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SUPPLEMENTARY NOTES ON THE FAMILY ANTHOMYIIDAE OF JAPAN (DIPTERA), VIII

By MASAAKI SUWA

Abstract

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Fourteen Japanese species of Anthomyiidae are dealt with. Three species are described as new to science: *Alliopsis longistylata*, *Botanophila prolongata*, and *B. vernalis*. *Botanophila askoldica* (Schnabl, 1911) is redescribed for comparison with these new species of *Botanophila*. *Chirosia kogomi* Suwa, 2013 is synonymized with *Chirosia nodula* (Li, Cui and Fan, 1994). The previous record of "*Pegomya scapularis* (Zetterstedt, 1846)" in Japan is referred to *Pegomya ringdahli* Michelsen, 2015. Supplementary notes on collection records are given to the other species. *Chirosia histricina* (Rondani, 1866) and *Delia interflua* (Pandellé, 1900) are newly recorded from Hokkaido.

Author's address. Hokkaido University Museum, Kita-10 Nishi-8, Kita-ku, Sapporo, 060-0810 Japan.

Introduction

The Japanese species of Anthomyiidae were recently compiled and 228 species belonging to 27 genera were recorded (Suwa, 2014). Investigation on the anthomyiid fauna of Japan is still insufficient and not a few species have yet to be found.

In this paper 14 Japanese anthomyiid species are dealt with as a taxonomic work. Of them three species are described as new to science, namely a species of *Alliopsis* and two species of *Botanophila*.

The concept of *Alliopsis* Schnabl & Dziedzicki, 1911 was expanded to include *Paraprosalpia* Villeneuve, 1922 by Michelsen (1985). This is accepted by Griffiths (1987) and *Alliopsis* of previous sense is recognized as the *Alliopsis glacialis* section. The present new species of *Alliopsis* is a member of this section.

The *Botanophila askoldica* group was proposed by Xue and Song (2007) for reception of *B. askoldica* (Schnabl, 1911) and *B. peltophora* (Li, Cui and Fan, 1994). The present two new species of *Botanophila* belong to this group. *Botanophila askoldica* is redescribed for comparison with these new species.

The male terminalia figured in the original description of the Chinese *Chirosia nodula* (Li, Cui and Fan, 1994) are very similar to those of *C. kogomi* Suwa, 2013 described from Japan. The latter is here suppressed as a junior synonym of *C. nodula*.

Pegomya ringdahli Michelsen, 2015 is a species previously confused with *P. scapularis* (Zetterstedt, 1846) (= *P. pilosa* Stein, 1900). The Japanese form recorded as *P. pilosa* or *P. scapularis* by Suwa (1974; 1999) agrees better with *P. ringdahli* in the male terminalia and is referred to the species.

Previous identification of specimens is confirmed or corrected for three species, *Chirosia major* Suwa, 2013, *C. sikisima* (Suwa, 1974), and *Lasiomma craspedodontum* (Hsue, 1980).

Some collection records are given to the other species, *Chirosia histricina* (Rondani, 1866) (new to Hokkaido), *C. strigilliformis* (Deng and Li, 1986), *Delia interflua* (Pandellé, 1900) (new to Hokkaido), *Pegomya lurida* (Zetterstedt, 1846), and *Ringdahlia curtigena* (Ringdahl, 1935).

As a result of the present addition the Japanese Anthomyiidae are now represented by 231 species.

Abbreviations in terminology are as in Suwa (2013c).

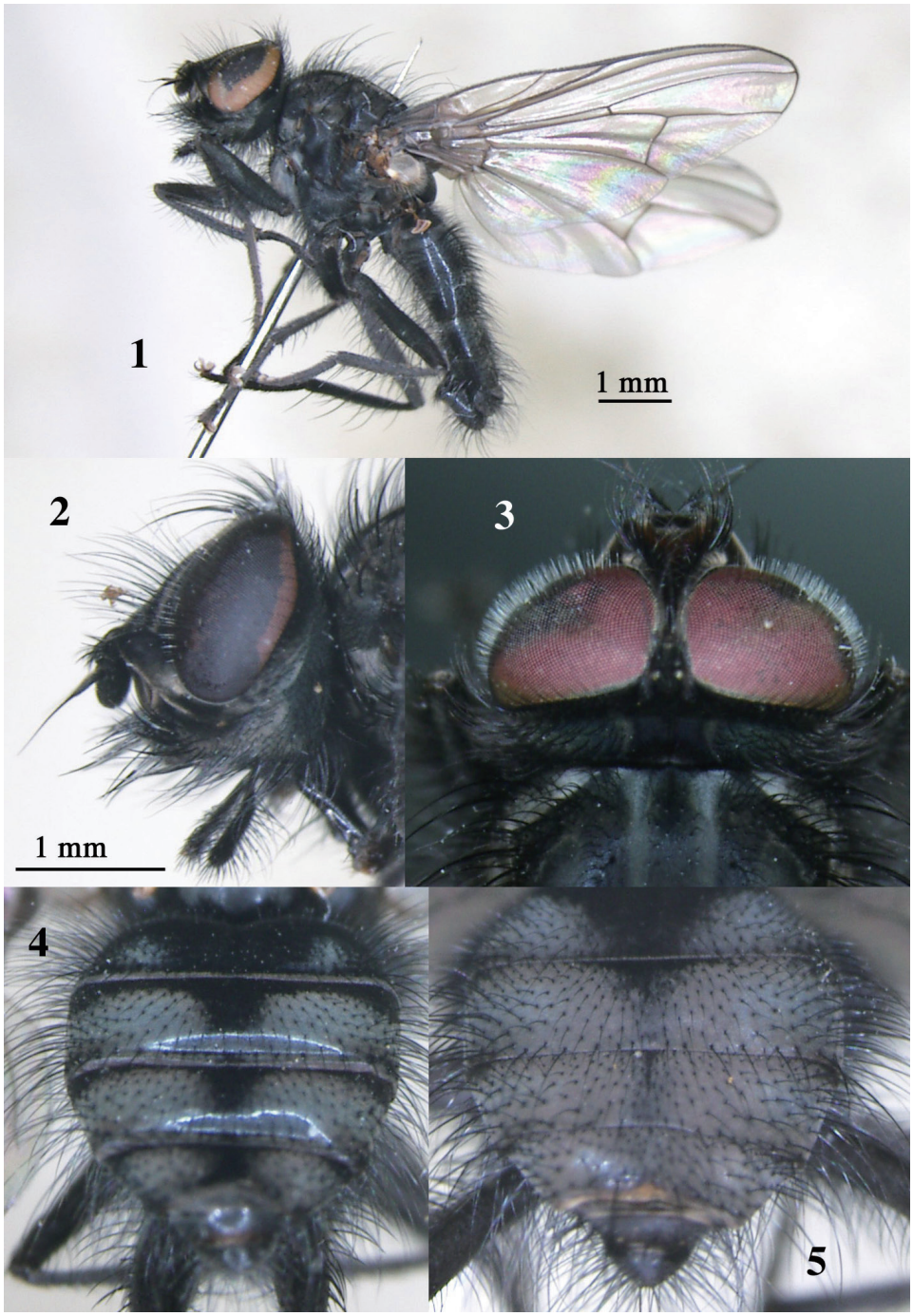
The specimens used in this paper are preserved in the collection of the Hokkaido University Museum.

Enumeration

1. *Alliopsis longistylata* sp. nov.
(Figs 1–17)

Alliopsis sp. A: Suwa, 1974: 58.
Alliopsis sp. B: Suwa, 1974: 58.

Type material. Hokkaido. Mt. Soranuma, Sapporo, alt. 500–900 m, 7♂ (one the holotype), 5♀, 3.x.1985 (M. Suwa), 1♂, 1♀, 27.ix.1985 (M. Suwa), alt. 900–1250 m, 1♂, 5♀, 19.vi.1985 (M.



Figs 1–5. *Alliopsis longistylata*, ♂. 1, lateral habitus; 2, head, lateral view; 3, ditto, dorsal view; 4–5, abdomen, dorsocaudal view. Magnification same for Figs 2–5. Paratypes from Toyoura (1), Ninohe (2), Mt. Soranuma (3, 5) and Nisshô-tôge (4).

Suwa), 12♀, 24.vi.1985 (M. Suwa), 1♂, 3.x.1985 (M. Suwa); Jozankei, Sapporo, alt. 400−450 m, 1♀, 6.v.2011 (M. Suwa); Miwa, Toyoura-cho, 2♂, 3♀, 24.x.1991 (M. Suwa); Nisshô-tôge, Hidaka-cho, 1♂, 17.iv.1988 (M. Iwasa), 1♂, 1♀, 29.iv.1988 (M. Iwasa), 1♂, 3.v.1989 (M. Iwasa), 3♂, 6.v.1989 (M. Iwasa); Headwaters of Saru-gawa River, Hidaka-cho, 1♂, 1♀, 3.x.1975 (T. Hattori); Pankenûshi River, branch of Saru-gawa River, Hidaka-cho, 1♀, 3.x.1975 (T. Hattori); Mt. Poroshiri-dake, Hidaka Mts., 1♀ (sp. B in Suwa, 1974), 23.vii.1973 (T. Hattori); Yamada-onsen, Tokachi, 1♀, 2.x.1975 (T. Hattori); Mt. Daisetsu, 1♀ (sp. A in Suwa, 1974), 21.vii.1968 (M. Suwa); Tomuraushi-dake, Mt. Daisetsu, 1♀, 1.viii.1966 (H. Kurahashi); Osatsube River, Kussharo, Teshikaga-cho, 1♂, 1.x.1975 (T. Hattori). Honshu. Iwate-ken: Shirogane-zawa, Ninohe, 1♂, 1♀, 25.xi.2012 (T. Chiba). Yamanashi-ken: Mt. Kita-dake, alt. 2800–3190 m, 1♀, 5−7.vii.1989 (M. Suwa); Mt. Aino-take, alt. 2800–3190 m, near Mt. Kita-dake, 1♀, 6−7.vii.1989 (M. Suwa). Gifu-ken: Kagami-daira, alt. 2200−2300 m, near Mt. Kasagatake, 1♀, 15.vii.1989 (M. Suwa). Nagano-ken: Shijûhachi-ike, alt. 1700–1900 m, Shiga-kôgen, 1♀, 20.vi.1989 (M. Suwa); Midori-ike, alt. 2000–2100 m, Mt. Yatsugatake, 1♀, 25.vi.1989 (M. Suwa). Toyama-ken/Niigata-ken: Asahi-dake, alt. 2000–2400 m, Mt. Shirouma-dake, 1♀, 21–22.vii.1989 (M. Suwa).

Distribution. Japan (Hokkaido, Honshu).

♂. Hairy. Wing length 5.7–7.5 mm. Body including appendages blackish in ground colour, rather densely covered with pale grey or dull grey pollen. Head partly dark brown in ground colour on interfrontalia, orbits (parafrontals and parafacials) and genae in some specimens (due to their teneral condition), with pollinosity pale to dark brownish grey, often paler on face and genae; haustellar mentum polished. Thorax pale grey in pollinosity on pleural regions though more or less brownish on mesopleuron dorsally and on metapleuron; mesonotum mainly brownish grey pollinose though pale grey on peripheral region and between presutural rows of *dc* and *acr* anteriorly, in caudal angle of view largely blackish, and in frontal angle of view with black markings discernible along postsutural rows of *acr* and entire rows of *dc* and on lateral diclivities, the postsutural vittae on rows of *acr* being often obscure and sometimes scarcely discernible on anterior third, and being more or less broadened on posterior two-thirds and united with vittae on rows of *dc* to form broad patches. Wings more or less tinged with brown, darkened basally; calypteres opaque white and faintly or slightly tinged with yellow, on margin distinctly yellowish, with fringes brownish yellow to dark brown; halteres dark brown or blackish brown basally and dark yellow or dark brownish yellow at knobs. Abdomen in pollinosity pale grey or bluish grey, fine in texture and shining, more or less tinged with brown on and around blackish markings or more broadly; median vitta broad on 2nd tergite, a fourth to third as wide as the tergite on its hind margin, variously narrowing caudally, traceable to 5th tergite (Fig. 4), or disappearing on 4th tergite (Fig. 5); fore-marginal bands rather broad on 2nd tergite, much narrower and often indiscernible on posterior tergites.

Head 1.1–1.2 times as high as long (Fig. 2); eyes densely haired (Fig. 3); frons 1.5−2 times as wide as anterior ocellus; interfrontalia as wide as or a little narrower than anterior ocellus, with no distinct *if*, only a few or some small and fine setulae discernible laterally; parafrontals with a row of about 10 rather strong and long *ori* on lower three-quarters and with numerous finer setulae on and outside the row of *ori*; A_3 (3rd antennal segment) 1.2−1.5 times as long as wide; arista very minutely pubescent and practically bare; orbits at parafrontal angle 1.3−1.7 times as wide as A_3; genae 1.3−1.7 times as high as A_3-width, with numerous genal setae in 5–6 rows; epistoma situated behind tip of parafrontal angle; occiput setulose on postocular plains.

Mesonotum with fine *acr* in 3–5 rows, setae of prescutellar pair being more or less differentiated; posterior *ph* well developed, a few setulae around *ph* usually a little developed and more or less differentiated from adjacent setulae; *pra* usually about as long as anterior *ntpl*; mesopleuron with no differentiated *mpl*, anteroventrally with numerous (usually 30−40) fine and long setulae, 1 or 2 of the setulae often a little differentiated; *stpl* 1:2; scutellum setulose on dorsal surface laterally and rather narrowly bare on basal center; prosternum variable in setation, with 1–8 setulae on each side laterally, or often entirely bare.

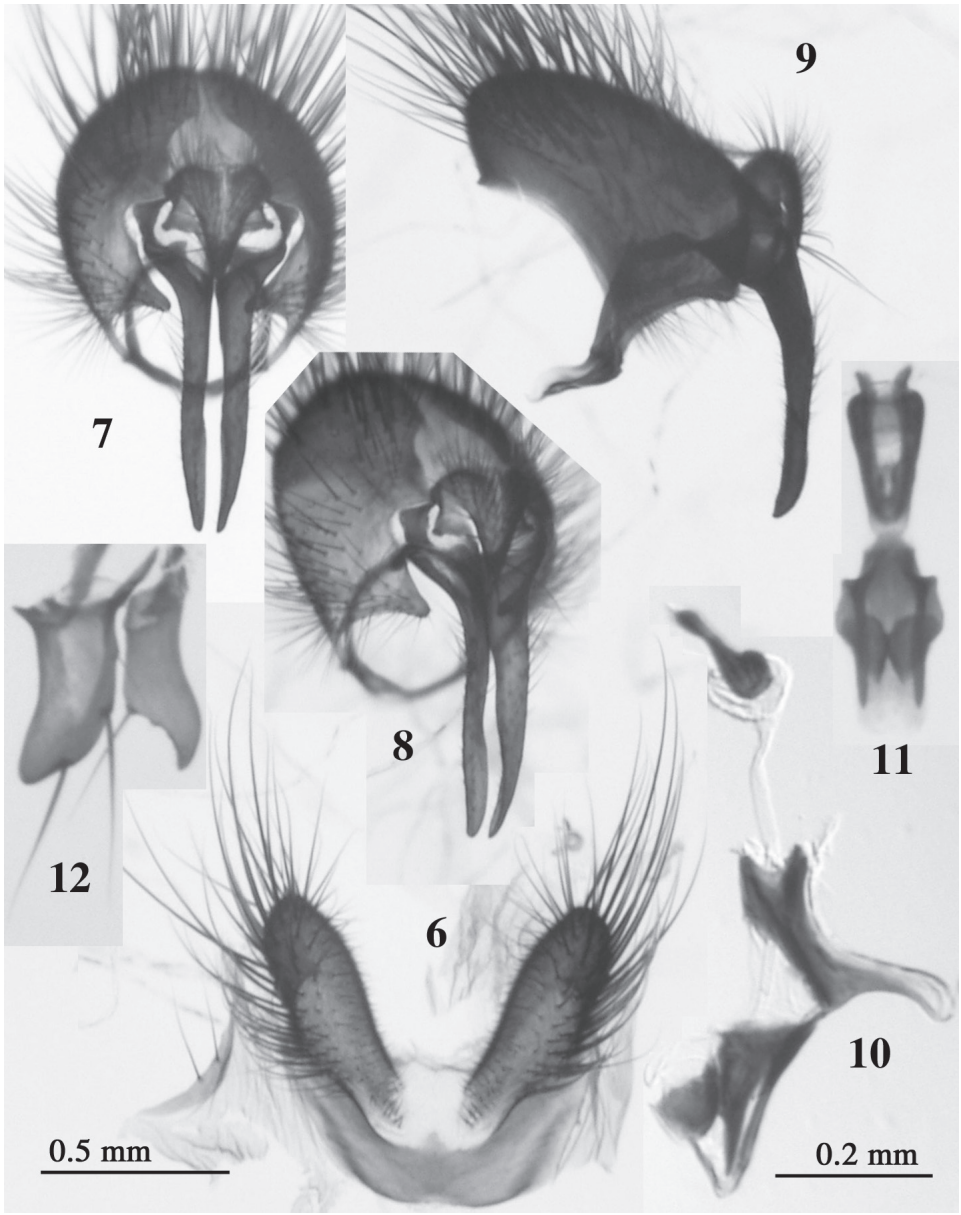
Mid femur with a row of about 10 *av* on basal half to two-thirds, the longest *av* a little shorter to a little longer than height of the femur, and with a complete row of longer *pv*, the longest *pv* distinctly longer than the femur height and 1.6–2.0 times (only 1.3 times in 1 specimen from Iwate-ken) as long as the height, setulae just behind the row of *pv* on basal two-thirds being lengthened though shorter than the primary *pv*; f_3 with a complete row of 10 or more strong and some weaker *av*, the longest being twice or more, sometimes less than twice, as long as height of the femur, and with some rather strong *pv* on basal half to two-thirds, the longest as long as or slightly shorter than the longest *av*; t_1 with 1 small *ad*, a few or some rather strong and a few or some fine *pd*, and 1 or sometimes 2 strong and 0–2 fine *p*/*pv*, and with 3 strong apical setae (*d*, *p* and *pv*); t_2 with 1 or sometimes 2 strong and 1–2 weak *ad*, 2–5 strong or rather strong and a few or some weak *pd*, and 1–3 strong or rather strong and 0–2 weak *p*/*pv*; t_3 with 3–7 *av*, some rather strong to strong and some weak *ad*, some rather strong to strong and some weak *pd*, and some (3–12) *p*/*pv* of various length, a few or some differentiated setulae often discernible on anterior surface; the longest *pd* around apical third of t_3 being distinctly longer than one-third of the tibial length. Wings with costal thorns small, scarcely to slightly stronger than costal spinules; *dm-cu* more or less oblique and barely to rather distinctly sinuate.

Abdomen depressed and ovoid in dorsal view; 6th tergite free from pregenital sclerite, usually unsetulose; 3rd sternite slightly to rather distinctly longer than wide; 4th sternite as long as or slightly longer than wide; 5th sternite (Fig. 6) with outer marginal setae becoming longer toward tips of processes, longest one at most as long as the sternite; hypopygium (Figs 7–9) with cercal plate pointed apically, bearing 1 or 2 pairs of rather long setae near apex; surstylus slender, slightly excavated inside distally; aedeagus (Figs 10–12) with pregonite bearing 2 strong setae, and usually 1–2 fine setulae discernible on dorsal margin medially; postgonite with a strong seta at ventral corner.

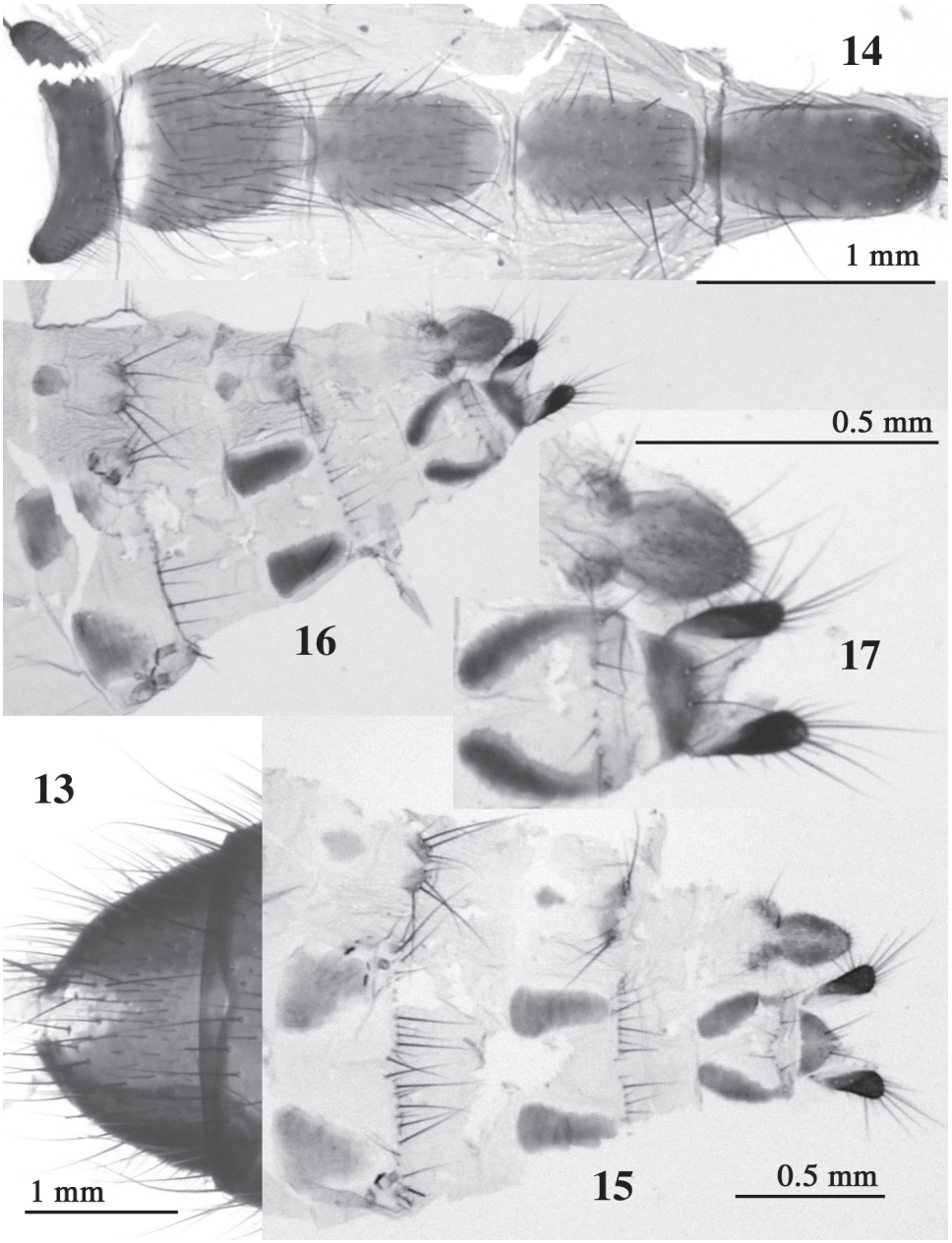
♀. Less hairy and more densely pollinose than in male. Wing length 6.0–8.3 mm. Frons wider than in male, usually a little wider than distance between posterior ocelli inclusive; interfrontalia distinctly wider than anterior ocellus and often twice or more as wide as the latter, occasionally with a pair of distinct or rather strong *if* apart from some fine setulae. Prosternum often bare as in male. Fore tibia sometimes with a small *ad* in addition to the well-developed ordinary *ad*; t_3 sometimes with 1 or a few differentiated setulae on anterior surface. Wings with costal thorns distinctly stronger than costal spinules.

Abdomen with 5th tergite membranous medially on posterior half (Fig. 13); 5th sternite 1.9−2.6 times as long as wide (Fig. 14); ovipositor (Figs 15–17) with 6th and 7th sternites each represented by a pair of setose posterior sclerites and a small unsetose anterior sclerite, posterior sclerites of 7th sternite often connected with each other; 8th sternite represented by a pair of small setose sclerites.

Remarks. Among the specimens examined there are found no significant differences



Figs 6–12. *Alliopsis longistylata*, ♂. 6, 5th sternite; 7, hypopygium, dorsal view; 8, ditto, dorsolateral view; 9, ditto, lateral view; 10, basiphallus and distiphallus, lateral view; 11, ditto, dorsal view; 12, left pregonite and postgonite. Magnification same for Figs 6–9, and for Figs 10–12. Paratype from Mt. Soranuma.



Figs 13−17. *Alliopsis longistylata*, ♀. 13, 5th tergite, dorsal view; 14, 1st (leftmost) to 5th sternites; 15–16, ovipositor; 17, 8th segment and proctiger. Magnification same for Figs 15–16. Paratypes from Asahi-dake (13–14), Ninohe (15) and Mt. Soranuma (16–17).

in the male terminalia and also in the female terminalia. Although the prosternum is variable in the number of setulae and often entirely bare in both sexes, it is concluded that the present specimens belong to one and the same species.

The elongate surstyli of the male terminalia indicate a close relationship of this species with the North American *Alliopsis attenuata* Griffiths, 1987 described from Yukon Territory (1♂, 1♀) and Alberta (1♂, 2♀). The present species is, however, different from the North American species by the prosternum often with no setulae and the epistoma in lateral view situated distinctly behind the tip of parafrontal angle. According to the original description of *A. attenuata* the prosternum is armed with numerous setulae laterally and the peristomal margin (epistoma) in lateral view reaches about the level of parafrontal angle.

2. *Botanophila askoldica* (Schnabl, 1911)
(Figs 18–50)

Hylemyia (*Pegohylemyia*) *askoldica* Schnabl in Schnable and Dziedzicki, 1911: 253.
Pegohylemyia askoldica: Suwa, 1974: 134; Hsue, 1983: 55.
Botanophila askoldica: Wei et al., 1998: 688; Suwa, 1999: 207; Xue and Song, 2007: 6; Suwa, 2014: 757.

Material examined. A lot of specimens of both sexes collected in Hokkaido: Sapporo, Jozankei, Mt. Soranuma, Nopporo, Shikotsu-ko, and Makubetsu (near Obihiro).

This is a common species in spring. The specimens at hand were collected between April 17th and May 18th.

Distribution. Japan (Hokkaido); NE. China; Russian Far East.

♂. Hairy especially in larger specimens. Wing length 4.0−6.6 mm. Body and appendages mainly blackish in ground colour, and rather densely pale grey or pale bluish grey pollinose. Head in ground colour often largely brownish on interfrontalia and usually a little brownish on genae; orbits silvery grey pollinose, scarcely to slightly tinged with yellow or brownish yellow in pollinosity on parafacials; genae pale grey pollinose, faintly to a little tinged with yellow or brownish yellow in pollinosity; haustellar mentum pollinose. Mesonotum in frontal angle of view (Fig. 25) with pale pollinosity well discernible, and with markings obscurely discernible as follows: dark median prescutellar spot or sometimes brownish pollinose median vitta from transverse suture to prescutellar *acr*, dark and weakly brownish pollinose paramedian vittae along rows of *dc* from 1st or 2nd *pre-dc* or from 1st *post-dc* to near scutellum, dark small spots at bases of *prst*, dark small spots or patches around bases of primary setae on postsutural lateral declivities; in caudal angle of view (Fig. 26) with pale pollinosity weakly discernible, and with dark markings obscurely discernible: rather broad median and paramedian vittae, and presutural and postsutural lateral patches; scutellum in both frontal and caudal angles of view largely blackish and pale grey pollinose only at base laterally, with brownish pollinosity weakly discernible at low angle in frontal view. Wings a little tinged with dark brown, much darker basally; calypteres whitish and faintly yellow, with margins and fringes yellowish; halteres yellow or brownish yellow at knobs. Abdomen (Figs 27–28) polished on left half of 6th tergite and on the area referable to 7th sternite in pregenital sclerite; median vitta interrupted at hind margin of each tergite, usually wider (often much wider) than f_3-height on 2nd tergite posteriorly

Fig. 18. *Botanophia askoldica*, ♂. Lateral habitus. Specimen from Nopporo.

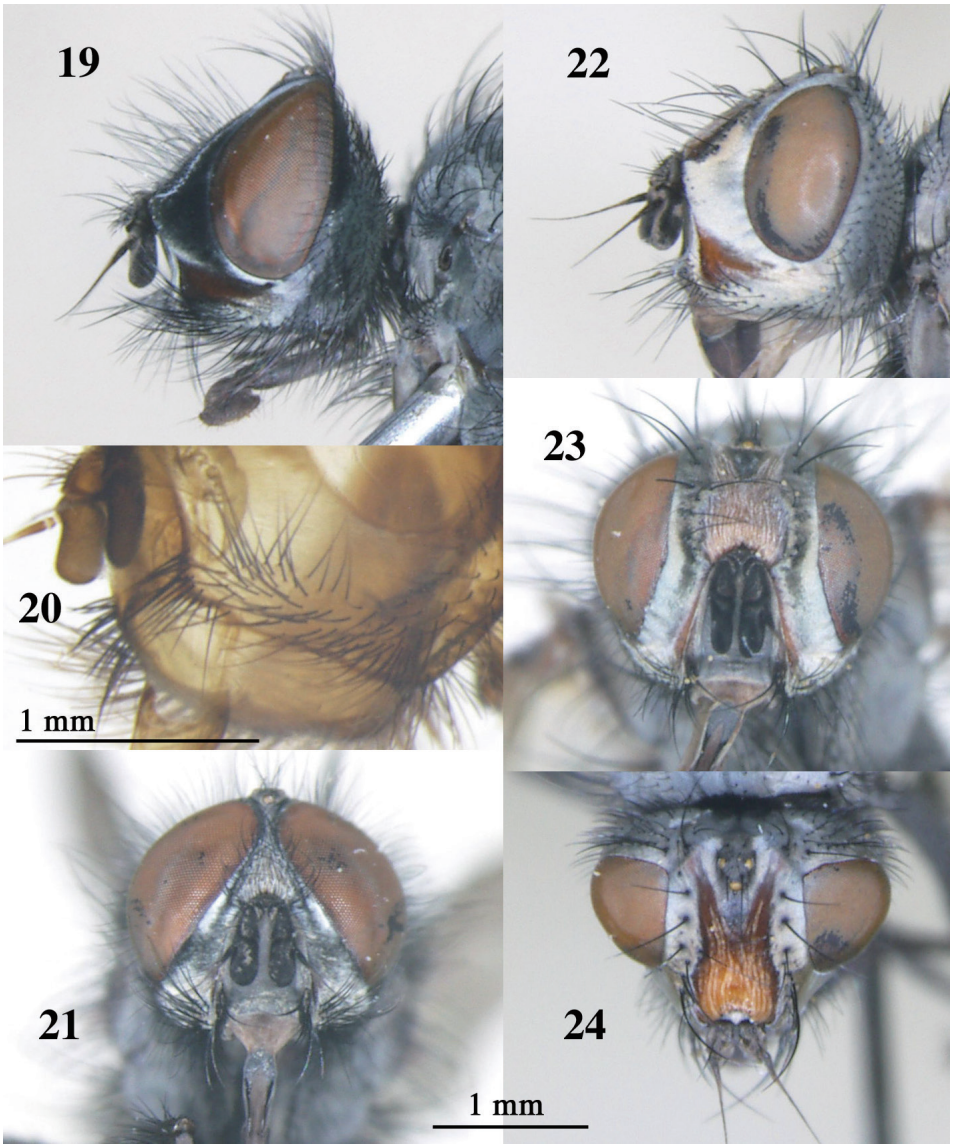
and narrowing caudad; fore-marginal bands broad, occupying anterior half or more on 2nd and 3rd tergites, and sometimes expanded on anterior two-thirds of each tergite.

Head 1.1−1.2 times as high as long (Fig. 19); frons wider than anterior ocellus, usually 1.2−1.6 times as wide as the latter (Fig. 21); interfrontalia narrower than anterior ocellus, usually about half as wide as the latter, often with 1 or a few fine or rather distinct setulae near narrowest point, and often with a few or some fine additional setulae elsewhere; parafrontals with numerous (around 30 or more in larger specimens and 20 or less in smaller ones) *ori* of various length in 1 and partly 2 rows, setae of the inner row being less in number, and a few or some of the setae often more or less shifted inward; no *ors*; A_3 1.5−1.9 times as long as wide; arista minutely pubescent; orbits at parafrontal angle 1.4−2.3 times as wide as A_3, relatively wider in larger specimens; genae as high as or a little lower than orbital width, with numerous genal setae in 5−6 rows in larger specimens (Fig. 20), or fewer setae in 3−4 rows in smaller ones; epistoma projecting forward about as far as tip of parafrontal angle in lateral view; palpi usually a little shorter than A_2 and A_3 combined; haustellar mentum rather slender and distinctly longer than A_2 and A_3 combined; occiput setulose on postocular plains.

Mesonotum densely setulose on lateral declivities in larger specimens, and rather sparsely setulose in smaller ones; 4–8 pairs of slender *pre-acr* in 2 rows closer together than to adjacent *dc*-row, with 1–10 (usually 4–8) setulae between the rows of *pre-acr*; posterior *ph* usually not differentiated; *pra* about as long as posterior *ntpl*; notopleuron with a few or some (2−6) setulae discernible in addition to ordinary *ntpl*; mesopleuron usually with 1 or 2 anterior *mpl* more or less differentiated from adjacent setulae; 1–2 strong and 1 or a few rather strong *pstg*, and many (8–16) associated setulae; *stpl* 1:2;

scutellum rather densely setulose on dorsal surface laterally and rather narrowly bare on basal center.

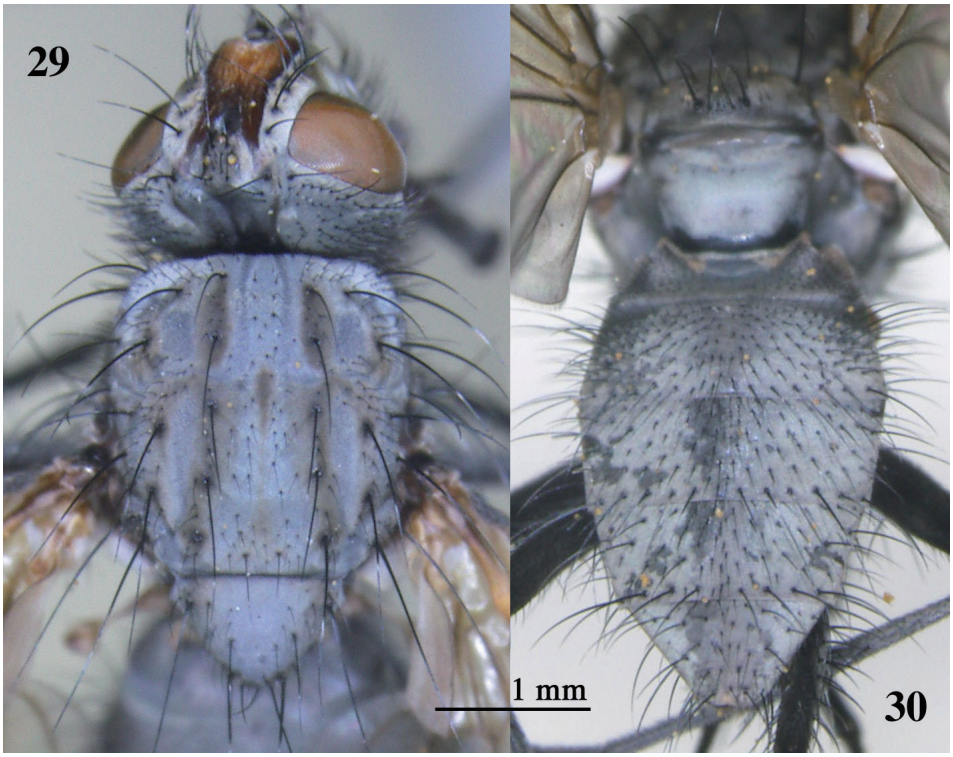
Mid femur on basal two-thirds with a row of many (usually more than 10) distinct to strong *av*, the longest being a little to distinctly longer than height of the femur, and ground setulae above the *av*-row more or less lengthened, and with many (ca. 20 or more) distinct to strong *pv* partly in 2–3 rows, the longest twice or more as long as the



Figs 19–24. Head of *Botanophia askoldica*, ♂ (19–21) and ♀ (22–24). 19, 22, lateral view; 20, lateral and slightly ventral view, macerated; 21, 23, frontal view; 24, dorsal view. Magnification same for Figs 19 and 21–24. Specimens from Nopporo (19; 22–24) and Jozankei (20; 21).

height; f_3 with a complete row of *av*, the longest being twice or more as long as height of the femur, and a row of *pv* interrupted around apical fourth, the longest as long as or a little longer than the longest *av*, and on basal half with some long setae discernible above the *pv*-row, ground setulae on basal half or two-thirds of anterior and posterior surfaces being lengthened; t_1 usually with 1 minute *ad* and 1–2 or occasionaly 3 *p*/*pv*,

Figs 25–28. *Botanophia askoldica*, ♂. 25, head and thorax, anterodorsal view; 26, ditto, dorsocaudal view; 27, abdomen, dorsocaudal view; 28, ditto, dorsocaudal view in lower angle. Specimens from Jozankei (25–26) and Nopporo (27–28).



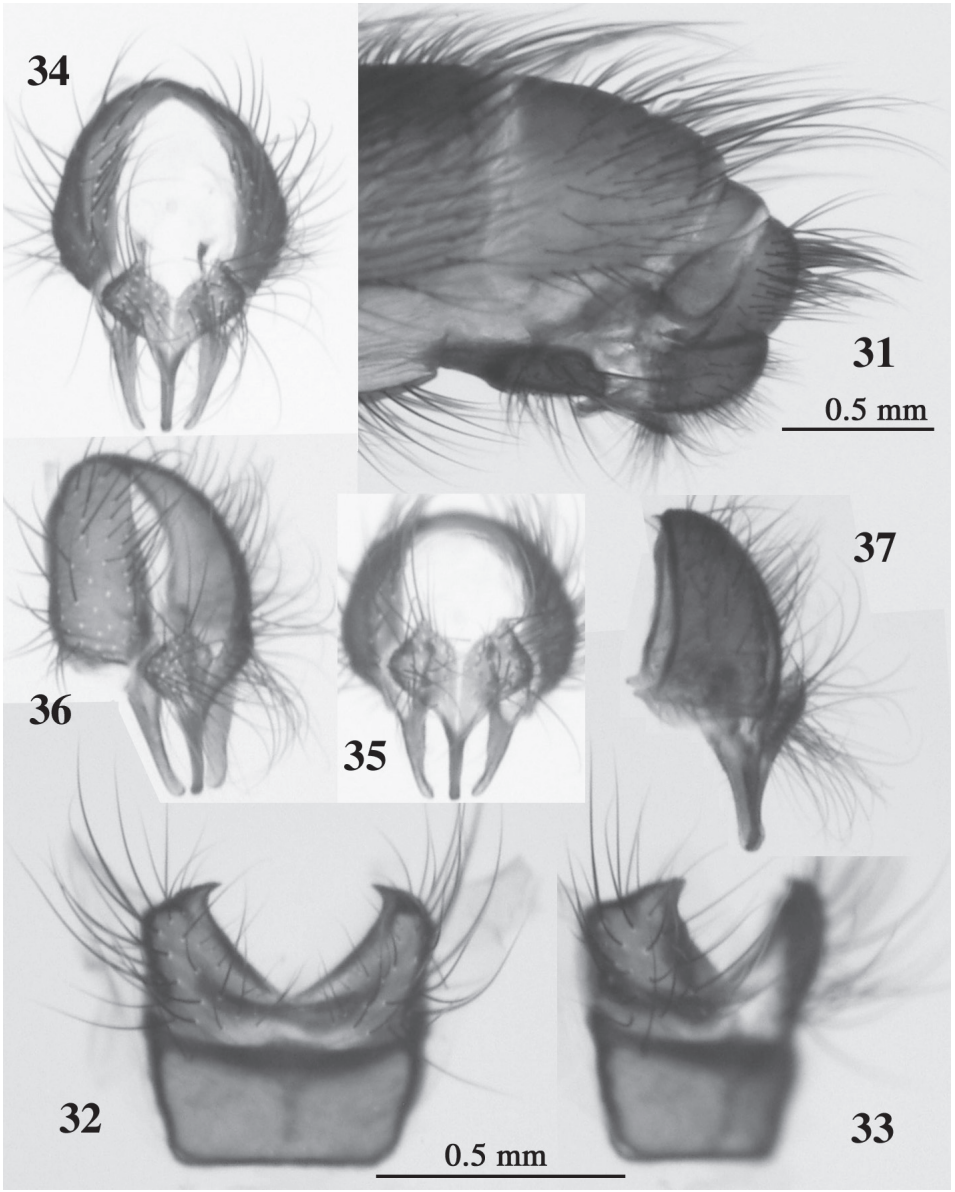
Figs 29–30. *Botanophia askoldica*, ♀. 29, head and thorax, dorsal view; 30, abdomen, dorsocaudal view. Specimens from Nopporo (29; 30).

and sometimes with 1 *pd*; t_2 with 1 *ad*, 2 or sometimes 3 *pd* and 1–3 (usually 2–3) *p*/*pv*; t_3 with 1 or sometimes 2–3 *av*, 3–5 *ad*, 2–4 (usually 3) strong and 0–3 weak *pd*, and 1 to some (occasionally 0) weak *pv*, sometimes with 1–3 *a*, and with apical *pd* well developed. Wings with costal thorns minute or small and scarcely to a little stronger than costal spinules; costa bare ventrally; *dm-cu* nearly erect and scarcely to slightly sinuate.

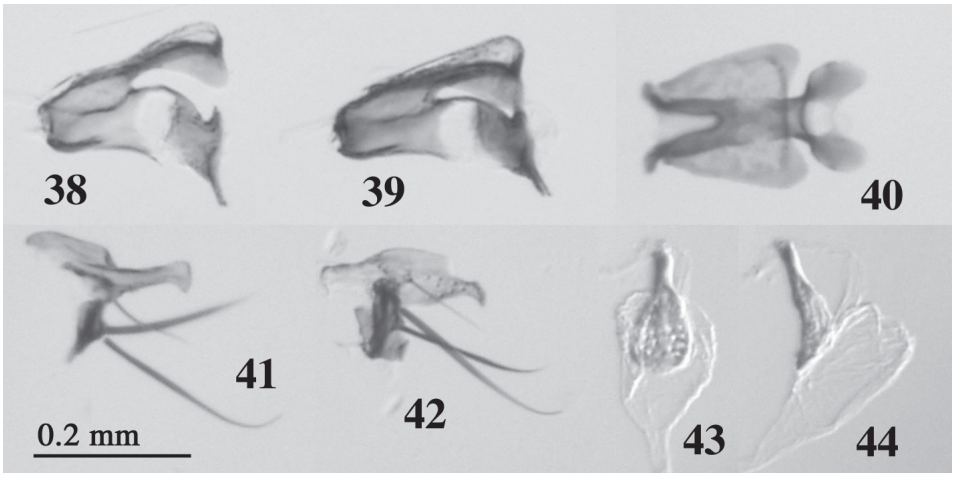
Abdomen depressed, twice or slightly more as long as wide, and loosely narrowing caudad; 1st to 5th spiracles situated in membrane near lateral margins of corresponding tergites; 6th tergite usually bare; 5th sternite (Figs 32–33) with processes distinctly pointed innerapically; hypopygium (Figs 34–37) with cercal plate prolonged apically, 1.3−1.5 times as long as wide, in profile weakly upcurved on apical projection and weakly downcurved apically; surstylus simple, in profile rod-like and hardly curved; aedeagus (Figs 38–44) with pregonite bearing 2 (rarely 3) flattened setae; postgonite with 1 distinct seta ventrally.

♀. Not hairy, ground setulae much shorter and sparser than in male. Wing length 4.0−6.5 mm. Body densely pale grey pollinose. Interfrontalia in ground colour yellow to brown on lower area and brown to dark brown on the upper, in pollinosity whitish grey, more or less yellowish or brownish on upper area; orbits blackish in ground colour, faintly to rather distinctly tinged with yellow or brownish yellow in pollinosity; genae largely brown to dark brown in ground colour, densely pale grey or whitish

grey pollinose, usually with a yellowish tinge in pollinosity. Mesonotum (Fig. 29) with brownish pollinose markings as follows: narrow median vitta from just beyond transverse suture to level of 1st or 2nd *post-dc* or faintly continuous to prescutellar area, paramedian vittae along rows of *dc* from 1st or 2nd *pre-dc* to 3rd *post-dc*, and small spots at bases of primary setae on lateral declivities, the median vitta being often very faint



Figs 31−37. *Botanophia askoldica*, ♂. 31, abdomen, caudal segments, left lateral view; 32, 5th sternite, ventral view; 33, ditto, ventrolateral view; 34, hypopygium, dorsal view; 35, ditto, dorsocaudal view; 36, ditto, dorsolateral view; 37, ditto, lateral view. Magnification same for Figs 32–37. Specimens from Jozankei (31; 32–37).



Figs 38−44. *Botanophia askoldica*, ♂. 38–39, basiphallus and distiphallus, lateral view; 40, ditto, dorsocaudal view; 41, left pregonite and postgonite, lateral view; 42, ditto, lateral and a little ventral view; 43, ejaculatory apodeme, frontal view; 44, ditto, lateral view. Specimens from Jozankei (38; 39–40, 43–44; 41–42).

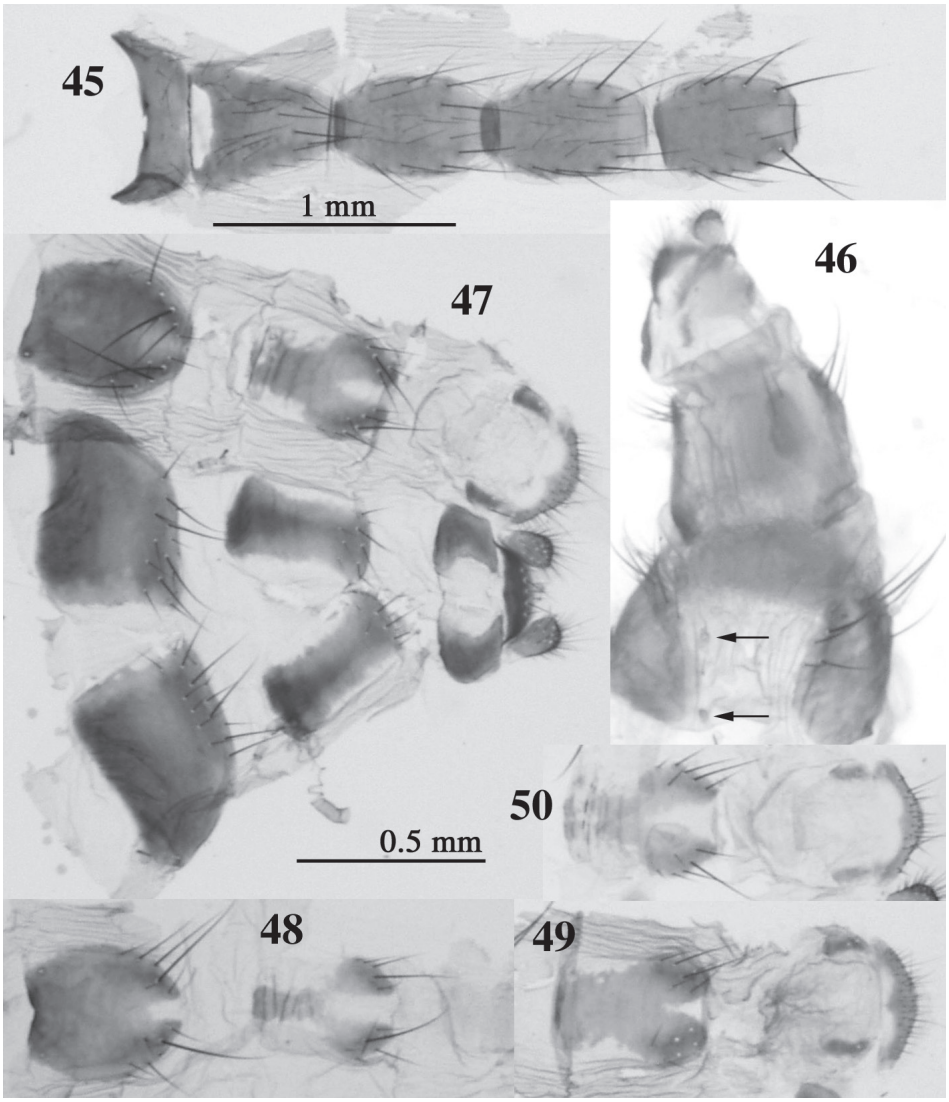
and only obscurely discernible, the paramedian vittae sometimes united with median vitta behind transverse suture, and the lateral spot markings often hardly discernible; scutellum brownish pollinose around bases of basal setae, or sometimes on whole dorsal surface. Wings tinged with brown, and brownish yellow basally. Abdomen (Fig. 30) without median vitta or fore-marginal bands, and tessellated in certain angles of view.

Frons 0.45−0.47 times as wide as head (Figs 23–24); interfrontalia about twice as wide as parafrontalia at narrowest point, with some minute or fine setulae discernible near lateral margins and around apex of ocellar triangle, a pair of setulae near apex of the triangle being often distinguishable from adjacent setulae; parafrontals with 2−4 strong and a few or some finer *ori* and 2–4 (usually 3) *ors*, and with some minute setulae around *ori*; orbits at parafrontal angle 2.0−2.3 times as wide as A_3; genae a little lower than orbital width at parafrontal angle, with genal setae usually in 3 rows (2 rows in much smaller specimens); epistoma projecting forward about as far as tip of parafrontal angle.

Mesonotum with *acr* short and fine except for a pair of distinct prescutellar ones; 0–4 (usually 1–2) accessory setulae between rows of *pre-acr*; notopleuron with 0–4 (usually 1–2) accessory setulae; 1−3 *pstg* and some (5–9) associated setulae; scutellum sparsely setulose on dorsal surface laterally and broadly bare centrally.

Mid femur on basal half with some (usually 3–5) *av* and some (usually 3–5) *pv*, the longest *av* and *pv* being a little longer than height of the femur; f_3 with a row of some (mostly 6–8) *av* and with some (3–5) *pv* on basal third or half apart from 1–2 preapical *pv*, the longest *av* and *pv* being distinctly longer than height of the femur; t_1 with 1 *ad*, 1–2 *p*/*pv* and sometimes 1 *pd*; t_2 with 1 *ad*, 2 or sometimes 3 *pd*, and 1–3 *p*/*pv*; t_3 with 1–2 (rarely 3–4) *av*, 3–4 (rarely 2) *ad*, 2–4 (usually 3) strong and 0–3 weak *pd*, and usually no distinct *pv*, 1 or a few *a* being occasionaly discernible. Wings with costal thorns much stronger than costal spinules, a little shorter to slightly longer than *h* crossvein.

Abdomen with 5th sternite about 1.5 times as long as wide (Fig. 45); 1st spiracle situated in membrane near lateral margin of 1st tergite, 2nd spiracle on lateral margin of 2nd tergite or in membrane just near the lateral margin, 3rd to 5th spiracles on corresponding tergites near lateral margins or on the lateral margins; ovipositor (Figs 46–50) with 6th to 8th tergites each divided into 2 lateral plates, 6th and 7th tergites setose posteriorly, 8th tergite with no setae; each plate of 7th tergite well maintained in width, much wider than cercus, at narrowest point twice or a little less as wide as the



Figs 45−50. *Botanophia askoldica*, ♀. 45, 1st (leftmost) to 5th sternites; 46, ovipositor, ventrolateral view, arrows indicating spiracles; 47, ditto, cut open; 48, 6th and 7th sternites; 49–50, 7th and 8th sternites and hypoproct. Magnification same for Figs 46–50. Specimens from Jozankei (45, 50; 47; 48; 49) and Nopporo (46).

latter (only 1.4 times the width of cercus in 1 of 12 specimens dissected); 6th spiracle in membrane near anterolateral corner of 6th tergite, or on margin of the corner; 7th spiracle in membrane near posterolateral corner of 6th tergite or between 6th and 7th tergites laterally; 6th sternite as long as or a little longer than wide, weakly chitinized or membranous posteromedially; 7th sternite on anterior half considerably or sometimes much narrowed and on posterior half deeply cleft posteromedially; 8th sternite represented by a pair of small sclerites bearing a few or some minute setulae; epiproct with some (8–14 in 12 specimens dissected) short and fine setulae posteromedially, setulae of subapical pair being a little longer than others; hypoproct largely covered with short and fine setulae; cerci less than twice as long as wide, with short and fine setulae mainly on apical half, the longest setula being at most as long as cercus; 3 spermathecae of equal size.

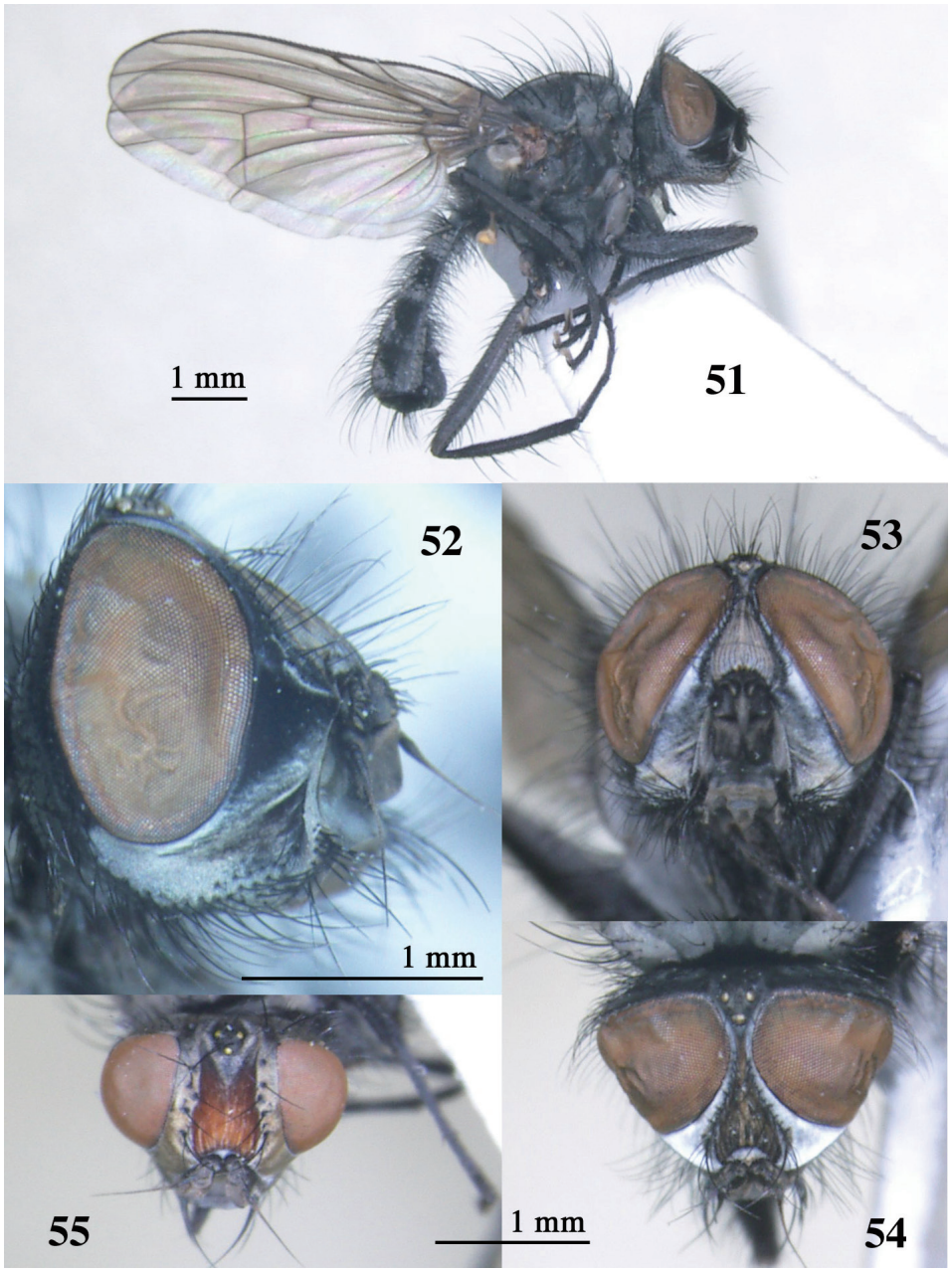
Remarks. *Botanophila peltophora* (Li, Cui and Fan, 1993) described from Henan (3♂), China, is closely related to the present *B. askoldica* in having similar male terminalia: 5th sternite with processes distinctly pointed innerapically; surstylus simple, with no incisions; cercal plate with a long apical projection reaching to the level of apices of the surstyli. According to the figures in the original description of *B. peltophora*, it is distinguished from *B. askoldica* by the cercal plate relatively longer, gradually narrowing apically and ended in a sharp hook. For these two species the concept of the *Botanophila askoldica* group was proposed by Xue and Song (2007). In the following lines two other species are newly described from Japan as members of the group.

3. *Botanophila prolongata* sp. nov.
(Figs 51–86)

Type material. Shikoku. Ehime-ken: Onigausu, Odamiyama, 4♂ (one the holotype), 2♀, 12.iv.1997 (E. Yamamoto); Odamiyama Keikoku, alt. 800 m, 1♂, 26.iv.1995 (E. Yamamoto), 1♀, 20.v.1995 (E. Yamamoto); Koyayama, Odamiyama, 1♀, 1.v.1997 (E. Yamamoto). Honshu. Nagano-ken: Mt. Nyûkasa, 1♂, 28.v.1975 (Emoto & Nakanishi).

Distribution. Japan (Honshu, Shikoku).

♂. Hairy. Wing length 4.9−5.8 mm. Body and appendages blackish in ground colour, and rather densely pale grey or pale bluish grey pollinose. Interfrontalia brownish to blackish in ground colour and whitish grey to pale brownish grey in pollinosity; orbits silvery grey pollinose, scarcely to slightly tinged with brownish yellow in pollinosity on parafacials; genae dark brown to blackish in ground colour, pale grey pollinose and scarcely to slightly tinged with brown or brownish yellow in pollinosity; haustellar mentum pollinose. Mesonotum in the specimens from Odamiyama: in frontal angle of view (Fig. 56) with pale pollinosity well discernible, and with dark markings as follows: median vitta from level of 2nd *pre-dc* to prescutellar *acr*, paramedian vittae along rows of *dc* from 2nd *pre-dc* to near scutellum, small spots at bases of *prst*, and postsutural lateral patches, the median vitta being narrowed near middle, the paramedian vittae interrupted at transverse suture, broadened around 1st and 2nd *post-dc* and united with median vitta, these markings brownish pollinose; in caudal angle of view (Fig. 58) with pale pollinosity weakly discernible and with dark markings obscurely or rather distinctly discernible: rather broad median and paramedian vittae, small presutural lateral spots and rather broad postsutural lateral patches. Mesonotum in the specimen from Mt. Nyûkasa with dark markings less developed: in frontal angle of view (Fig. 57) with dark



Figs 51–55. *Botanophia prolongata*, ♂ (51−54) and ♀ (55). 51, lateral habitus; 52, head, lateral and slightly oblique view; 53, ditto, frontal view; 54−55, ditto, dorsal view. Magnification same for Figs 53–55. Holotype (51–54) and paratype (55) from Odamiyama.

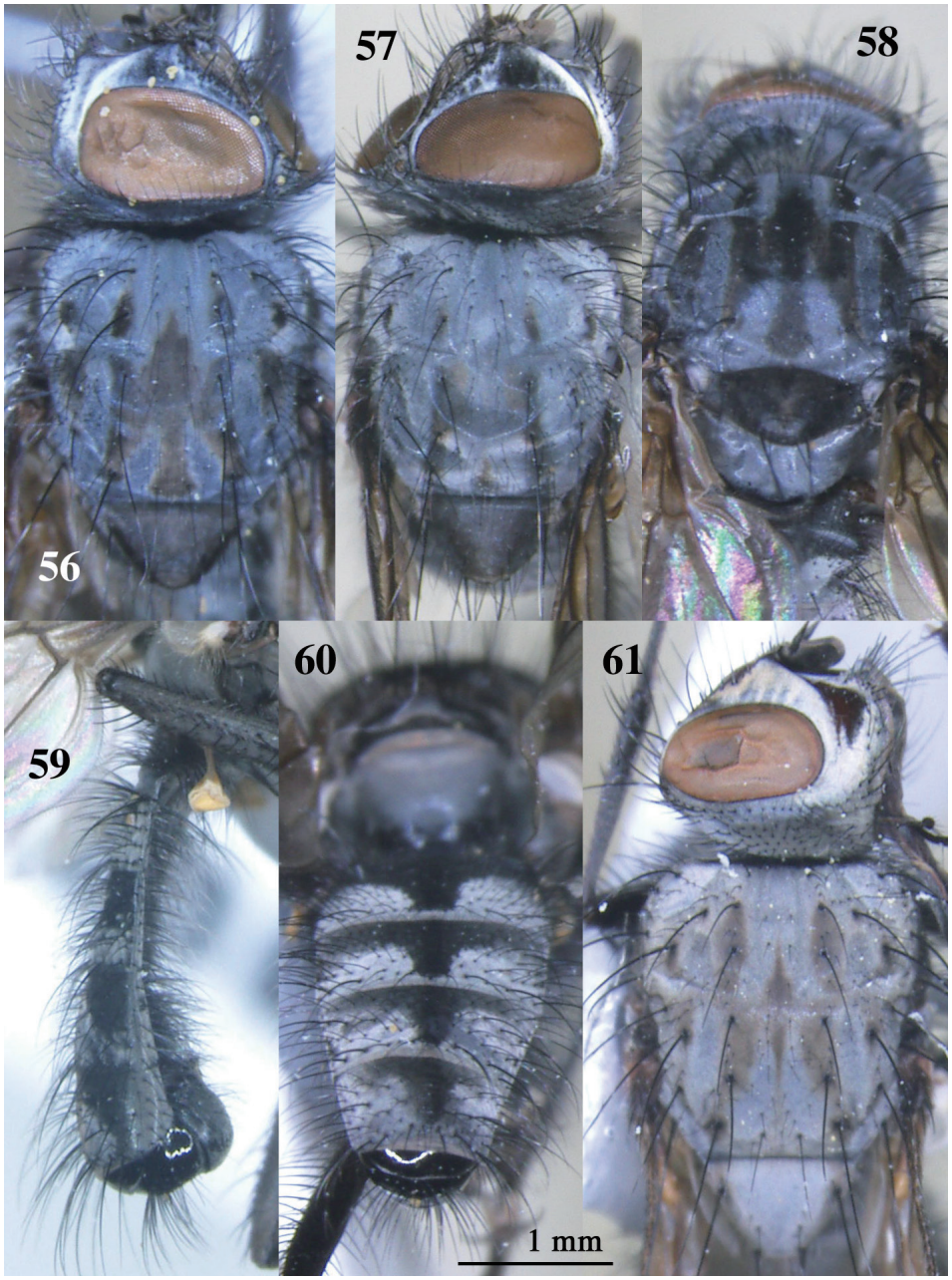
markings: median prescutellar spot, narrow paramedian vittae, presutural small lateral spots, and postsutural small lateral spots around bases of *pra*. Scutellum in both frontal and caudal angles of view largely blackish and pale grey pollinose only at base laterally, with brownish pollinosity weakly to rather well discernible at low angle in frontal view. Wings a little tinged with dark brown, much darker basally; calypteres whitish and faintly yellow, with margins and fringes yellowish; halteres yellowish at knobs. Abdomen (Figs 59–60) polished on 6th tergite and pregenital sclerite; median vitta interrupted at hind margin of each tergite, as wide as or a little narrower than f_3-height on 2nd tergite posteriorly and narrowing caudad; fore-marginal bands rather broad, occupying anterior third or more on 2nd and 3rd tergites.

Head about 1.2 times as high as long (Fig. 51); frons 1.2−1.6 times as wide as anterior ocellus (Figs 53–54); interfrontalia about half as wide as anterior ocellus, usually with 1 or a few minute or weak setulae around narrowest point, and with a few or some additional minute setulae elsewhere, or no additional setulae discernible; parafrontals with about 20−30 *ori* of various length almost in a single row, usually with *ors* indiscernible; A_3 1.6 times as long as wide; arista minutely pubescent; orbits at parafrontal angle 1.6−1.8 times as wide as A_3; genae as high as or slightly lower than orbital width, with genal setae in 3−4 rows (Fig. 52); epistoma projecting forward as far as or slightly beyond tip of parafrontal angle in lateral view; palpi a little shorter than A_2 and A_3 combined; haustellar mentum rather slender and distinctly longer than A_2 and A_3 combined; occiput setulose on postocular plains.

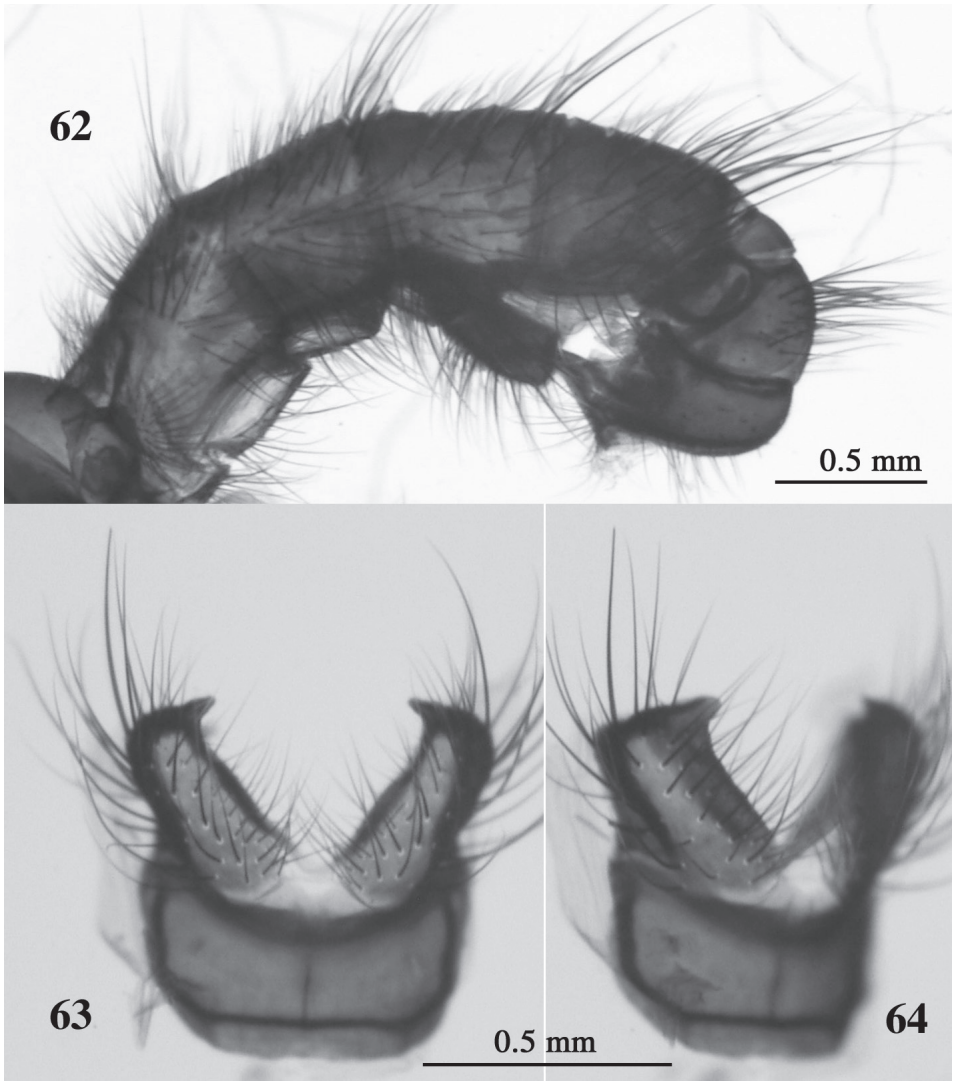
Mesonotum with 3–6 pairs of slender *pre-acr* in 2 rows separated from each other at the middle pair by a distance a little shorter to a little longer than that to adjacent *dc*-row, with no or a few setulae between the rows of *pre-acr*; posterior *ph* not differentiated; *pra* about as long as posterior *ntpl*; notopleuron with 1−5 setulae discernible in addition to ordinary *ntpl*; mesopleuron usually with 1 or 2 anterior *mpl* differentiated from adjacent setulae; 1 strong and 1–2 rather strong *pstg* and some (3−8) associated setulae; *stpl* 1:2; scutellum sparsely setulose on dorsal surface laterally and broadly bare on basal center.

Mid femur on basal two-thirds with a row of about 10 distinct to strong *av*, the longest being as long as or a little shorter than height of the femur, and ground setulae not particularly lengthened, and with many (ca.15−20) distinct to strong *pv* partly in about 2 rows, the longest 1.5−1.8 times as long as the height; f_3 in a specimen of good condition (holotype) with a complete row of *av*, the longest being 2.2 times as long as height of the femur, and with a row of *pv* interrupted around apical fourth, the longest about as long as the longest *av*, and on basal third with some long setae discernible above the *pv*-row, ground setulae not particularly lengthned; t_1 with 1 minute *ad* and 1–3 *p*/*pv*; t_2 with 1 *ad*, usually 2 *pd* and 2–3 *p*/*pv*; t_3 with 1−2 *av*, 3–5 *ad*, usually 3 strong and 1 or a few weak *pd*, and no or occasionally 1−3 weak *pv*, usually with no *a* discernible, and with apical *pd* well developed. Wings with costal thorns minute and scarcely to a little stronger than costal spinules; costa bare ventrally; *dm-cu* nearly erect and scarcely to slightly sinuate.

Abdomen depressed, with terminal segments thickened (Fig. 59); 1st to 5th spiracles situated in membrane near lateral margins of corresponding tergites; 6th tergite with no setulae; 5th sternite (Figs 63–64) with processes distinctly pointed innerapically; hypopygium (Figs 65–70) with epandrium in profile nearly right angled at anterodorsal corner (Figs 69–70, indicated by arrow); cercal plate much prolonged apically, twice or a little more as long as wide, in profile distinctly upcurved on apical projection and strongly downcurved apically; surstylus long and simple, in profile distinctly upcurved;



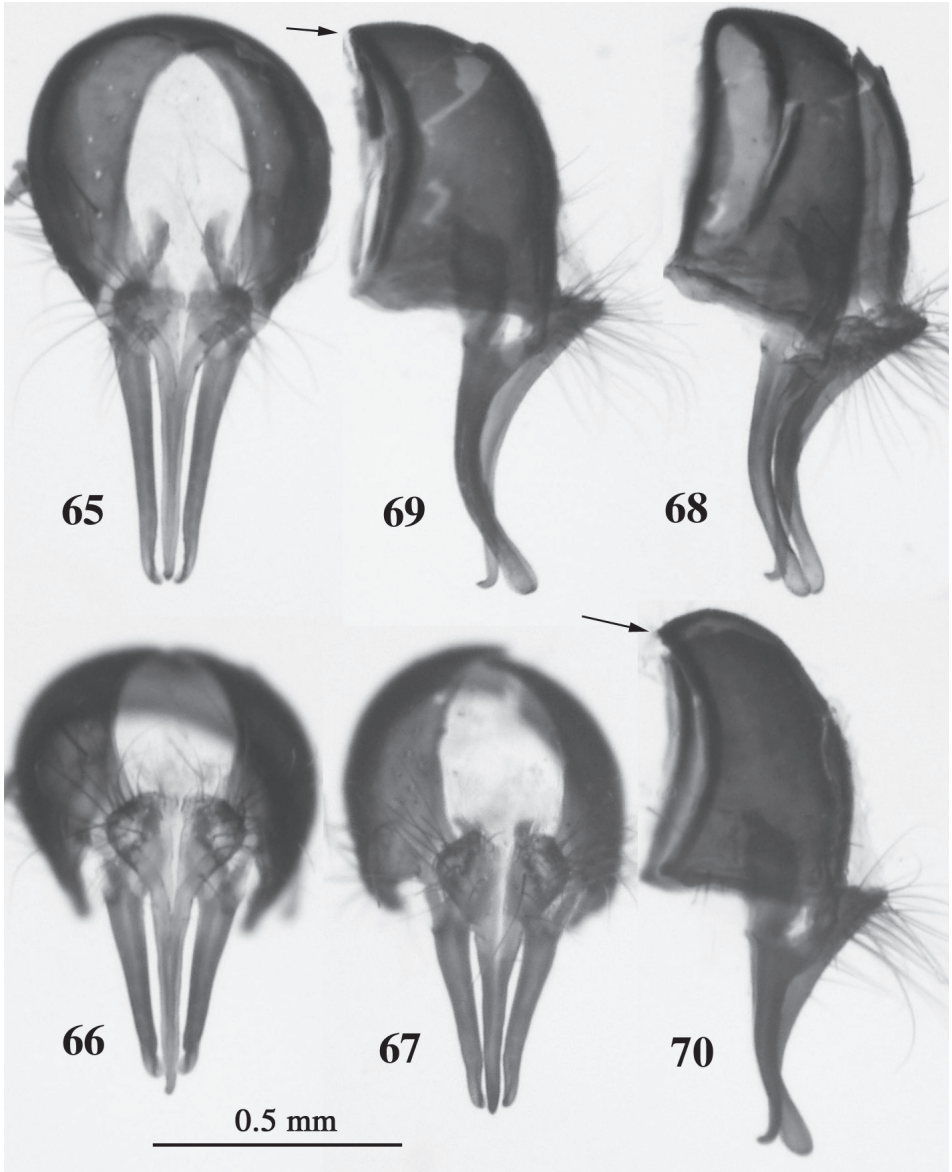
Figs 56−61. *Botanophia prolongata*, ♂ (56−60) and ♀ (61). 56−57, 61, head and thorax, anterodorsal view; 58, ditto, dorsocaudal view; 59, abdomen, right lateral view; 60, ditto, dorsocaudal view. Holotype from Odamiyama (59–60), and paratypes from Odamiyama (56, 58; 61) and Mt. Nyûkasa (57).



Figs 62−64. *Botanophia prolongata*, ♂. 62, abdomen, left lateral view; 63, 5th sternite, ventral view; 64, ditto, ventrolateral view. Holotype (63–64) and paratype (62) from Odamiyama.

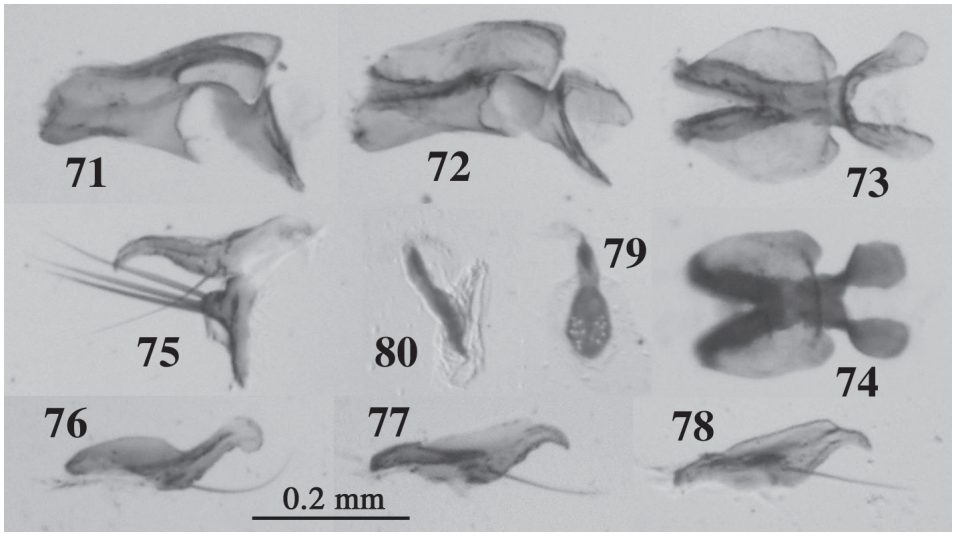
aedeagus (Figs 71–80) with pregonite bearing 2 flattened setae (3 setae on right pregonite in holotype, Fig. 75); postgonite with 1 distinct seta ventrally.

♀. Not hairy, ground setulae much shorter and sparser than in male. Wing length 4.9−6.0 mm. Body densely pale grey pollinose. Interfrontalia in ground colour yellow to brown on lower area and dark brownish on the upper, in pollinosity whitish grey on lower area and more or less yellowish or brownish on the upper; orbits blackish in ground colour, a little to rather distinctly tinged with yellow or brownish yellow in pollinosity; genae brown to dark brown in ground colour, tinged with yellow or brownish yellow in pollinosity. Mesonotum (Fig. 61) with brownish pollinose markings as follows:



Figs 65−70. *Botanophia prolongata*, ♂. 65, hypopygium, dorsal view; 66−67, ditto, dorsocaudal view; 68, ditto, dorsolateral view; 69−70, ditto, lateral view, arrow indicating anterodorsal corner. Holotype (65–66, 68–69) from Odamiyama and paratype (67, 70) from Mt. Nyûkasa.

median vitta from level of 2nd *pre-dc* to prescutellar *acr*, paramedian vittae along rows of *dc* from 1st *pre-dc* to 3rd *post-dc*, and small spots at bases of primary setae on lateral declivities, the median vitta being narrowed near middle (in 1 specimen hardly traceable posteriorly), the paramedian vittae united with median vitta behind transverse suture, in 2 specimens these markings being unsharp owing to brownish tinge in pollinosity between the markings; scutellum brownish pollinose around bases of basal setae, or almost on



Figs. 71−80. *Botanophia prolongata*, ♂. 71, basiphallus and distiphallus, lateral view; 72, ditto, dorsolateral view; 73–74, ditto, dorsal view; 75, right pregonite and postgonite; 76–78, left postgonite, different angles of view; 79, ejaculatory apodeme, frontal view; 80, ditto, lateral view. Holotype (71–73, 75) from Odamiyama and paratype (74, 76–80) from Mt. Nyûkasa.

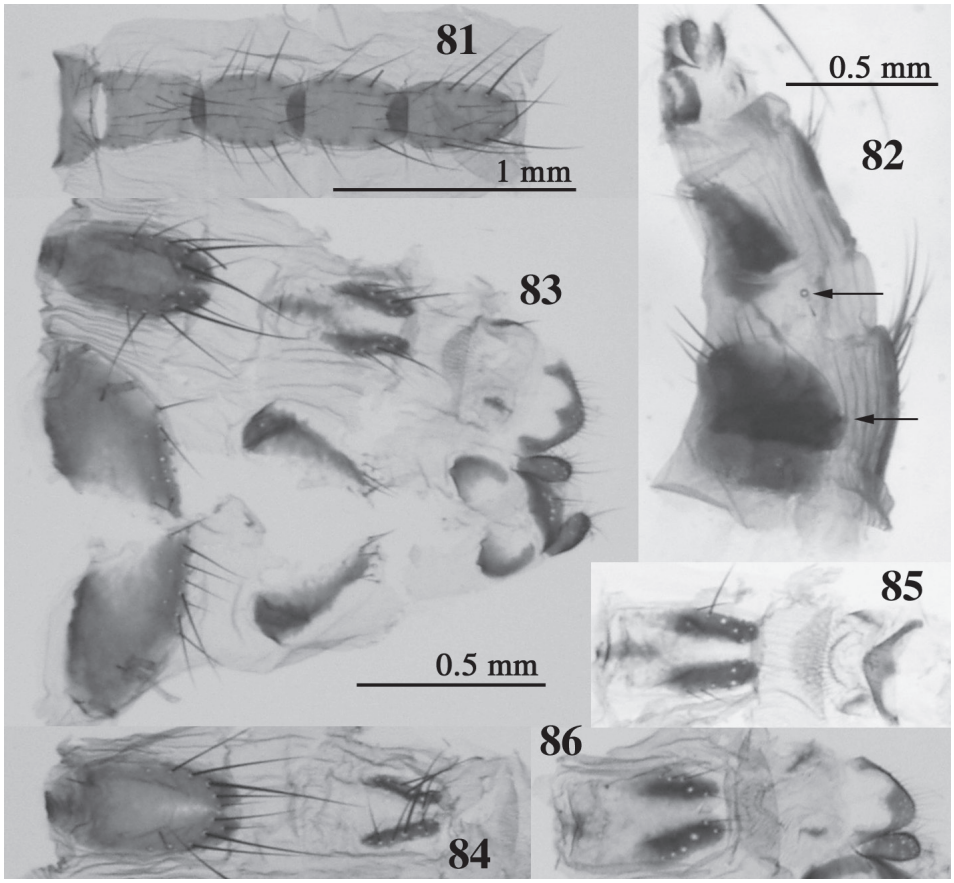
whole dorsal surface. Wings tinged with brown, and brownish yellow basally. Abdomen without median vitta or fore-marginal bands, and tessellated in certain angles of view.

Frons 0.40−0.45 times as wide as head (Fig. 55); interfrontalia twice or slightly more as wide as parafrontalia at narrowest point, with some minute or fine setulae discernible near lateral margins and around apex of ocellar triangle, in 2 specimens a single setula of a pair near apex of the triangle being rather well developed and longer than A_2; parafrontals with 3−4 strong and a few or some finer *ori* and 2–3 *ors*, and with a few or some minute setulae around *ori*; orbits at parafrontal angle 1.6−1.8 times as wide as A_3; genae a little lower than orbital width at parafrontal angle, with genal setae usually in 2 rows; epistoma projecting forward slightly beyond tip of parafrontal angle.

Mesonotum with 3–4 pairs of short and fine *pre-acr* and with no setulae betwenn the rows, distance between the rows being shorter than that to adjacent *dc*-row; notopleuron with 1–2 accessory setulae; 2−3 *pstg* and 2−3 associated setulae; scutellum sparsely setulose on dorsal surface laterally and broadly bare on basal center.

Mid femur on basal half with 3–4 *av* and 3–5 *pv*, the longest *av* and *pv* being as long as or slightly longer than height of the femur; f_3 with a row of 6–9 *av*, and on basal half with 3–4 *pv* apart from 1–2 preapical *pv*, the longest *av* and *pv* being distinctly longer than height of the femur; t_1 with 1 *ad* and 1 *p*/*pv*; t_2 with 1 *ad*, 2 *pd* and 2 *p*/*pv*; t_3 with 1–2 *av*, 2 strong and 1–2 weak *ad*, 3 strong and 0–1 weak *pd*, and no *pv*. Wings with costal thorns much stronger than costal spinules, a little shorter to slightly longer than *h* crossvein.

Abdomen with 5th sternite about twice as long as wide (Fig. 81); 1st spiracle situated in membrane near lateral margin of 1st tergite, 2nd spiracle on lateral margin of 2nd tergite or in membrane just near the lateral margin, 3rd to 5th spiracles on



Figs 81−86. *Botanophia prolongata*, ♀. 81, 1st (leftmost) to 5th sternites; 82, ovipositor, ventrolateral view, arrows indicating spiracles; 83, ditto, cut open; 84, 6th and 7th sternites; 85–86, 7th and 8th sternites and hypoproct. Magnification same for Figs 83–86. Paratypes from Odamiyama (81, 83; 82, 86; 84; 85).

corresponding tergites near lateral margins or on the lateral margins; ovipositor (Figs 82–86) with 6th to 8th tergites each divided into 2 lateral plates, 6th and 7th tergites setose posteriorly, 8th tergite with no setae; each plate of 7th tergite much narrowed posteriorly, at narrowest point as wide as or distinctly narrower than cercus (a little wider than cercus in 1 specimen); 6th spiracle on lateral margin of 6th tergite near anterolateral corner; 7th spiracle in membrane near posterolateral corner of 6th tergite or between 6th and 7th tergites laterally; 6th sternite about twice as long as wide, scarcely or narrowly membranous posteromedially; 7th sternite on anterior half much narrowed and weakly chitinized or almost membranous, and on posterior half deeply cleft posteromedially and almost divided into 2 narrow lateral plates; 8th sternite represented by a pair of small sclerites with 0–3 minue setulae; epiproct with some (4–6 in the specimens examined) short and fine setulae posteromedially, setulae of subapical pair being a little longer than others; hypoproct largely covered with short and fine setulae; cerci about twice as long

as wide, with short and fine setulae mainly on apical half, the longest setula being a little shorter than cercus; 3 spermathecae of equal size.

Remarks. The present species belongs to the *B. askoldica* group in having the male 5th sternite with pointed innerapices of processes, and the hypopygium with simple surstyli and apically prolonged cercal plate. The female 7th sternite is deeply cleft posteromedially in this species and also in the succeeding *B. vernalis* as in *B. askoldica*. This character may be accepted as diagnostic for the group, though the female of the Chinese *B. peltophora* is unknown.

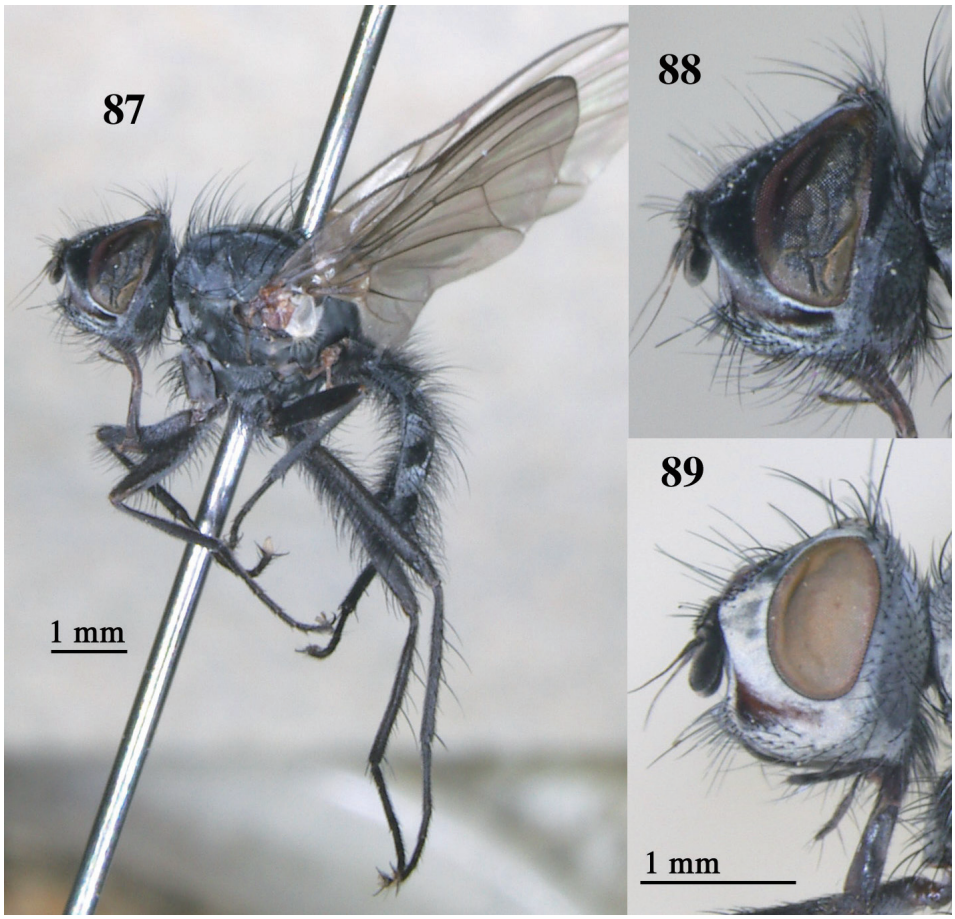
Botanophila prolongata is clearly different from *B. askoldica* in the following aspects: in male, abdomen thick on terminalia and broadly polished on 6th tergite and pregenital sclerite; hypopygium with cercal plate much prolonged, twice or more as long as wide, and with surstyli much prolonged, about as long as epandrium, and distinctly upcurved; in female, 6th sternite about twice as long as wide; 7th tergite and sternite more reduced in sclerotization. The present speies may be more closely related with *B. peltophora* in having the hypopygium with long cercal plate and long surstyli. This Chinese species is, however, distinguishable from *B. prolongata* by the cercal plate with more sharply hooked apex and by the surstyli not upcurved in profile.

4. *Botanophila vernalis* sp. nov.
(Figs 87–110)

Type material. Honshu. Ishikawa-ken: Sannomiya, Hakusan-shi, 4♂ (one the holotype), 1♀, 28.iii.1979 (K. Togashi), 1♂, 20.iii.1979 (K. Togashi), 3♀, 26.iv.1978 (K. Togashi), 1♀, 30.iv.1978 (K. Togashi); Kanazawa, 1♂, 22.iv.1970 (H. Kurahashi); Saigawa-dam, Kanazawa, 1♂, 23.v.1968 (Y. Kato).

Distribution. Japan (Honshu).

♂. Hairy. Wing length 4.0−6.1 mm. Body and appendages blackish in ground colour in good pigmented specimens, and rather densely pale grey or pale bluish grey pollinose. Head silvery grey pollinose on orbits and genae, scarcely or faintly tinged with yellow in pollinosity on genae; haustellar mentum pollinose. Mesonotum in frontal angle of view (Fig. 90) with pale pollinosity well discernible, and with dark markings as follows: median vitta from level of 2nd *pre-dc* to prescutellar *acr*, paramedian vittae along rows of *dc* from 2nd *pre-dc* to near scutellum, small spots at bases of *prst*, and small patches around 1st postsutural *ial* (intra-alar), the median vitta being narrowed near middle, the paramedian vittae interrupted at transverse suture, broadened around 1st and 2nd *post-dc* and united with median vitta, these markings brownish pollinose; in caudal angle of view (Fig. 91) with pale pollinosity weakly discernible and with dark markings rather obscurely discernible: rather broad median and paramedian vittae, presutural lateral spots and rather broad postsutural lateral patches; scutellum in both frontal and caudal angles of view largely blackish and pale grey pollinose only at base laterally, with brownish pollinosity weakly discernible at low angle in frontal view. Wings a little tinged with dark brown, much darker basally; calypteres whitish and faintly yellow, with margins and fringes yellowish; halteres yellow or brownish yellow at knobs. Abdomen polished on 6th tergite and pregenital sclerite; median vitta interrupted at hind margin of each tergite, as wide as or a little wider than f_3-height on 2nd tergite posteriorly and narrowing caudad; fore-marginal bands rather broad, occupying anterior third or more on 2nd and 3rd tergites.



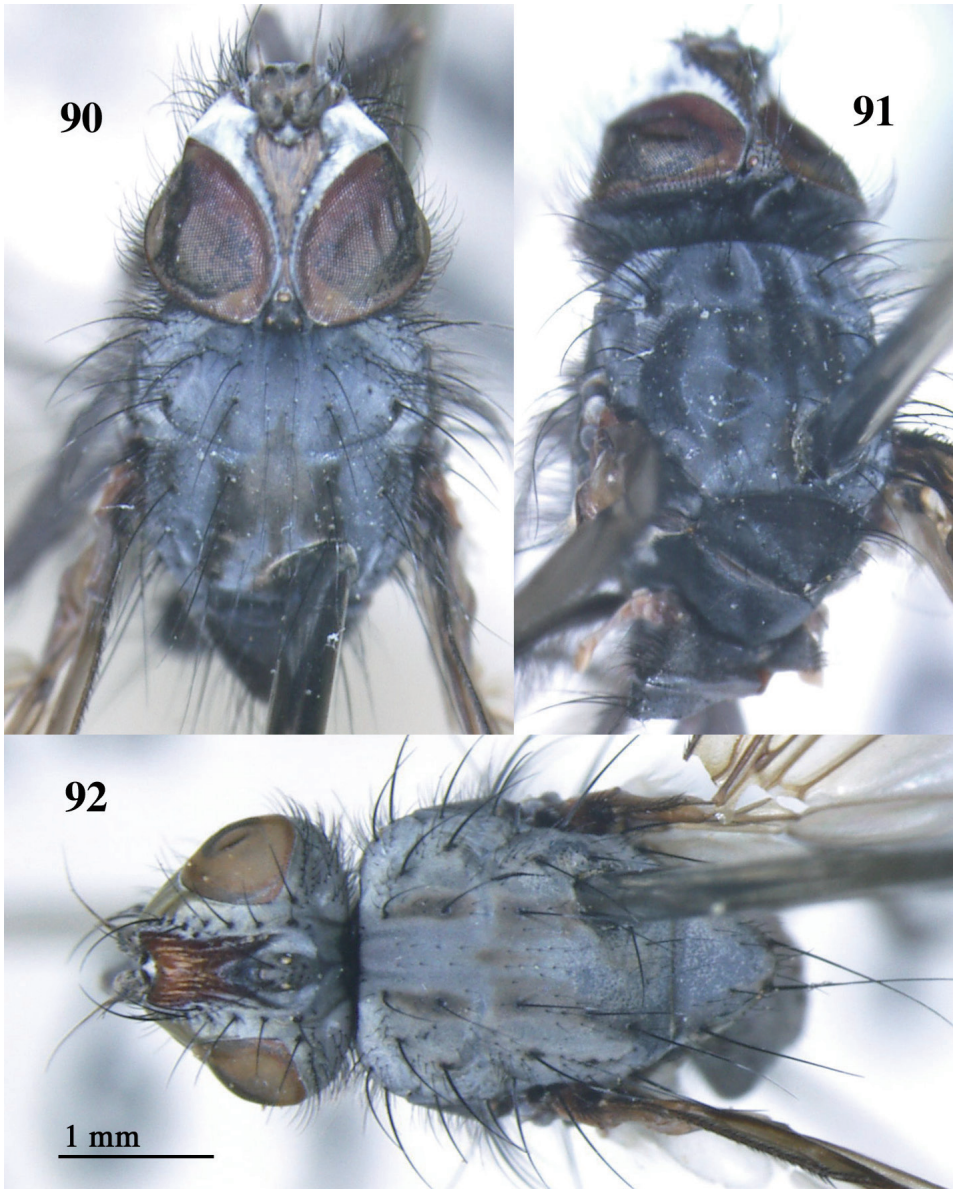
Figs 87−89. *Botanophia vernalis*, ♂ (87−88) and ♀ (89). 87, lateral habitus; 88−89, head, lateral view. Magnification same for Figs 88–89. Holotype (87–88) and paratype (89) from Hakusan-shi.

Head about 1.2 times as high as long (Fig. 88); frons a little wider than anterior ocellus; interfrontalia about half as wide as anterior ocellus, with no distinct *if*, only with a few or some (1–5) minute setulae discernible elsewhere in 3 specimens examined; parafrontals with about 20−30 (only 12−13 in smallest specimen) *ori* of various length in 1 and partly 2 rows, and with no *ors*; A_3 1.6−1.7 times as long as wide; arista minutely pubescent; orbits at parafrontal angle 1.3−1.8 times as wide as A_3; genae mostly as high as or slightly lower than orbital width, though distinctly higher than that in smallest specimen, with genal setae in 4–5 rows; epistoma situated a little behind tip of parafrontal angle in lateral view; palpi a little shorter than A_2 and A_3 combined; haustellar mentum rather slender and distinctly longer than A_2 and A_3 combined; occiput setulose on postocular plains.

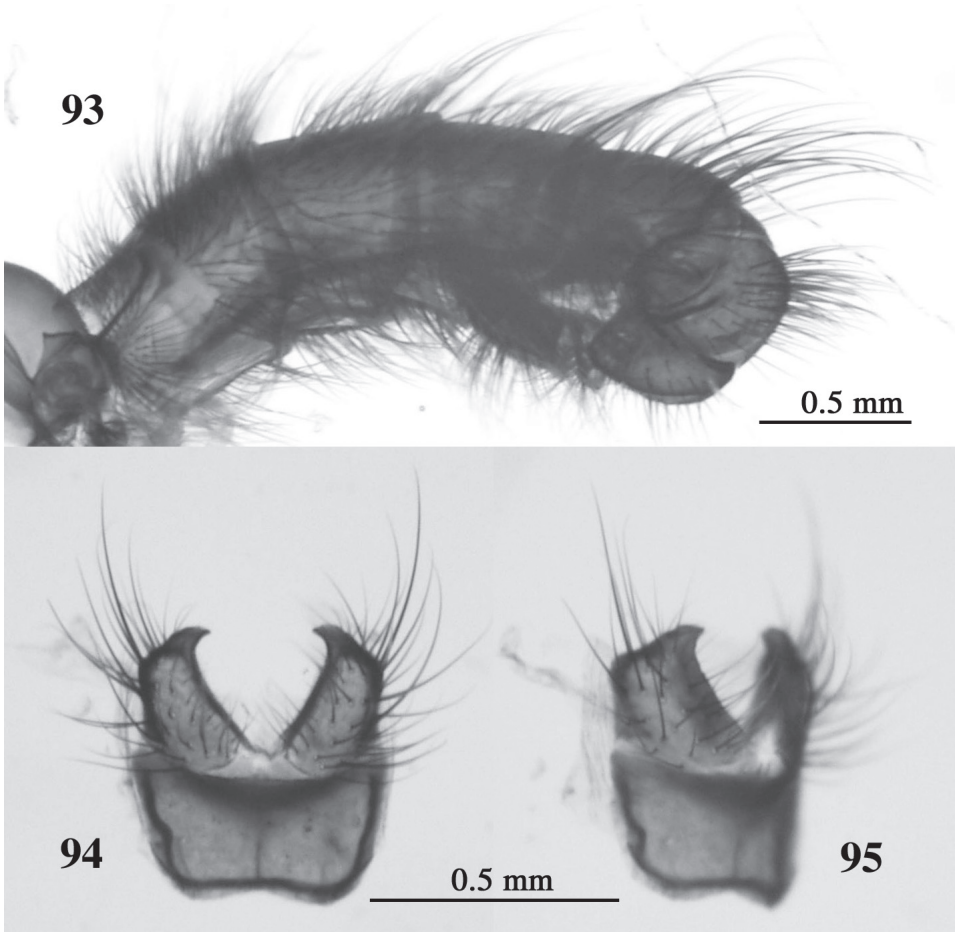
Mesonotum with 4–6 pairs of slender *pre-acr* in 2 rows separated from each other by a distance as long as or a little shorter than that to adjacent *dc*-row, with no or a few setulae between the rows; posterior *ph* usually not differentiated; *pra* a little shorter

to slightly longer than posterior *ntpl*; notopleuron with a few or some (1−8) accessory setulae discernible; mesopleuron with 0–2 anterior *mpl* more or less differentiated from adjacent setulae; 1 strong and 1–2 rather strong *pstg* and some (5–12) associated setulae; *stpl* 1:2; scutellum rather sparsely setulose on dorsal surface laterally and broadly bare on basal center.

Mid femur on basal two-thirds with a row of about 10 distinct to strong *av*, the

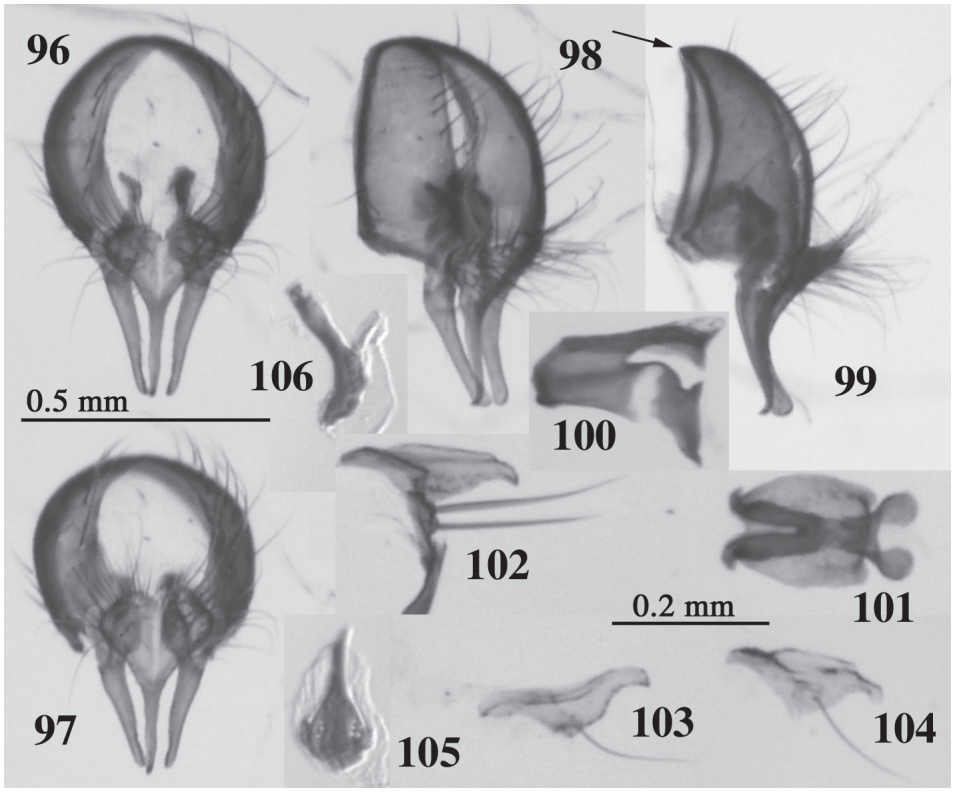


Figs 90–92. *Botanophia vernalis*, ♂ (90–91) and ♀ (92). 4, head and thorax, anterodorsal view; 91, ditto, dorsocaudal and oblique view; 92, ditto, dorsal view. Holotype (90–91) and paratype (92) from Hakusan-shi.



Figs 93–95. *Botanophia vernalis*, ♂. 93, abdomen, left lateral view; 94, 5th sternite, ventral view; 95, ditto, ventrolateral view. Paratypes from Hakusan-shi (93; 94–95).

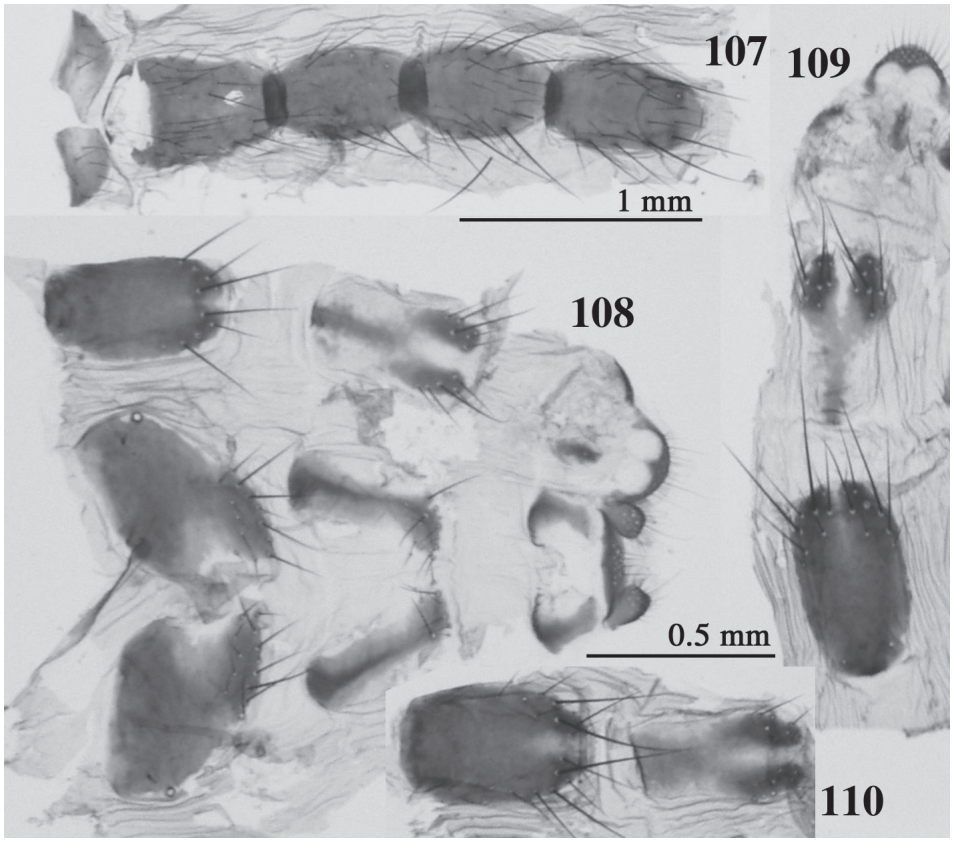
longest being as long as or a little shorter than height of the femur, and ground setulae above the *av*-row a little lengthened, and with many (ca. 20 or more) distinct to strong *pv* partly in about 2 rows, the longest 1.7−2.0 times as long as the height; f_3 with a complete row of *av*, the longest being 2.0−2.5 (1.8 in the smallest specimen) times as long as height of the femur, and with a row of *pv* interrupted around apical fourth, the longest 2.0−2.5 (1.7 in the smallest specimen) times as long as the height, and on basal third or half with some long setae discernible above the *pv*-row, ground setulae on basal half or two-thirds of anterior and posterior surfaces being more or less lengthened; t_1 usually with 1 minute *ad* and 1–3 *p*/*pv* (in holotype left t_1 with 1 distinct *pd* discernible); t_2 with 1 *ad*, usually 2 *pd* and 2–3 *p*/*pv*; t_3 with 1–3 (0 on left t_3 in holotype, usually 1) *av*, 3–6 (usually 3–4) *ad*, 2–4 (usually 3) strong and 0–2 weak *pd*, and no *pv* (some very fine *pv* barely discernible in holotype), usually with no *a*, and with apical *pd* well developed. Wings with costal thorns minute or small, and scarcely to slightly stronger than costal spinules; costa bare ventrally; *dm-cu* nearly erect and scarcely to slightly sinuate.



Figs 96−106. *Botanophia vernalis*, ♂. 96, hypopygium, dorsal view; 97, ditto, dorsocaudal view; 98, ditto, dorsolateral view; 99, ditto, lateral view, arrow indicating anterodorsal corner; 100, basiphallus and distiphallus, lateral view; 101, ditto, dorsal view; 102, left pregonite and postgonite; 103−104, left postgonite, different angles of view; 105, ejaculatory apodeme, frontal view; 106, ditto, lateral view. Magnification same for Figs 96–99, and for Figs 100–106. Holotype (105–106) and paratypes (96–102; 103–104) from Hakusan-shi.

Abdomen depressed, with terminal segments thickened; 1st to 5th spiracles situated in membrane near lateral margins of corresponding tergites; 6th tergite with no setulae; 5th sternite (Figs 94–95) with processes distinctly pointed innerapically; hypopygium (Figs 96–99) with epandrium in profile acute angled at anterodorsal corner (Fig. 99, indicated by arrow); cercal plate much prolonged apically, 1.7−1.8 times as long as wide, in profile distinctly upcurved on apical projection and strongly downcurved apically; surstylus long and simple, in profile distinctly upcurved; aedeagus (Figs 100–106) with pregonite bearing 2 flattened setae; postgonite with 1 distinct seta ventrally.

♀. Not hairy, ground setulae much shorter and sparser than in male. Wing length 5.2−6.3 mm. Body densely pale grey pollinose. Interfrontalia in ground colour yellow to brown on lower area and brown to dark brown on the upper, in pollinosity whitish grey, barely to distinctly tinged with brownish yellow on upper area; orbits blackish in ground colour, slightly tinged with yellow or brownish yellow in pollinosity; genae brownish yellow to brown in ground colour, a little tinged with yellow in pollinosity. Mesonotum



Figs 107–110. *Botanophia vernalis*, ♀. 107, 1st (leftmost) to 5th sternites; 108, ovipositor; 109, 6th to 8th sternites and hypoproct; 110, 6th and 7th sternites. Magnification same for Figs 108–110. Paratypes from Hakusan-shi (107–108; 109; 110).

(Fig. 92) with brownish pollinose markings as follows: median vitta from just beyond transverse suture to prescutellar *acr*, paramedian vittae along rows of *dc* from 1st *pre-dc* to 3rd *post-dc*, and small spots at bases of primary setae on lateral declivities, the median vitta being much narrowed near middle (in 1 specimen hardly traceable there), the paramedian vittae united with median vitta behind transverse suture, or almost so; scutellum brownish pollinose around bases of basal setae, or on dorsal surface laterally. Wings tinged with brown, and brownish yellow basally. Abdomen without median vitta or fore-marginal bands, and tessellated in certain angles of view.

Frons 0.44−0.48 times as wide as head (Fig. 92); interfrontalia twice or less as wide as parafrontalia at narrowest point, with some minute or fine setulae discernible near lateral margins and around apex of ocellar triangle, setulae near apex of the triangle being not particularly developed; parafrontals with 3−4 strong and a few finer *ori*, and 3 (4 on the right in 1 specimen) *ors*, and with some minute setulae around *ori*; orbits at parafrontal angle 1.7−2.3 times as wide as A_3; genae a little lower than orbital width at parafrontal angle, with genal setae in 2–3 rows; epistoma projecting forward as far as or

slightly beyond tip of parafrontal angle.

Mesonotum with 3–6 pairs of short and fine *pre-acr* in 2 rows closer together than to adjacent *dc*-row, with 0–1 setula betwenn the rows; notopleuron with 0–6 accessory setulae; 2−3 *pstg* and 5−12 associated setulae; scutellum sparsely setulose on dorsal surface laterally and broadly bare on basal center.

Mid femur on basal half with 3–4 *av* and 4–5 *pv*, the longest *av* and *pv* being as long as or slightly longer than height of the femur; f_3 with a row of 5–9 *av*, and on basal half with 3–4 *pv* apart from 1–2 preapical *pv*, the longest *av* and *pv* being distinctly longer than height of the femur; t_1 with 1 *ad* and 1–2 *p*/*pv*; t_2 with 1 *ad*, 2 *pd* (in addition 1 small *pd* on left t_2 in 1 specimen), and 2 *p*/*pv* (only 1 *p*/*pv* on right t_2 in 1 specimen); t_3 with 1–2 *av*, 3–5 (3–4 strong and 0–2 weak) *ad*, 3 strong and 0–2 weak *pd*, and no *pv*. Wings with costal thorns much stronger than costal spinules, a little shorter to a little longer than *h* crossvein.

Abdomen with 5th sternite 1.7–1.8 times as long as wide (Fig. 107); 1st spiracle situated in membrane near lateral margin of 1st tergite, 2nd spiracle on lateral margin of 2nd tergite, 3rd to 5th spiracles on corresponding tergites near lateral margins or on the lateral margins; ovipositor (Figs 108–110) with 6th to 8th tergites each divided into 2 lateral plates, 6th and 7th tergites setose posteriorly, 8th tergite with no setae; each plate of 7th tergite considerably narrowed, at narrowest point as wide as or a little wider than cercus; 6th spiracle on lateral margin of 6th tergite near anterolateral corner; 7th spiracle in membrane between 6th and 7th tergites laterally; 6th sternite 1.6–1.8 times as long as wide, weakly chitinized or narrowly membranous posteromedially; 7th sternite on anterior half considerably (Fig. 110) or much (Figs 108–109) narrowed and rather weakly chitinized, and on posterior half deeply cleft posteromedially; 8th sternite represented by a pair of small sclerites with a few or some minute setulae; epiproct with some (7–11 in 3 specimens dissected) short and fine setulae posteromedially, setulae of subapical pair being a little longer than others; hypoproct largely covered with short and fine setulae; cerci less than twice as long as wide, with short and fine setulae mainly on apical half, the longest setula being a little shorter than cercus; 3 spermathecae of equal size.

Remarks. The male terminalia with upcurved cercal plate and surstyli, and the female ovipositor with 6th sternite much longer than wide and with distinctly narrowed 7th tergite, these indicate a closer relationship of this species to *B. prolongata* rather than to *B. askoldica*. The present species is, however, distinguished from *B. prolongata* in the following aspects: hypopygium with epandrium in profile acute angled at anterodorsal corner (nearly right angled in *prolongata*) and with cercal plate less than twice as long as wide (more than twice in *prolongata*); ovipositor with 7th sternite not largely membranous on anterior half (often almost membranous in *prolongata*). In general appearance it is not easy to dinstinguish these species.

5. *Chirosia histricina* (Rondani, 1866)

Chirosia hystrix: Hennig, 1966: 63; Suwa, 1974: 26; Fukushi, 1990: 52.
Chirosia histricina: Hennig, 1967: 153; Suwa, 1999: 215; Suwa, 2005: 91; Suwa, 2014: 762.

Material examined. Hokkaido. Kozawa, Kyowa-cho, Iwanai-gun, 1♂, 3.vi.1999 (M. Suwa). Honshu. Ibaraki-ken: Mt. Tsuchi-dake, alt. 500−600 m, Takahagi, 2♂, 2♀, 17.v.2015 (M. Suwa).

Distribution. Japan (Hokkaido, Honshu, Kyushu); NE. China; Europe.

Remarks. In Japan this species has been known from some localities in Honshu and Kyushu. It is here recorded from Hokkaido for the first time.

6. *Chirosia major* Suwa, 2013

"*Meliniella sikisima* Suwa, 1974": Fukushi, 1990: 52, *partim*. Misidentification.
"*Chirosia sikisima* (Suwa, 1974)": Suwa, 1999: 216, *partim*. Misidentification.
Chirosia major Suwa, 2013a: 105; Suwa, 2014: 762.

Material examined. Honshu. Aomori-ken: Hirosaki Park, 1♂, 22.v.1971 (S. Fukushi); 1♀, Bonju-san, 4.vi.1983 (S. Fukushi).

Distribution. Japan (Hokkaido, Honshu).

Remarks. On the basis of my identification of specimens Fukushi (1990) recorded *Meliniella sikisima* from Aomori-ken and Akita-ken, northern Honshu. Some of the specimens have been reexamined and two of them, as listed above, are found to be identified with *C. major*.

7. *Chirosia nodula* (Li, Cui and Fan, 1994)

Meliniella nodula Li, Cui and Fan, 1994: 129.
Chirosia kogomi Suwa, 2013b: 115; Suwa, 2014: 762. Syn. nov.
Chirosia nodula: Zhang and Zhu, 2014: 40; Wang et al., 2014: 82.

Material examined. Honshu. Ishikawa-ken: Kanazawa, 1♀, 22.iv.1970 (H. Kurahashi); Mt. Mine, Okuchi-mura, 1♀, 3.v.1972 (I. Togashi).

Distribution. Japan (Hokkaido, Honshu); China (Henan).

Remarks. *Chirosia nodula* was described from two male specimens collected in Henan, China, with no biological information. The male terminalia figured in the original description of the species are very similar to those of *C. kogomi* described from Hokkaido and Honshu, Japan, and I have come to the conclusion that the two forms are conspecific.

In Japan this species has been reared from the Ostrich fern, *Matteuccia struthiopteris* (L.) Todaro, in Hokkaido (Suwa, 2013b). And in Honshu it has been known only from Tochigi-ken. Two female specimens collected in Ishikawa-ken are here recorded. The species may widely be found in Japan and also at least in eastern Asia in accordance with the distribution of the fern though no information available on the biology of the fly except in Hokkaido.

8. *Chirosia sikisima* (Suwa, 1974)

Meliniella sikisima Suwa, 1974: 38; Fukushi, 1990: 52, *partim*.
Chirosia sikisima: Suwa, 1999: 216, *partim*; Suwa, 2013a: 98; Suwa, 2014: 762.

Material examined. Honshu. Aomori-ken: Mt. Iwaki, 1♂, 27.viii.1965 (S. Fukushi), 1♂, 19.ix.1976 (S. Fukushi). Akita-ken: Mt. Komagatake, 1♂, 20.vii.1974 (S. Fukushi).

Distribution. Japan (Honshu).

Remarks. Some of the specimens recorded as *Meliniella sikisima* Suwa, 1974 from northern Honshu by Fukushi (1990) have been reexamined and of them three specimens listed above are confirmed to be referred to the species.

9. *Chirosia strigilliformis* (Deng and Li, 1986)

Meliniella strigilliformis Deng and Li, 1986: 105; Wei et al., 1998: 666.
Chirosia strigilliformis: Suwa, 2011: 82; Suwa, 2014: 762.

Material examined. Hokkaido. Jozankei, alt. 350−400 m, Sapporo, 1♂, 2.v.2012 (M. Suwa), 1♂, 6.v.2012 (M. Suwa).

Distribution. Japan (Hokkaido); China (Sichuan).

Remarks. In Japan this species has been known from a single male specimen collected at Mt. Soranuma, Sapporo (Suwa, 2011). Additional records of collection are here given.

10. *Delia interflua* (Pandellé, 1900)

Delia karasawana Suwa, 1974: 150.
Delia interflua: Suwa, 1999: 218; Suwa, 2014: 764.

Material examined. Hokkaido. Tomari-mura, alt. 50−100 m, 1♂, 25.v.2012 (M. Suwa). Honshu. Nagano-ken: Mt. Hodaka, 1♂ (holotype of *karasawana*), 2♀, 3.viii.1970 (M. Suwa); Mt. Yatsugatake, 1♂ (paratype of *karasawana*), 1♀, 20.vii.1970 (M. Suwa); Midori-ike, alt. 2000−2100 m, Mt. Yatsugatake, 1♂, 25.vi.1989 (M. Suwa); Mt. Senjo, 1♀, 10.vii.1971 (M. Suwa); Yunomaru-keikoku, alt. 1300−1400 m, Chiisagata-gun, 1♀, 22.vi.1989 (M. Suwa). Yamanashi-ken: Shirane-oike−Kusasuberi, alt. 2200−2500 m, Mt. Kita-dake, 1♀, 5−8.vii.1989 (M. Suwa). Toyama-ken/Niigata-ken: Asahi-dake, 2000−2400 m, Mt. Shirouma-dake, 1♂, 21−22.vii.1989 (M. Suwa). Ishikawa-ken: Mt. Hakusan, 1♂, 22.vii.1969 (H. Kurahashi).

Distribution. Japan (Hokkaido, Honshu); China; Europe.

Remarks. On this occasion the species is recorded from Hokkaido for the first time.

11. *Lasiomma craspedodontum* (Hsue, 1980)

Sinohylemya craspedodonta Hsue, 1980: 416.
"*Lasiomma seminitidum* (Zetterstedt, 1845)": Suwa, 1999: 228, *partim*. Misidentification.
Lasiomma craspedodontum: Griffiths, 2003: 2456; Suwa, 2005: 93; Suwa, 2014: 770.

Material examined. Honshu. Saitama-ken: Koma, 7♂, 10.iv.1975 (H. Kurahashi); Higashiagano, Hanno, 1♂, 15.iii.1974 (H. Kurahashi). Tokyo-to: Takahata-Fudô, Hino, 1♂, 3.v.1959. Aichi-ken: Saimyojisan, Nishio, 1♂, 20.iii.1971 (H. Kurahashi).

Distribution. Japan (Hokkaido, Honshu, Kyushu); Korea; China; Europe; N. America.

Remarks. Among the specimens referred to *Lasiomma seminitidum* (Zetterstedt, 1845) by Suwa (1999) most were referred to *Lasiomma craspedodontum* (Hsue, 1980), and some to *Lasiomma monticola* Suh and Kwon, 1985 (Suwa, 2005). Some others listed above are confirmed to be identified with *L. craspedodontum*.

12. *Pegomya lurida* (Zetterstedt, 1846)

Pegomya valgenovensis Hennig, 1973: 622; Griffiths, 1982: 106; Suwa, 1984: 52.
Pegomya lurida: Michelsen, 2004: http://www.faunaeur.org/; Suwa, 2014: 774; Wang et al., 2014: 94.

Material examined. Hokkaido. Tomari-mura, alt. 50−100 m, 7♂, 25.v.2012 (M. Suwa).

Distribution. Japan (Hokkaido, Honshu); China; Europe; N. America.

Remarks. In Hokkaido this species has been recorded from the central highlands region (Mt. Taisetsu (= Daisetsu), alt. 1700−1800 m; Mt. Furano, alt. ca. 1800 m). It is here recorded from a locality of lowlands.

13. *Pegomya ringdahli* Michelsen, 2015
(Figs 111–118)

"*Pegomya pilosa* Stein, 1900": Suwa, 1974: 215. Misidentification.
"*Pegomya scapularis* (Zetterstedt, 1846)": Suwa, 1999: 237; Suwa, 2014: 776. Misidentification.
Pegomya ringdahli Michelsen, 2015: 73.

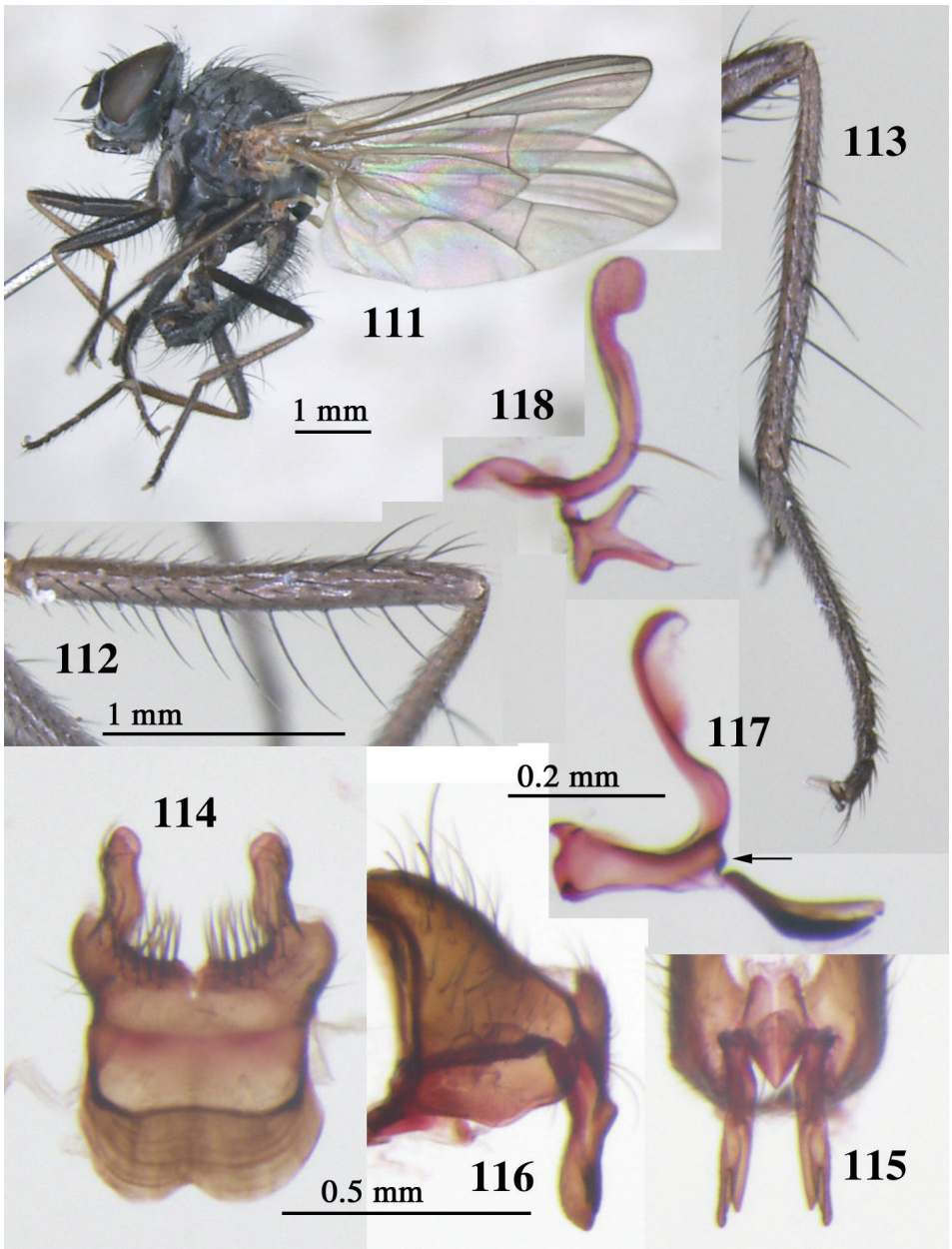
Material examined. Hokkaido. Ginsendai, Mt. Daisetsu, 1♂, 11.viii.1970 (T. Kumata). Honshu. Nagano-ken: Mt. Yatsuga-take, 1♂, 20.vii.1970 (M. Suwa); Mt. Kiso-komagatake, 2♂, 25–27.vii.1970 (M. Suwa).

Distribution. Japan (Hokkaido, Honshu); Europe.

Remarks. *Pegomya ringdahli* Michelsen, 2015 is a species previously confused with *Pegomya scapularis* (Zetterstedt, 1846) (= *Pegomya pilosa* Stein, 1900). Michelsen (2015: 73) gave a statement as follows: "A record of *P. scapularis* from Japan (Suwa 1974, 1999) may also refer to the present species [*P. ringdahli*] as judged from the illustrations of the male terminalia. However, the description of the chaetotaxy of the male hind leg is in better agreement with *P. scapularis* and makes this identification unsettled."

The present Japanese male specimens agree with the description of *P. ringdahli* in the following aspects: Occiput with setulae black; femora mainly dark brown (Fig. 111) except in a largely yellowish specimen from Mt. Kiso-komagatake; 5th sternite (Fig. 114) with lateral setae short and fine; pregonite (Fig. 118) deeply cleft on posterior half; postgonite (Fig. 118) with apical expansion circular; basiphallus in lateral view nearly right-angled at attachment point of distiphallus (Fig. 117, indicated by arrow). On the other hand the specimens agree with the redescription of *P. scapularis* given by Michelsen (2015) in the following features: Mid femur with *pv* distinctly longer than height of the femur; f_3 (Fig. 112) with longest *av* 2.5 or more times as long as height of the femur; t_3 (Fig. 113) with distal *pd* well developed, about one third as long as the tibia, though as long as or a little shorter than hind metatarsus (longer than the metatarsus in *P. scapularis*).

In the case of *P. scapularis* based on the North American form Griffiths (1983) states on considerable variation in the chaetotaxy of the hind femora and tibiae. It may not be unreasonable to expect similar variation for *P. ringdahli*. The present Japanese



Figs 111–118. *Pegomya ringdahli*, ♂. 111, lateral habitus; 112, left hind femur, anterodorsal view, showing *av* setae in longest view; 113, left hind tibia, anterodorsal view, showing *pd* setae in longest view; 114, 5th sternite; 115, hypopygium, dorsal view; 116, ditto, lateral view; 117, basiphallus and distiphallus, arrow indicating attachment point of distiphallus; 118, left pregonite and postgonite. Magnification same for Figs 112–113, for Figs 114–116, and for Figs 117–118. Specimens from Mt. Yatsugatake (111, 114–118) and Kiso-Komagatake (112–113).

form is here referred to the species though some doubt remains.

14. *Ringdahlia curtigena* (Ringdahl, 1935)

Lasiomma? *curtigena*: Hennig, 1972: 431.
Chirosiomima curtigena: Hennig, 1976: 928; Suwa, 1999: 216.
Lasiomma curtigena: Suwa, 1977: 6; Fan et al., 1988: 61; Wei et al., 1998: 662; Suwa, 2014: 770.
Ringdahlia curtigena: Michelsen, 2014: 97.

Material examined. Honshu. Saitama-ken: Chichibu-ontake, Ôtaki, 1♂, 16.vi.1974 (K. Hara); Karisaka-tôge, 1♂, 26.vii.1974 (K. Hara); Mt. Ryôkami, 1♂, 1.viii.1975 (K. Hara); Mt. Bukô, 1♂, 24.vii.1978 (K. Hara). Yamanashi-ken: Masutomi, 1♂, 26.v–4.vi.1975 (T. Saigusa et al.); Mt. Daibosatsu, alt. 1400–1700 m, 6♂, 16−18.v.1982 (M. Suwa). Hiroshima-ken: Mt. Osorakan, alt. 1350 m, 1♂, 10.vii.1978 (N. Kashiwai).

Distribution. Japan (Honshu); China (Gansu, Heilongjiang, Beijin); Europe (Finland, Karelia rossica).

Remarks. Michelsen (2014) proposed a new genus, *Ringdahlia*, for the present species which had been unstable in generic affiliation. His proposal is here accepted. This species has been known from some localities isolated in the Palaearctic region. Also in Japan it is not common and has been collected only from a few localities in Honshu as mentioned above.

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