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**CHIROSLA SIKISIMA (SUWA, 1974) AND ITS ALLIED NEW SPECIES IN
JAPAN (DIPTERA: ANTHOMYIIDAE)**

By MASAOKI SUWA

Abstract

SUWA, M., 2013. *Chirosia sikisima* (Suwa, 1974) and its allied new species in Japan (Diptera: Anthomyiidae). *Ins. matsum. n. s.* 69: 97–111, 47 figs.

The Japanese records of *Chirosia sikisima* (Suwa, 1974) by Suwa (1999) are found to be based on specimens classified into two species. One is the true *C. sikisima*. The other is a species described here as *Chirosia major* sp. nov.

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INTRODUCTION

Chirosia sikisima (Suwa, 1974) was originally described on the basis of specimens from mountainous areas in Honshu, Japan. Later other specimens from various localities in Honshu were identified with the species (Suwa, 1999). Recently I have reexamined these specimens. The type series of *C. sikisima* are all referred to the species. The other specimens are, however, found to be classified into two species, the true *C. sikisima* and an undescribed species.

The undescribed species is larger in average size and has some distinct differences mainly found in the male terminalia. It is here described as a new species. Some specimens recently collected in Hokkaido are also referred to the new species. On this occasion supplementary notes for *C. sikisima* are given.

Abbreviations in terminology are mostly as in Suwa (1974).

Before going further I wish to express my sincere thanks to H. Kurahashi, National Institute of Infectious Diseases, Tokyo, for his great help with material.

DESCRIPTIONS

Chirosia sikisima (Suwa, 1974)

(Figs 1–25)

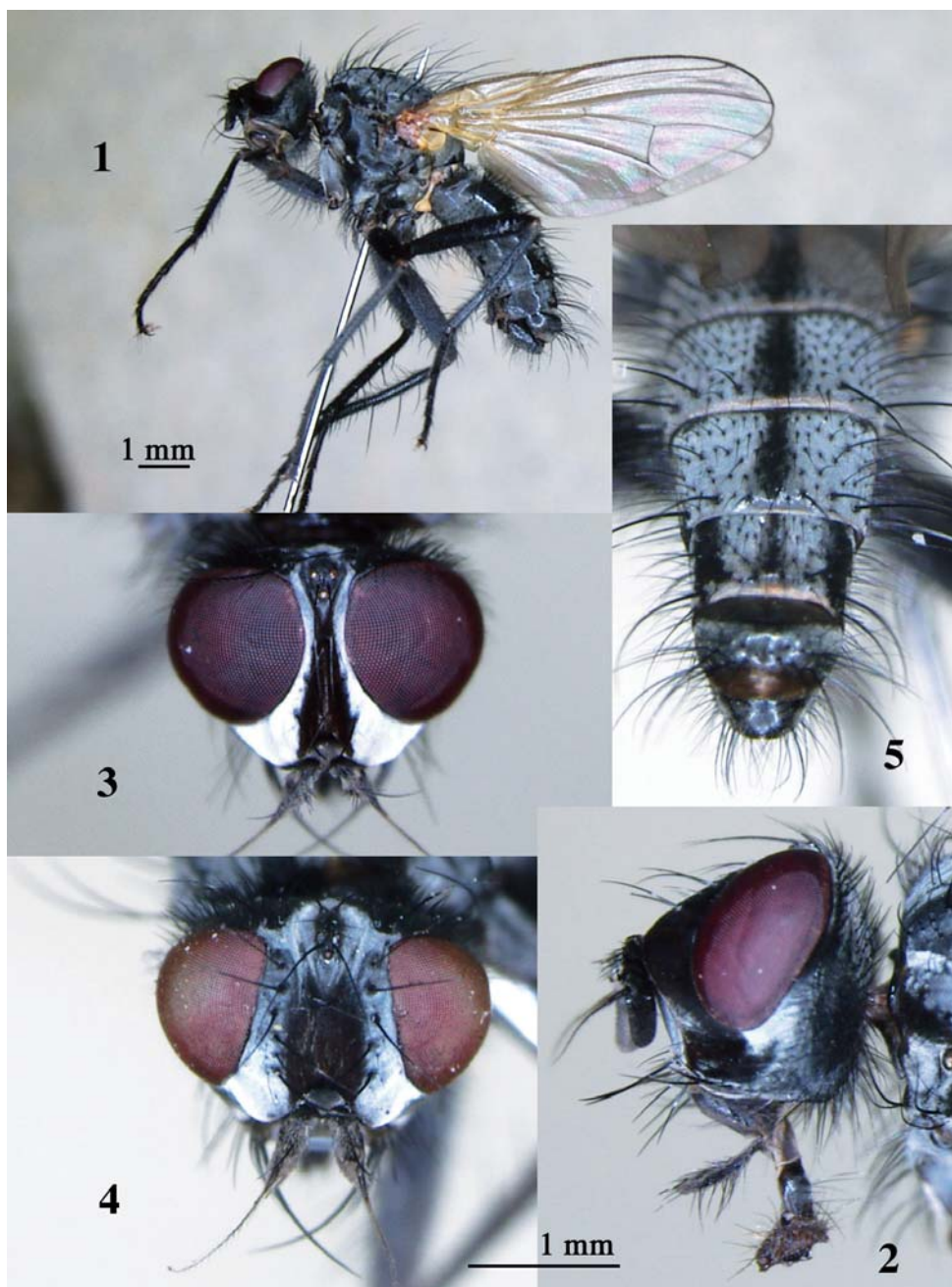
Meliniella sikisima Suwa, 1974: 38.

Chirosia sikisima: Suwa, 1999: 216, *partim*.

Material examined. Honshu. Aomori-ken: Mt. Hakkôda, 1♂ (paratype), 19.viii.1966 (M. Suwa). Miyagi-ken: Futakuchi-onsen, 1♂, 7.vi.1974 (T. Hattori). Tochigi-ken: Mt. Shakagatake, alt. 1300–1800 m., 1♂, 29.v.1991 (M. Suwa). Yamanashi-ken: Kanayama, Masutomi, 1♂, 26.v–4.vi.1975 (T. Saigusa et al.); Shirane-oike, alt. 2000–2200 m, Mt. Kita-dake, 1♂, 2♀, 4–8.vii.1989 (M. Suwa); Shirane-oike–Kusasuberi, alt. 2200–2500 m, Mt. Kita-dake, 3♂, 2♀, 5–8.vii.1989 (M. Suwa). Niigata-ken: Mikagura-dake, alt. 300–400 m, Kamikawa-mura, 1♂, 15.v.1991 (M. Suwa); Renge-onsen–Tengunoniwa, alt. 1500–2000 m, Mt. Shirouma-dake, 1♂, 2♀, 19.vii.1989 (M. Suwa). Toyama-ken/Niigata-ken: Asahi-dake, alt. 2000–2400 m, Mt. Shirouma-dake, 4♂, 3♀, 21–22.vii.1989 (M. Suwa). Nagano-ken: Mt. Hodaka, 40♂ (holotype and paratypes), 17♂ (non-types), 12♀ (paratypes), 1♀ (non-type), 1.viii.1970 (M. Suwa), 13♂ (paratypes), 1♀ (paratype), 3.viii.1970 (M. Suwa); Mt. Chôgatake, 1♂ (paratype), 1♀ (paratype), 30.vii.1970 (M. Suwa); Mt. Shirouma-dake, 4♂ (paratypes), 1♀ (paratype), 5.viii.1970 (M. Suwa); Mt. Yatsugatake, 1♂ (paratype), 20.vii.1970 (M. Suwa); Mt. Kiso-Komagatake, 1♂ (paratype), 1♀ (paratype), 27.vii.1970 (M. Suwa); Norikura-kôgen, alt. 1600–1700 m, 1♂, 8.vi.1975 (T. Saigusa); Hakuba-ôike–Korenge-yama, alt. 2400–2700 m, Mt. Shirouma-dake, 1♀, 20.vii.1989 (M. Suwa); Mt. Senjo, 3♀, 10.vii.1971 (M. Suwa). Gifu-ken: Wasabidaira–Kagamidaira, alt. 1500–2000 m, near Mt. Kasagatake, 3♂, 7♀, 14.vii.1989 (M. Suwa). Ishikawa-ken: Sunodani, 1♀, 8.vi.1966 (H. Kurahashi); Mt. Hakusan, 6♂, 1♀, 20.vii.1969 (H. Kurahashi), 5♂, 2♀, 21.vii.1969 (H. Kurahashi), 1♂, 23.iv.1970 (H. Kurahashi), 5♂, 10.vii.1971 (H. Kurahashi).

Distribution. Japan (Honshu).

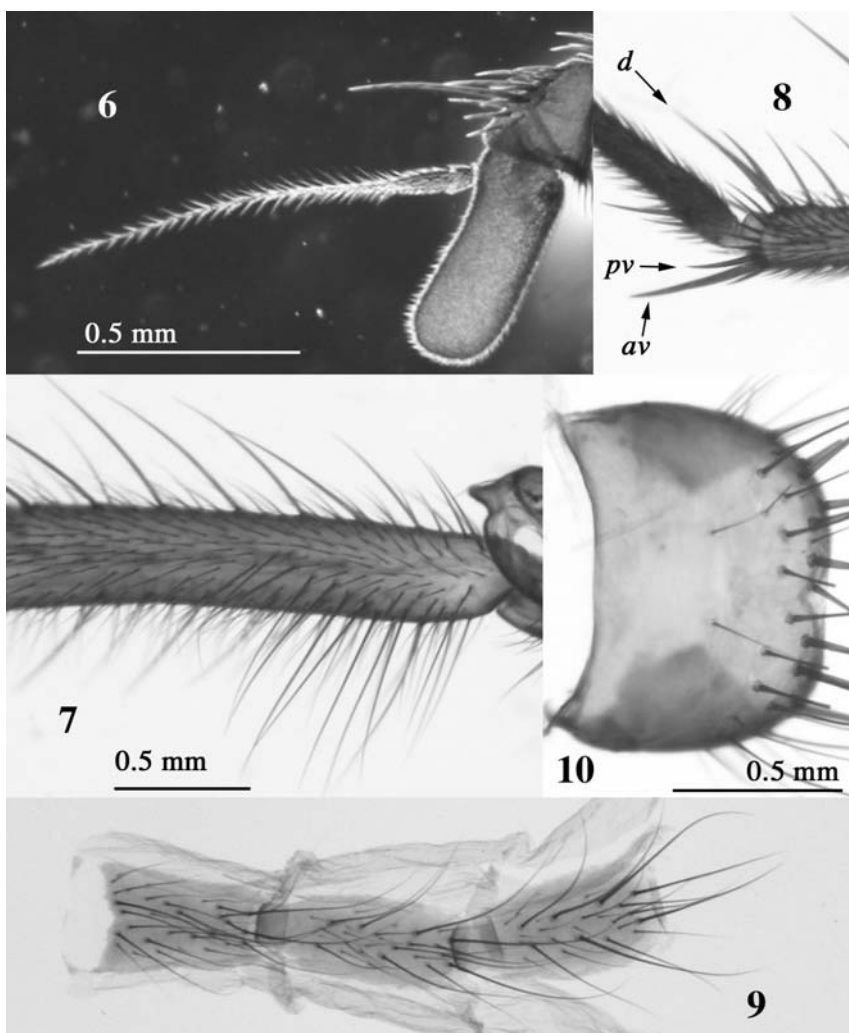
Supplementary notes are added to the original description of *C. sikisima* as follows. Information on the ovipositor is given for the first time.



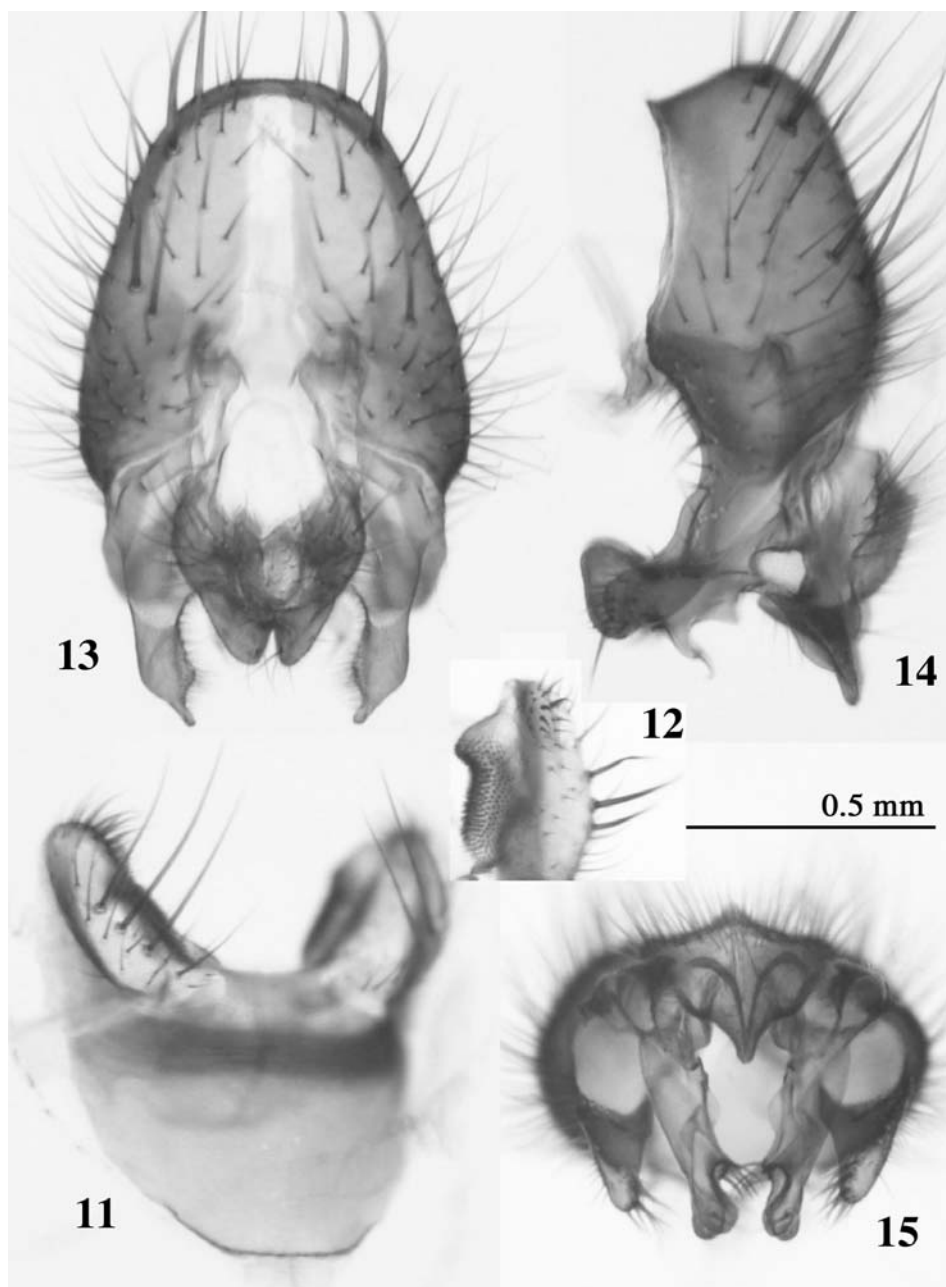
Figs 1–5. *Chirosia sikisima*, ♂ (1–3, 5) and ♀ (4). 1, general features; 2, head, lateral view; 3–4, ditto, dorsal view; 5, abdomen, dorsocaudal view. Magnification same for Figs 2–5. Shirane-oike–Kusasuberi, Mt. Kita-dake (1–3, 5); Mt. Hodaka (4).

♂. Wing length 5.2–7.7 mm (7.6 mm in holotype). Body and appendages blackish in ground colour, densely covered with pale grey and more or less bluish pollen, sometimes faintly tinged with brown in pollinosity. Haustellar mentum pollinose. Abdomen with median vitta (Fig. 5) rather broad on 2nd to 4th tergites and narrow on 5th; fore-marginal bands sometimes narrowly discernible on 3rd and 4th tergites. Legs narrowly yellowish at knees (apices of femora and bases of tibiae). Wings tinged with yellow, strongly at bases; calypteres yellow; halteres yellow at knobs.

Frons (Fig. 3) 1.3–1.8 times as wide as distance between posterior ocelli inclusive;



Figs 6–10. *Chirosia sikisima*, ♂. 6, right antenna; 7, left hind femur, basal half, posterodorsal view; 8, left hind tibia, distal part, posterior view, *av*: apical anteroventral seta, *d*: apical dorsal seta, *pv*: apical posteroventral seta; 9, 2nd (leftmost) to 4th sternites; 10, 6th tergite (left) and pregenital sclerite. Magnification same for Figs 7–9. Shirane-oike–Kusasuberi, Mt. Kita-dake (6–8); Mt. Shirouma-dake (9); Mt. Hodaka (10).



Figs 11–15. *Chiroisia sikisima*, ♂. 11, 5th sternite, ventrolateral view; 12, ditto, right process, inner lateral view; 13, hypopygium, dorsal view; 14, ditto, lateral view; 15, ditto, caudal view. Shirane-oike–Kusasuberi, Mt. Kita-dake.

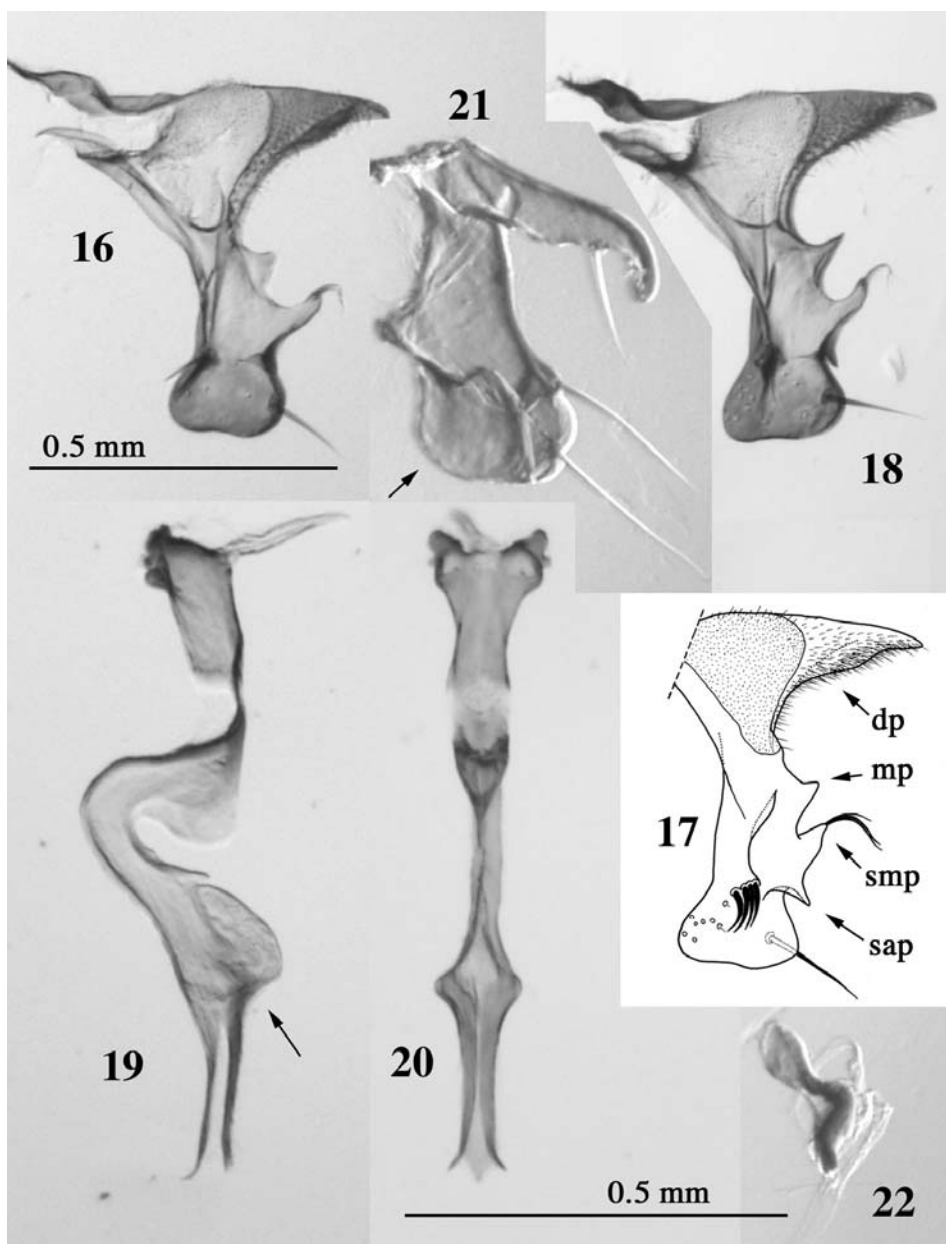
interfrontalia 1.2–2.2 times as wide as anterior ocellus, with a pair of strong *if*, usually with a few or some fine or minute setulae around *if*; parafrontals with 2–3 strong and 1–2 weak or fine *ori* and some fine or minute setulae outside the row of *ori*, and with no *ors*; A_3 1.8–2.1 times as long as wide; arista (Fig. 6) with longest hairs distinctly longer than basal diameter of arista; orbits at parafrontal angle 1.3–1.8 times as wide as A_3 ; genae 1.3–1.9 times as high as A_3 -width, with genal setae in 1 row; epistoma situated much behind tip of parafrontal angle; proboscis not enlarged; occiput setulose on postocular plains.

Mesonotum with 3–5 irregular pairs of *pre-acr* in closely approximated rows; *pra* longer than anterior *ntpl*; *prpl* 2 or rarely 3 in number; *stpl* 2:2, lower anterior weaker than the upper; scutellum not setulose on dorsal center, sparsely haired or entirely bare on ventral surface.

Mid femur with 1–5 (usually 2–4) short and strong *av* on apical half, the longest being a little shorter to a little longer than height of the femur, and 4–6 long *pv* on basal two-thirds, ground setulae around the *pv* being more or less lengthened; f_3 with a row of *av* except near base, a row of *pv* interrupted around apical third, and a crowd of long and rather strong setae from base posteroventrally to basal third or middle posterodorsally (Fig. 7); t_1 with 1–2 *ad* (distal one stronger), 2 or sometimes 3 (rarely 4) strong *p/pv*, and sometimes 1 or a few fine *pv*, and with apical *pv* well developed, posteroventral ground setulae being barely to a little lengthened; t_2 with 1 or sometimes 2 *ad* (distal one stronger), 1 *pd* and 2–6 *p/pv*; t_3 with a row of slender *av*, usually a row of fine *a*, 3–7 *ad*, 6–10 *pd* (including a few preapicals), occasionally some fine *p* and usually a few or some fine *pv*, ground setulae on anteroventral to posteroventral surface being a little lengthened, and with apical *pv* (Fig. 8) rather distinct and usually longer than the tibial diameter. Wings with costa haired ventrally; costal thorns rather distinct, about as long as *h* crossvein.

Abdomen with 6th tergite entirely fused with pregenital sclerite (Fig. 10), or sometimes unfused dorsomedially, often with 1 or a few fine setulae along original hind margin of the tergite; 5th sternite on underside of processes fleshy and granulated along inner margins (Fig. 12); hypopygium as in Figs 13–15; epandrium with posterolateral corners much prolonged and bearing some stiff setae apically; cercal plate expanded upward on apical region laterally; surstylus complicated in structure, emarginated near apex inside, with prominent dorsobasal protrusion, angulate median process (variable in sharpness), finger-like submedian process and pointed subapical process as shown in Fig. 17; densely haired on dorsobasal protrusion along its posterior margin inside, and armed with a long seta near dorsoapical corner outside and 2–3 or sometimes 4 setae on submedian process apically, and near ventral margin inside with 4–5 stout setae just before subapical emargination; distiphallus (Figs 19–20) strongly bent subbasally, much expanded dorsally before and beyond the bend, and prolonged distally to a pair of divergent narrow apices, with distal expansion distinctly emarginated before distal prolongation (arrow in Fig. 19), and with acrophallus firmly fused basally with distiphallus; pregonite dilated distally (arrow in Fig. 21), with 2 long setae; postgonite with a distinct seta near apical third ventrally.

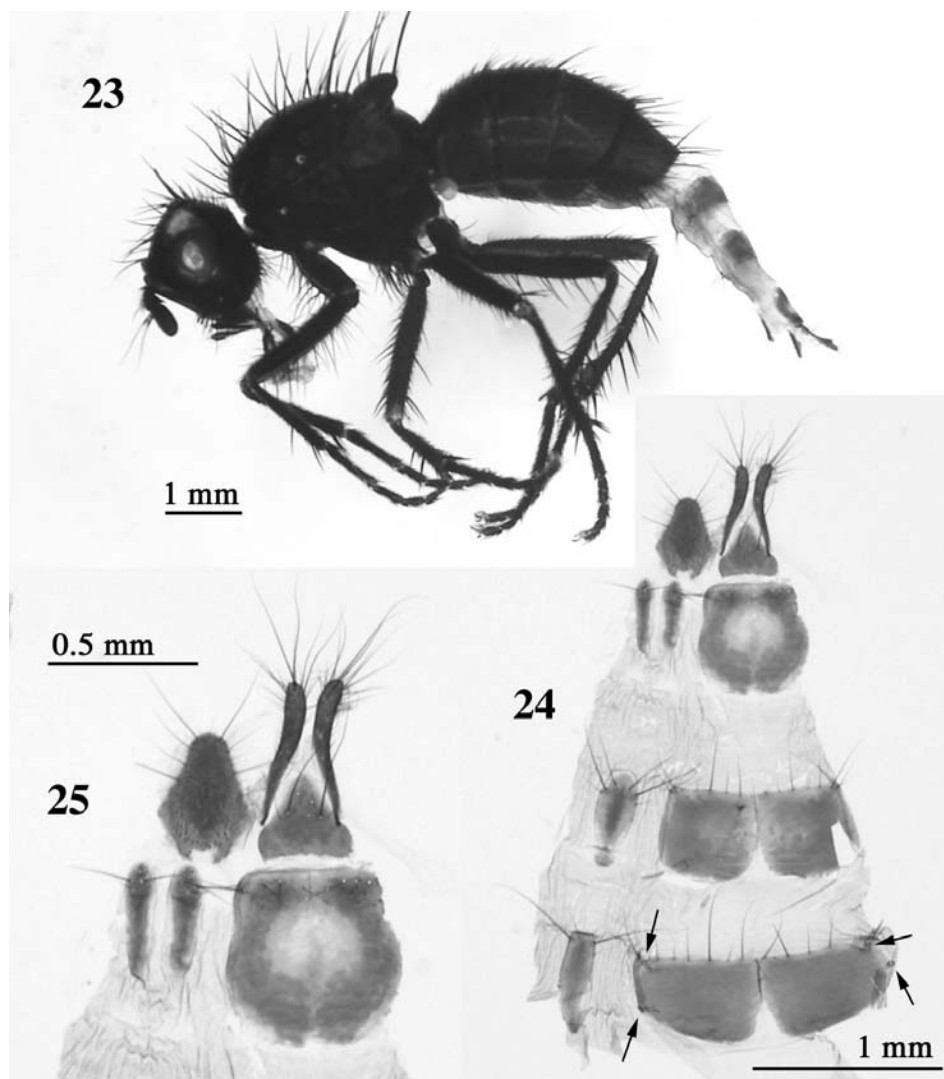
♀. Wing length 5.6–7.7 mm. Frons (Fig. 4) as wide as or slightly wider than one-third head width; interfrontalia about half as wide as frons, with *if* strong as in male; parafrontals with 3 *ors*, occasionally 1 additional *ors* discernible on one or both parafrontals (procline in 4 specimens, reclinate in 1 specimen).



Figs 16–22. *Chiroisia sikisima*, ♂. 16, right surstylus, inner lateral view; 17, ditto, inner lateral and a little ventral view, dp: dorsobasal protrusion, mp: median process, smp: submedian process, sap: subapical process; 18, ditto, inner lateral view; 19, aedeagus, lateral view, arrow indicating emargination on distal expansion; 20, ditto, dorsal view; 21, left pregonite and postgonite, arrow indicating dilation of distal area; 22, ejaculatory apodeme. Magnification same for Figs 16–18, and for Figs 19–22. Shirane-oike–Kusasuberi, Mt. Kita-dake (16–17); Mt. Hodaka (18, holotype; 19–20; 21–22).

Legs with ground setulae less developed than in male; f_2 with 1–3, rarely 4, *av* on apical half, longest one as long as or a little longer than height of the femur, and 3–6 (usually 4–5) *pv*; f_3 without a crowd of setae; t_1 with 2 *ad* (a small additional discernible in 1 specimen), 2 or sometimes 3 *p/pv* and no fine *pv*; t_2 with 2 (rarely 1 or 3) *ad*, 1 *pd* and 2–4 *p/pv*; t_3 with 5–8 short and distinct to strong *av*, 4–6 *ad*, 5–10 *pd* and no *pv*.

Abdomen with ovipositor as in Figs 23–25; 6th and 7th tergites deeply notched anteromedially, but not completely divided into lateral plates; 6th spiracle on lateral edge of 6th tergite; 7th spiracle at posterolateral corner of 6th tergite; 6th sternite oblong, about three times as long as wide, with some setae and setulae posteriorly; 7th sternite much weakened around anterior fourth or third, not completely divided, with some setae



Figs 23–25. *Chirosia sikisima*, ♀. 23, general features; 24, ovipositor, arrows indicating spiracles; 25, 8th segment and proctiger. Wasabidaira–Kagamidaira.

and setulae posteriorly; 8th tergite broadly weakened centrally in sclerotization, the window completely or incompletely divided into lateral areas by a weakly sclerotized median partition; 8th sternite represented by a pair of elongate sclerites, with some setae and setulae posteriorly; epiproct with a pair of long setae and some short setae and setulae; hypoproct with some pairs of rather long setae on posterior half laterally and rather densely setulose; cerci elongated, as long as or a little longer than hypoproct, and rather densely setose on apical third, apical seta about as long as cercus; 3 spermathecae of equal size.

Remarks. In having a small proboscis and subapically emarginated surstyli this species belongs to the *Chirosia megacephala* section in the sense of Griffiths (2004) though unique in the structures of surstyli and distiphallus of the male terminalia among the known members of the section other than the following new species.

Chirosia major sp. nov.
(Figs 26–47)

“*Chirosia sikisima* (Suwa, 1974)”: Suwa, 1999: 216, *partim*.

Type material. Honshu. Ishikawa-ken: Kanazawa, 23♂ (one the holotype), 6♀, 27.iv.1969 (H. Kurahashi); Yuwaku, Kanazawa, 1♀, 7.vi.1964 (H. Kurahashi); Sunodani, 6♂, 4♀, 23.v.1966 (H. Kurahashi), 2♀, 8.vi.1966 (H. Kurahashi), 2♂, 2♀, 12.v.1973 (H. Kurahashi); Mt. Iozen, 1♀, 21.v.1967 (H. Kurahashi), 1♀, 7.v.1969 (H. Kurahashi); Mt. Sunagozen, 1♀, 7.vi.1970 (no name); Mt. Hakusan, 1♀, 25.v.1969 (H. Kurahashi), 2♀, 20.vii.1969 (H. Kurahashi), 1♂, 2♀, 13.vi.1971 (H. Kurahashi), 1♂, 3♀, 10.vii.1971 (H. Kurahashi), 1♂, 11.vii.1971 (H. Kurahashi); Fukase, Hakusan, 2♀, 7.v.1972 (I. Togashi); Sannomiya, Hakusan, 1♀, 5.v.1970 (no name); Imajuku-dani, Hakusan, 1♀, 22.vi.1966 (no name); Ôkuchi-mura, [Nomi], 1♂, 1♀, 7.v.1972 (I. Togashi). Gifu-ken: Shinhodaka-onsen–Wasabidaira, alt. 1100–1500 m, near Mt. Kasagatake, 2♀, 11.vii.1989 (M. Suwa). Nagano-ken: Shimashima-dani, 1♂, 1♀, 27.viii.1969 (H. Kurahashi); Yunomaru-keikoku, alt. 1300–1400 m, 1♀, 22.vi.1989 (M. Suwa). Niigata-ken: Renge-onsen–Tengunoniwa, alt. 1500–2000 m, Mt. Shirouma-dake, 3♀, 19.vii.1989 (M. Suwa). Gumma-ken: Kazawa, alt. 1250–1400 m, Tsumagoi-mura, 1♀, 21–22.vi.1989 (M. Suwa). Saitama-ken: Jômine-jinja, Yoshida, 1♂, 12.v.1974 (K. Hara). Tokyo-to: Mt. Mitake, 1♀, 26.v.1967 (M. Suwa). Hokkaido. Jozankei, Sapporo, alt. 350–400 m, 2♂, 1♀, alt. 400–450 m, 1♂, 31.v.2012 (M. Suwa). The holotype is deposited in the Hokkaido University Museum.

♂. Wing length 7.3–9.1 mm (9 mm in holotype). Body including appendages blackish in ground colour (partly or broadly brownish on interfrontalia and orbits in rather teneral specimens) and densely covered with pale grey and slightly bluish pollen, sometimes faintly tinged with brown in pollinosity. Haustellar mentum pollinose. Abdomen with median vitta (Fig. 29) rather broad on 2nd to 4th tergites and narrow on 5th; fore-marginal bands indiscernible. Legs narrowly yellowish at knees (apices of femora and bases of tibiae). Wings tinged with yellow, strongly at bases; calypteres yellow or whitish yellow; halteres yellow at knobs.

Head (Fig. 27) about 1.2 times as high as long; frons (Fig. 28) 1.4–2.0 times as wide as distance between posterior ocelli inclusive; interfrontalia 1.5–2.3 times as wide as anterior ocellus, with a pair of strong *if*, and usually with 1 or a few fine or minute (rarely strong) setulae around *if*; parafrontals with 3–4 strong and 0–2 weak or fine *ori*, and some minute setulae around *ori*, usually with no *ors*, but in a few specimens a proclinate seta



Figs 26–29. *Chirosia major*, ♂. 26, general features; 27, head, lateral view; 28, ditto, dorsal view; 29, abdomen, dorsocaudal view. Magnification same for Figs 27–29. Kanazawa (26–28); Mt. Hakusan (29).

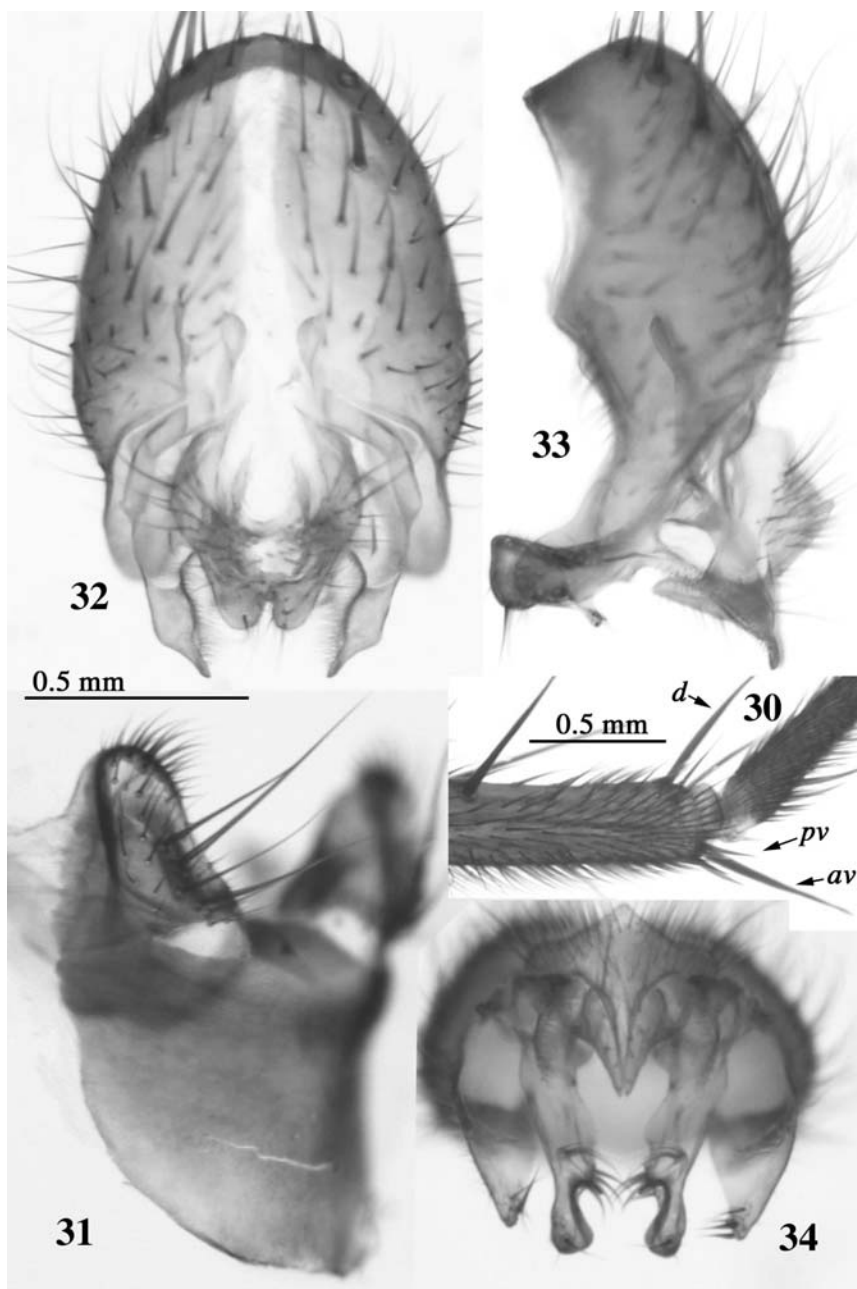
being discernible near the level of *if*; the seta referable to revived *ors*; A_3 1.9–2.4 times as long as wide; arista with longest hairs distinctly longer than basal diameter of arista; orbits at parafrontal angle 1.5–2.4 times as wide as A_3 ; genae 1.5–2.3 times as high as A_3 -width, with genal setae in 1 row; epistoma situated much behind tip of parafrontal angle; proboscis not enlarged; occiput setulose on postocular plains.

Mesonotum with 3–7 (usually 4–6) irregular pairs of *pre-acr* in closely approximated rows; anterior *ph* associated with 1 rather distinct seta anteriorly; posterior *ph* not recognizable, only 1 or 2 weakly differentiated setulae discernible before *prst*; *pra* longer than anterior *ntpl*; *prpl* 2 or rarely 3 in number; mesopleuron with 1–2 or sometimes more (up to 7) distinct to strong anterior *mpl*; 1 strong and 1–2 weaker *pstg*, associated with a few or some (up to 9) fine setulae; *stpl* 2:2, lower anterior weaker than the upper; scutellum not setulose on dorsal center, sparsely haired or entirely bare on ventral surface.

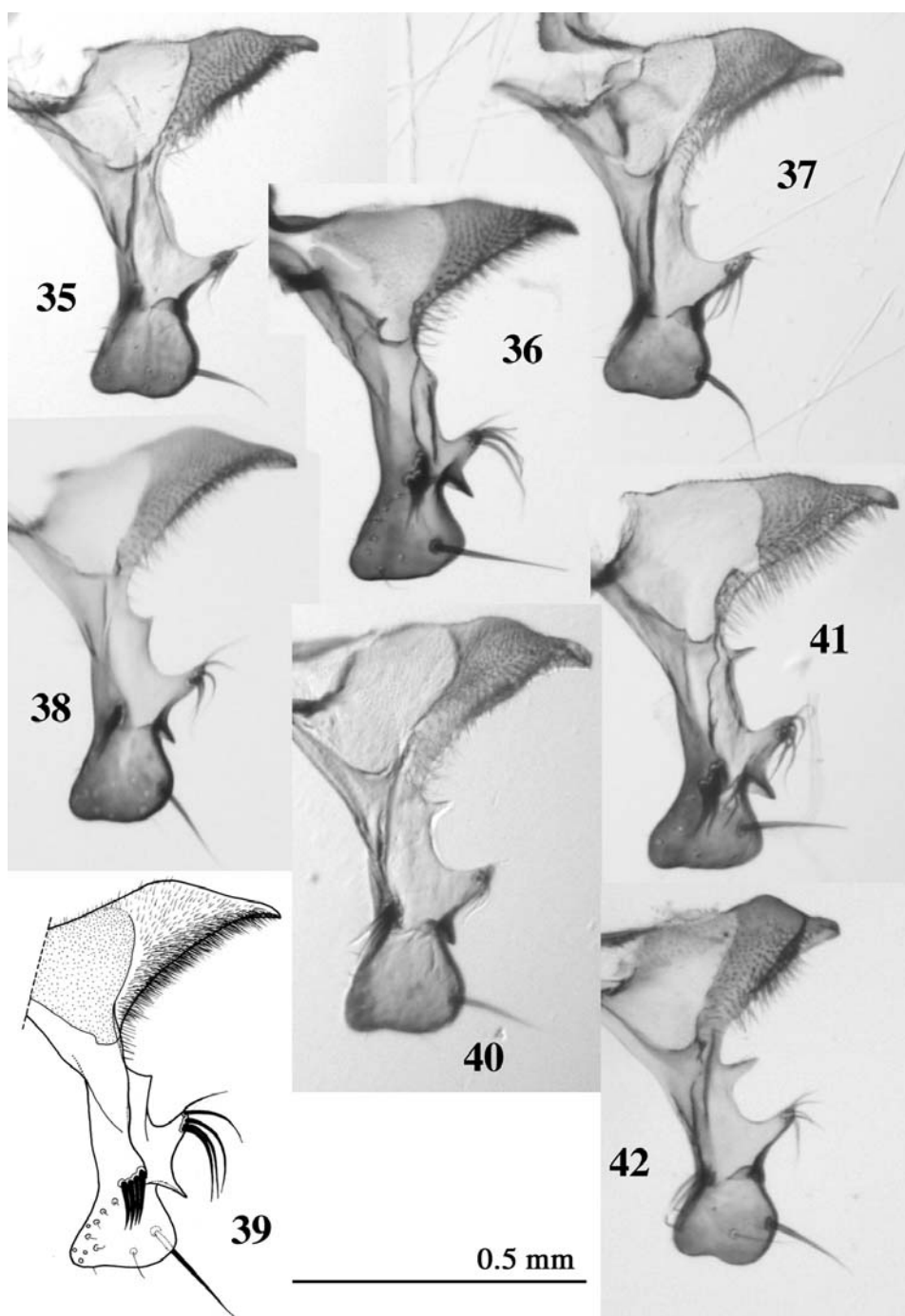
Mid femur with 2–6 (usually 3–5) short and strong *av* on apical half, the longest being distinctly shorter than, rarely as long as, height of the femur, and 4–6 long *pv* on basal two-thirds, ground setulae around the *pv* being more or less lengthened; f_3 with a row of *av* except near base, a row of *pv* interrupted around apical third, and a crowd of long and rather strong setae from base posteroventrally to basal third posterodorsally; t_1 with 1–3 *ad* (usually 2, distal one stronger), 2–3 or sometimes 4 strong *p/pv*, and sometimes 1 or a few fine *pv*, and with apical *pv* well developed, posteroventral ground setulae a little to rather distinctly lengthened; t_2 with 1–2 *ad* (distal one stronger), 1 or sometimes 2 *pd* and 3–6 *p/pv*, ground setulae on posteroventral surface being more or less lengthened; t_3 with a row of slender *av*, a row of fine *a*, 3–7 *ad*, 4–7 *pd*, a row of fine *p* and a row of fine *pv*, ground setulae on anteroventral to posteroventral surface being lengthened, and with apical *pv* (Fig. 30) small and shorter than the tibial diameter. Wings with costa haired ventrally; costal thorns small to rather distinct, distinctly shorter than to about as long as *h* crossvein; *dm-cu* upright and nearly straight or slightly concave inward.

Abdomen conical, 2.1–2.5 times as long as wide; 6th tergite unsetulose, entirely fused with pregenital sclerite, or sometimes unfused dorsomedially; processes of 5th sternite (Fig. 31) much shorter than basal plate, with a few or some inclinate setae on about basal half, and with underside fleshy lobe rather hardened and granulated along inner margin; hypopygium as in Figs 32–34; epandrium with posterolateral corners much prolonged and bearing some stiff setae apically; cercal plate expanded upward on apical region laterally; surstylus (Figs 35–42) emarginated near apex on inner surface and prominently protruded dorsobasally, with angulate median process (variable in development, often suppressed), finger-like submedian process and pointed subapical process; densely haired on dorsobasal protrusion along its posterior margin inside, and armed with a long seta near dorsoapical corner outside and 5–6 (rarely 4 or 7) setae on submedian process apically, and near ventral margin inside with 4–5 stout setae just before subapical emargination; distiphallus (Fig. 43) strongly bent subbasally, much expanded dorsally beyond the bend, and prolonged distally to a pair of divergent narrow apices, with distal expansion not emarginated before distal prolongation, and with acrophallus firmly fused basally with distiphallus; pregonite attenuated near distal seta (arrow in Fig. 44); postgonite with a distinct seta near apical third ventrally.

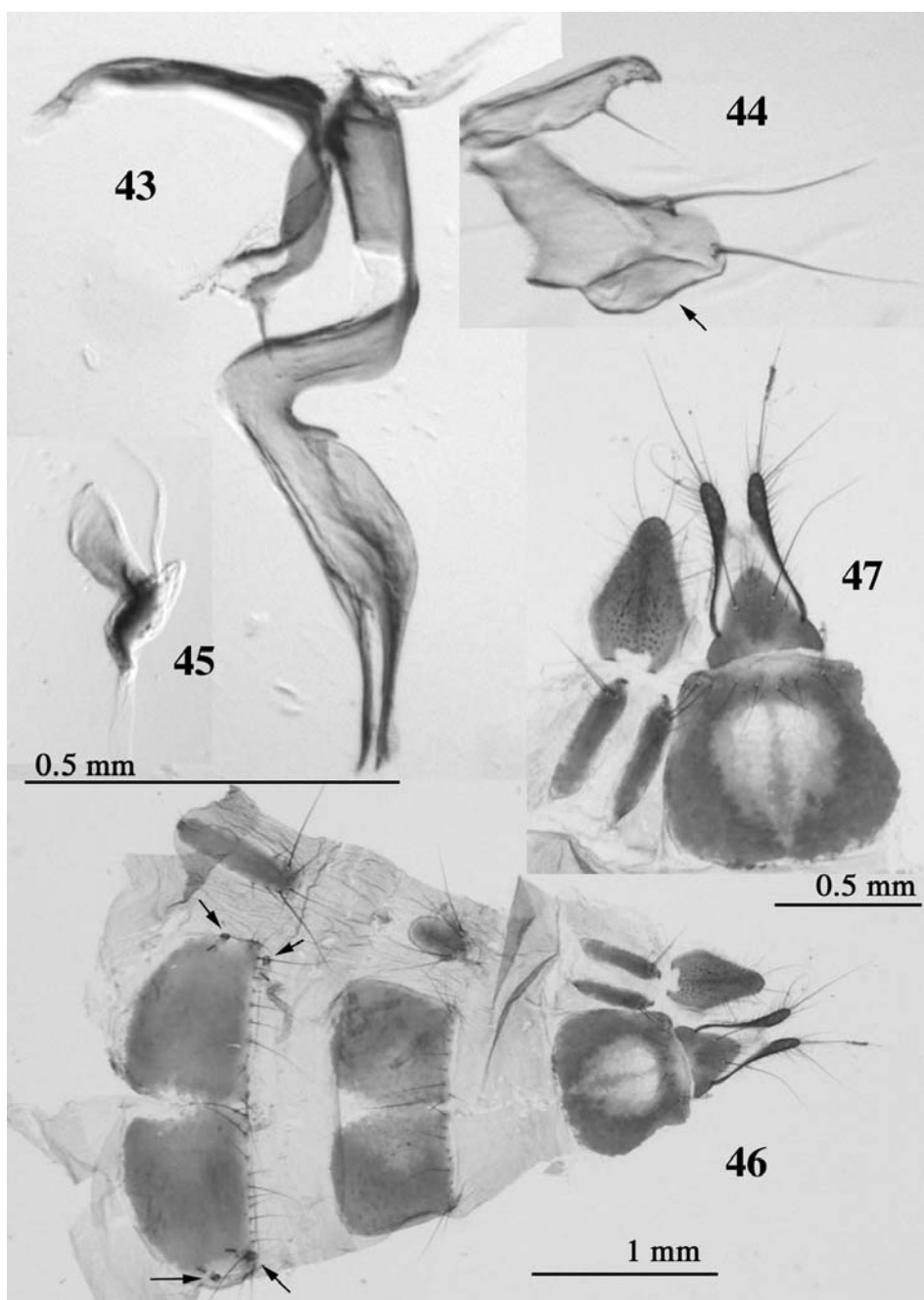
♀. Wing length 7.9–9.1 mm. Frons as wide as or slightly wider than one-third head width; interfrontalia about half as wide as frons, with *if* sometimes weakened;



Figs 30–34. *Chirosia major*, ♂. 30, right hind tibia, distal part, posterior view, *av*: apical anteroventral seta, *d*: apical dorsal seta, *pv*: apical posteroventral seta; 31, 5th sternite, ventrolateral view; 32, hypopygium, dorsal view; 33, ditto, lateral view; 34, ditto, caudal view. Magnification same for Figs 31–34. Jozankei (30); Kanazawa (31); Shimashima-dani (32–34).



Figs 35–42. *Chirosia major*, ♂, right surstylus, inner lateral view. 35, Kanazawa, holotype; 36, Kanazawa; 37, Sunodani; 38–39, Jozankei, same material; 40, Ôkuchi-mura; 41, Kanazawa; 42, Sunodani.



Figs 43–47. *Chirosia major*, ♂ (43–45) and ♀ (46–47). 43, aedeagus, lateral view; 44, left pregonite and postgonite, arrow indicating attenuation of distal area; 45, ejaculatory apodeme; 46, ovipositor, arrows indicating spiracles; 47, 8th segment and proctiger. Magnification same for Figs 43–45. Kanazawa (43, 45; 46–47); Sunodani (44).

parafrontals with 3 *ors*, occasionally 2 (on left parafrontalia in 2 specimens) or 4 (on left parafrontalia in 1 specimen) *ors*.

Legs with ground setulae less developed than in male; f_2 with 2–6 (usually 3–5) *av* on apical half, longest one as long as or sometimes a little longer than height of the femur, and 3–5 or rarely 6 *pv*; f_3 without a crowd of setae; t_1 with 2 and often 1 additional *ad*, 2–3, rarely 4, *p/pv* and no fine *pv*; t_2 with 2 or sometimes 3 *ad*, 1 or sometimes 2 *pd* and 2–5 (usually 3–4) *p/pv*; t_3 with 5–9 short and distinct to strong *av*, 3–7 *ad*, 4–7 *pd* and no *pv*.

Abdomen with ovipositor as in Figs 46–47; 6th and 7th tergites deeply notched anteromedially, but not completely divided into lateral plates; 6th spiracle on lateral edge of 6th tergite, or in membrane just near the edge; 7th spiracle at posterolateral corner of 6th tergite; 6th sternite oblong, 3–4 times as long as wide, with some setae and setulae posteriorly; 7th sternite much weakened around anterior fourth or third, usually completely divided into small anterior fragment and larger posterior plate, with some setae and setulae on the plate posteriorly; 8th tergite broadly weakened centrally in sclerotization, the window completely or incompletely divided into lateral areas by a weakly sclerotized median partition; 8th sternite represented by a pair of elongate sclerites, with some setae and setulae posteriorly; epiproct with a pair of long setae and some short setae and setulae; hypoproct with some pairs of rather long setae on posterior half laterally and rather densely setulose; cerci elongated, as long as or a little longer than hypoproct, and rather densely setose on apical third, apical seta as long as or slightly longer than cercus; 3 spermathecae of equal size.

Remarks. This species is very closely related to *C. sikisima* in having many similar aspects including genital structures. *C. major* is, however, larger in average size and has the apical *pv* of hind tibia shorter than the tibial diameter. In the details of the male terminalia it is clearly different from *C. sikisima* as follows: Surstylus with median process more variable in development and often almost suppressed, and with submedian finger-like process bearing more numerous setae; pregonite attenuated near distal seta; distiphallus barely expanded before subbasal bend, and without emargination on distal expansion. In the females no reliable differences have been found between the two forms except in the average size of the body and in the degree of development of apical *pv* on the hind tibiae. So further investigation is needed for precise identification of females.

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