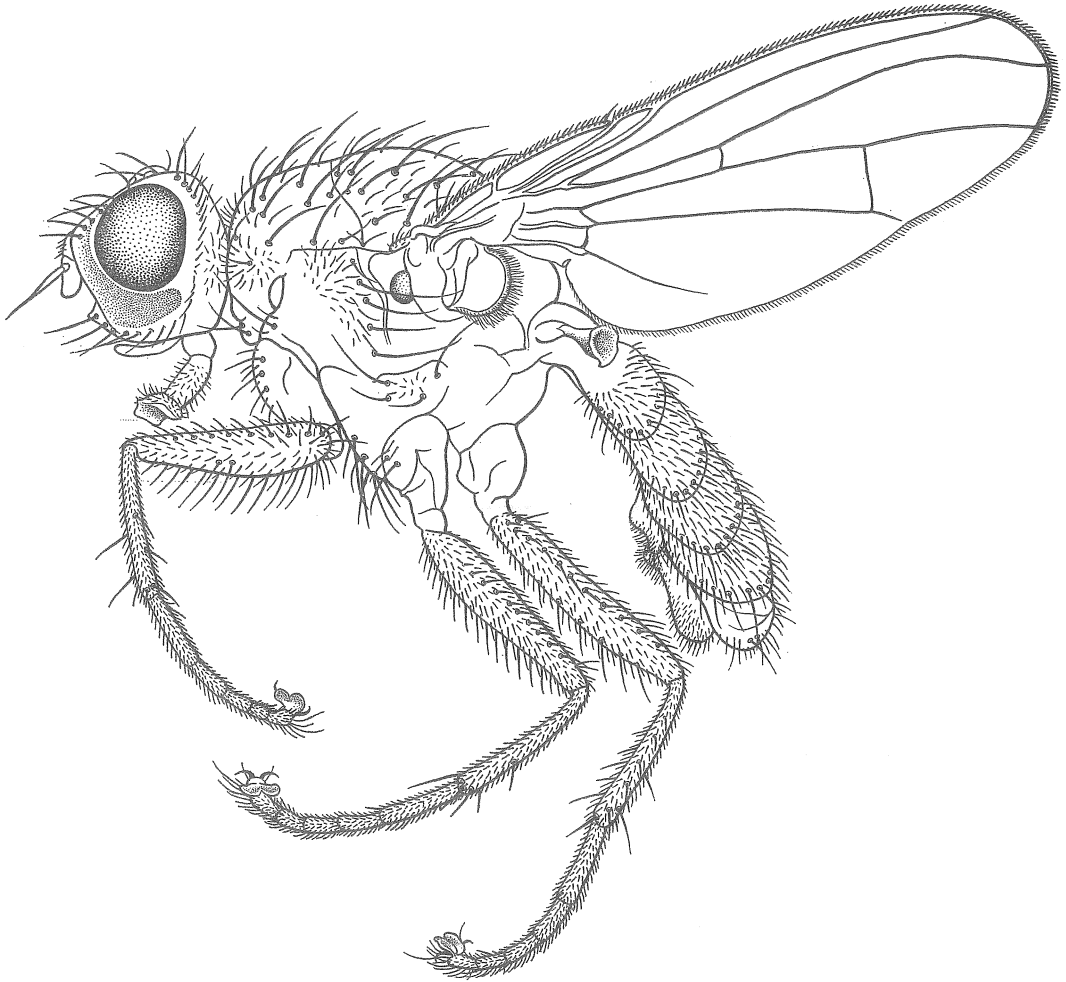
Fucellia kamtchatica Ringdahl

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PLATE 3



Fucellia boninensis Snyder



Fucellia hypopygialis Ringdahl