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**TWO SPECIES OF CHIROSLA REARED FROM THE OSTRICH FERN,
MATTEUCCIA STRUTHIOPTERIS (L.) TODARO, IN JAPAN
(DIPTERA: ANTHOMYIIDAE)**

By MASAOKI SUWA

Abstract

SUWA, M., 2013. Two species of *Chirosia* reared from the Ostrich fern, *Matteuccia struthiopteris* (L.) Todaro, in Japan (Diptera: Anthomyiidae). *Ins. matsum. n. s.* 69: 113–131, 69 figs.

Two anthomyiid species of the genus *Chirosia* were reared from puparia overwintered in stipe bases of fronds of the Ostrich fern, *Matteuccia struthiopteris*, in Hokkaido, Japan. One is *Chirosia rametoka* (Suwa, 1974) and the other is a species described here as *Chirosia kogomi* sp. nov. Both belong to the *Chirosia megacephala* section proposed by G.C.D. Griffiths in 2004. *C. rametoka* may be unique in having the head with wide frons and no differentiated orbital setae in both sexes and in having the female 8th sternite represented by a pair of small sclerites. *C. kogomi* may be closely related with *Chirosia sikisima* (Suwa, 1974) and its allied *Chirosia major* Suwa, 2013 in having the surstyli with a prominent dorsobasal extension and with some stout setae on subapical inner depression, and in having the distiphallus of aedeagus strongly convex dorsally near base of acrophallus.

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

INTRODUCTION

The genus *Chirosia* is, so far as known, associated with ferns, the larvae feeding in the fronds as borers, leaf rollers, leaf miners or gall formers. No other anthomyiids have fern-feeding larvae (Griffiths, 2004). In Japan some species have been recorded as fern feeders, e.g. *C. asperistilata* Suwa, 1974 as a leaf miner of *Dryopteris crassirhizoma*, *C. frontata* Suwa, 1983 as a stalk borer of *Pteridium aquilinum*, and *C. grossicauda* Strobl, 1899 as a leaf miner of *Pteridium aquilinum*.

The Ostrich fern, *Matteuccia struthiopteris* (L.) Todaro, occurs in temperate regions of the Northern Hemisphere in eastern and northern Europe, northern Asia and northern North America (Wikipedia, 2013). It is also widely found in Japan though uncommon in Kyushu and Shikoku. This fern has the standard Japanese name “kusa-sotetsu”, which means herbaceous (“kusa”) sago cycad (“sotetsu”), but it is well known by a local Japanese name, “kogomi”, which is derived from the stooped (“kogomu”) feature of its fiddlehead (Fig. 1). It is a popular pleasure for lovers of edible wild greens in northern Japan to gather fiddleheads of “kogomi” and get a taste of spring.

Recently I have examined some adult specimens of *Chirosia* reared from puparia (Figs 2–8) overwintered in stipe bases of fronds of the Ostrich fern, *M. struthiopteris*, in Hokkaido, Japan. Stipe bases of the fern grown in previous years are retained just like scales on rhizomes. The flies are probably stalk borers of the fern. I have recognized that the specimens are classified into two species, namely, *Chirosia rametoka* (Suwa, 1974) and a new species. They are dealt with in the following lines. Both of the species have a small proboscis and apically or subapically notched or emarginated surstyli, and belong



Fig. 1. Fiddlehead and rhizome of the Ostrich fern.

to the *Chirosia megacephala* section in the sense of Griffiths (2004).

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

DESCRIPTIONS

Chirosia kogomi sp. nov.

(Figs 2–5, 9–41)

Type material reared from *Matteuccia struthiopteris*. Hokkaido. Jozankei, Sapporo, alt. 350–400 m, 1♂ (holotype), 2♀, emerged 9.v.2012, from puparia obtained at 8.v.2012 (M. Suwa), 1♂, 2♀, emerged 14.v.2013, from puparia obtained at 13.v.2013 (M. Suwa); Bisei, Memuro, near Obihiro, 7♂, 6♀, emerged 15–25.iv.2012, from puparia obtained some days earlier (H. Torikura).

Other type material with no rearing information. Hokkaido. Jozankei, Sapporo, alt. 350–400 m, 4♀, 8.v.2012 (M. Suwa), 1♀, 31.v.2012 (M. Suwa), alt. 400–450 m, 2♂, 6.v.2011 (M. Suwa), 1♀, 31.v.2012 (M. Suwa); Asari-tôge, Sapporo, alt. 650 m, 1♀, 20.v.2012 (M. Suwa); Hakken-zan, Sapporo, 1♀, 3.v.1968 (M. Suzuki); Mt. Soranuma, Sapporo, alt. 500–900 m, 1♀, 23.v.1985 (M. Suwa); Sapporo, 2♀, 1.v.1968 (T. Kocha); Nopporo, 1♀, 14.v.1969 (M. Suwa), 1♀, 17.v.1970 (M. Suwa); Eniwa, 1♀, 25.v.1966 (M. Suwa). Honshu. Tochigi-ken: Nasushiobara, 2♀, Malaise Trap, 15.v–13.vi.2011 (T. Nakayama).

All of the material are preserved in the Hokkaido University Museum.

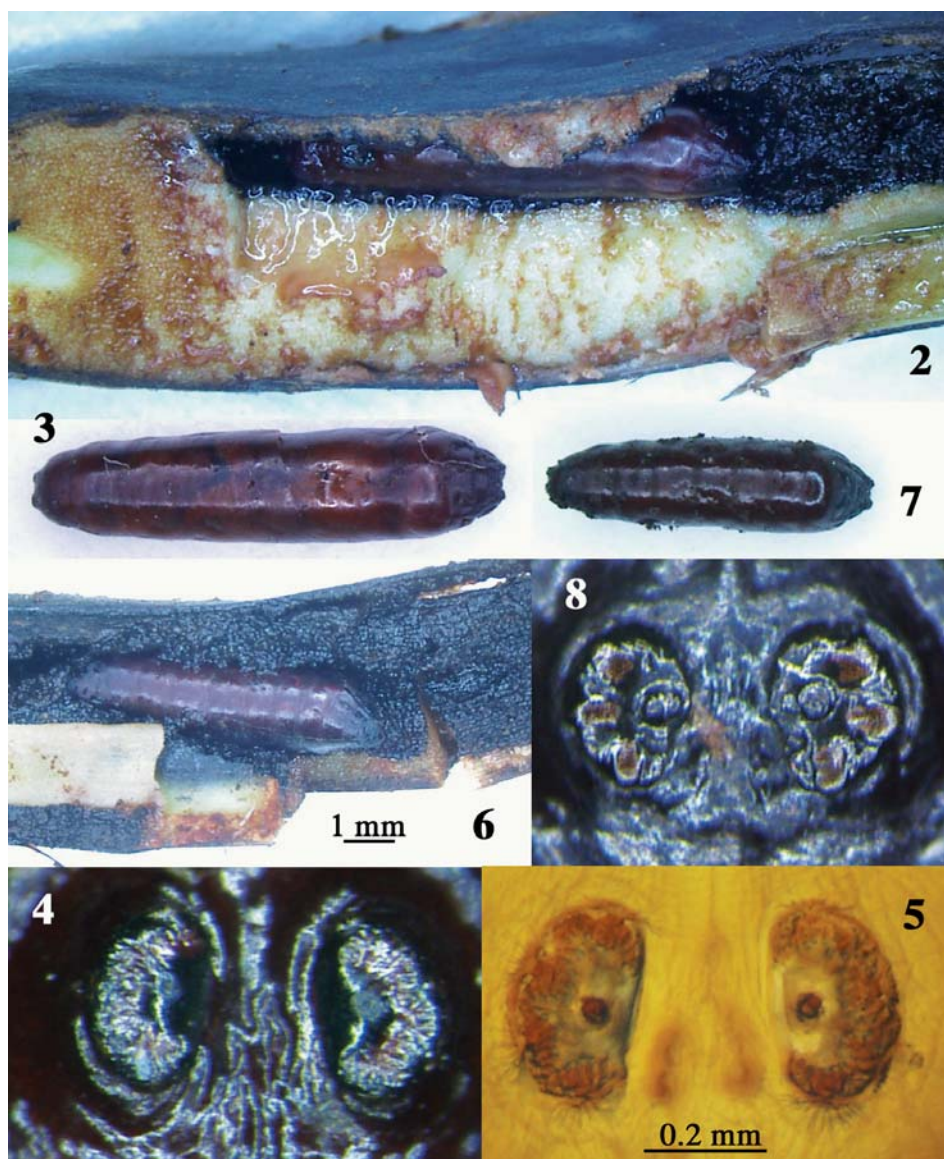
Distribution. Japan (Hokkaido; Honshu).

Host plant. *Matteuccia struthiopteris* (L.) Todaro. *C. kogomi* is probably a stalk borer of this fern. Puparia are usually found singly in a stipe base of frond grown in the preceding year. In two cases two puparia of *C. kogomi* were found in the same stipe, and in another case a puparium of this species was found together with that of *C. rametoka*. Pupariation takes place in the base of stipe to keep the cephalic area toward tip of frond.

♂. Rather hairy. Wing length 6.2–6.6 mm (6.6 mm in holotype). Body including appendages blackish in ground colour, densely covered with dull grey or pale brownish grey pollen, with or without a slight yellowish tinge in pollinosity. Head sometimes slightly brownish in ground colour on genae; haustellar mentum pollinose. Mesonotum in frontal angle of view with pollinosity well discernible, with dark markings: obscure presutural lateral spots, sooty median vitta and postsutural lateral patches, and in caudal angle of view with pollinosity less discernible, with dark markings: median vitta, presutural and postsutural lateral patches, and postsutural sublateral vittae. Abdomen (Fig. 15) polished along anterior margin of pregenital sclerite; median vitta rather broad, a little narrower to a little wider than height of f_3 at hind margin of 2nd tergite, narrowing caudally; fore-marginal bands rather broad on 2nd tergite, narrower on posterior tergites, almost indiscernible on 5th tergite in a few specimens; 5th sternite shining along inner margins of processes and on basal plate. Wings weakly to rather strongly tinged with brown; calypteres whitish and faintly yellow, with yellowish margins and fringes; halteres dark brownish basally and brownish yellow apically.

Head often more or less shrunken in dried specimens, about 1.2 times as high as long in specimens of better condition (Fig. 10); frons as wide as or a little narrower than distance between posterior ocelli inclusive (Figs 11–12); interfrontalia as wide as or narrower than anterior ocellus, without *if*; parafrontals with 8–11 (some strong and 1 or a few weak) *ori* and a few mingled fine or minute setulae, and with a well developed proclinate *ors* (absent on left parafrontalia in 1 specimen), some minute setulae being

discernible outside the row of *ori*; A_3 1.4–1.6 times as long as wide; arista very minutely pubescent; orbits broad, at parafrontal angle 1.7–2.0 times as wide as A_3 ; genae 2.0–2.7 times as high as A_3 -width, with genal setae developed, arranged in about 3 rows; facial ridges a little convergent ventrally; vibrissae separated from each other by a distance much shorter than that to nearest eye-margin; epistoma situated much behind tip of parafrontal angle; proboscis comparatively small; occiput setulose on postocular plains.



Figs 2–8. Puparium of *Chirosia kogomi* (2–5) and *Chirosia rametoka* (6–8). 2, 6, in stipe base, cephalic area (right side) kept toward tip of frond; 3, 7, dorsal view; 4, 8, posterior spiracles; 5, ditto, macerated in 10% KOH solution. Magnification same for Figs 2–3 and 6–7, and for Figs 4–5 and 8. Jozankei (2–3; 4; 6–7); Memuro (5; 8).

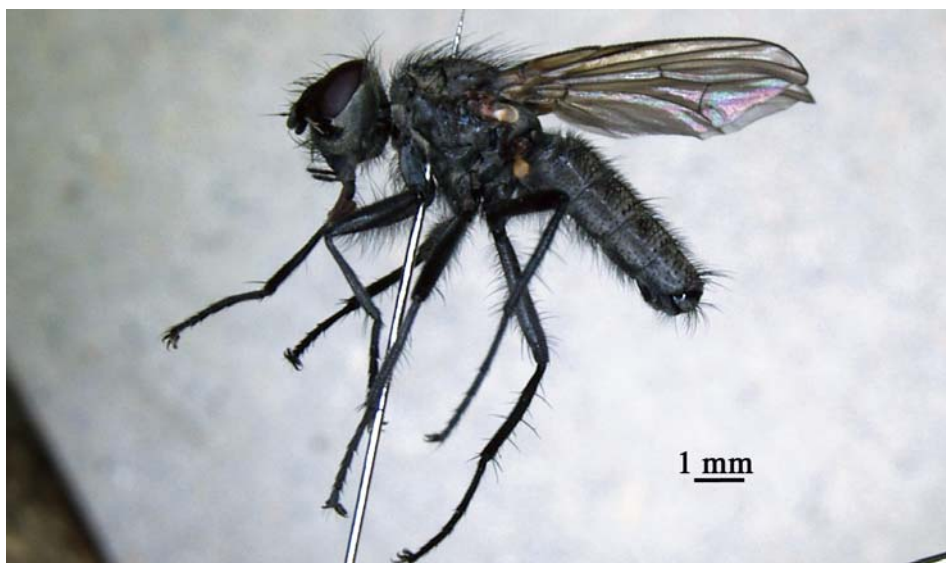
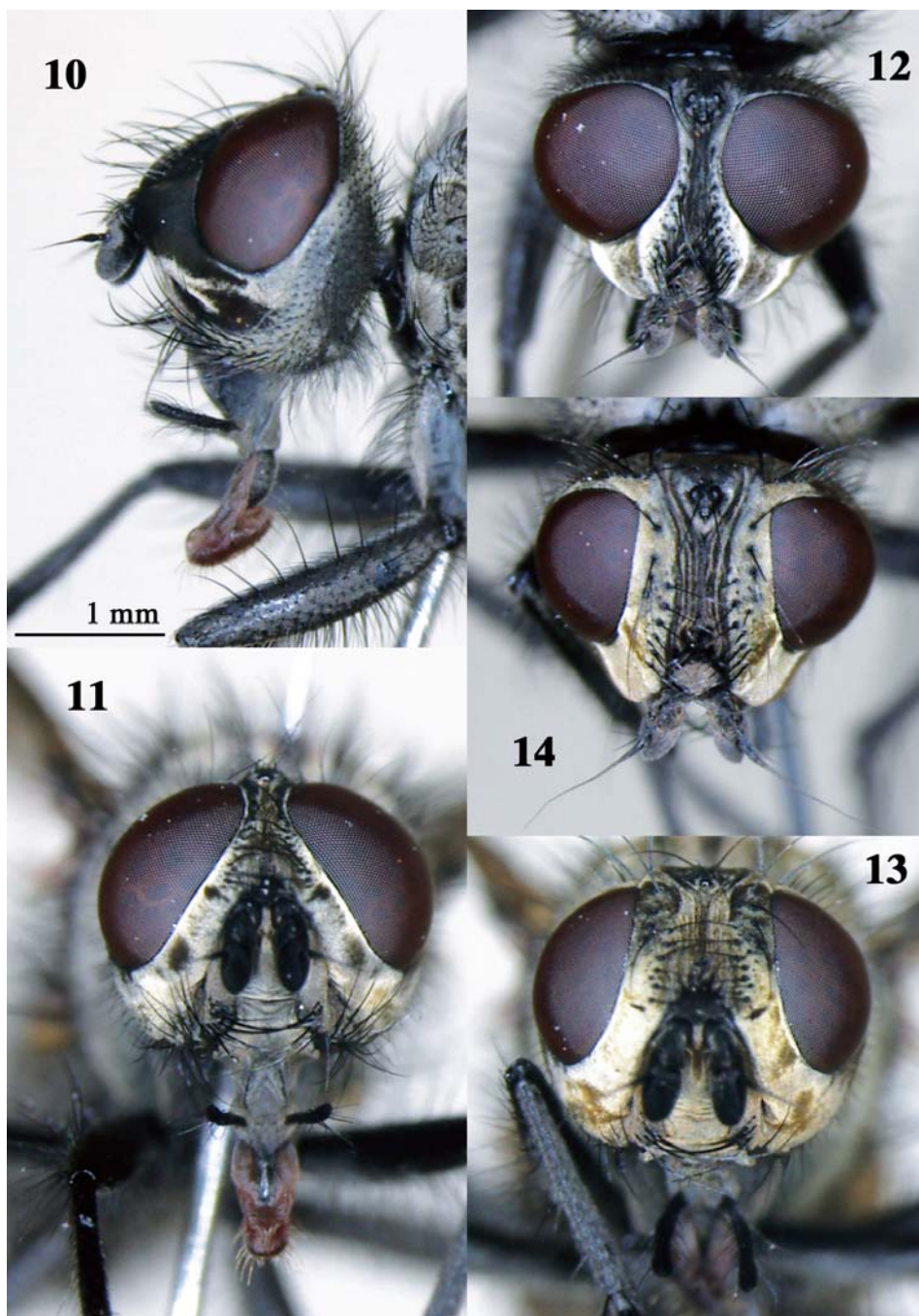


Fig. 9. *Chirosia kogomi*, ♂, general features. Abdomen not yet depressed as photographed in fresh condition. Jozankei (holotype).

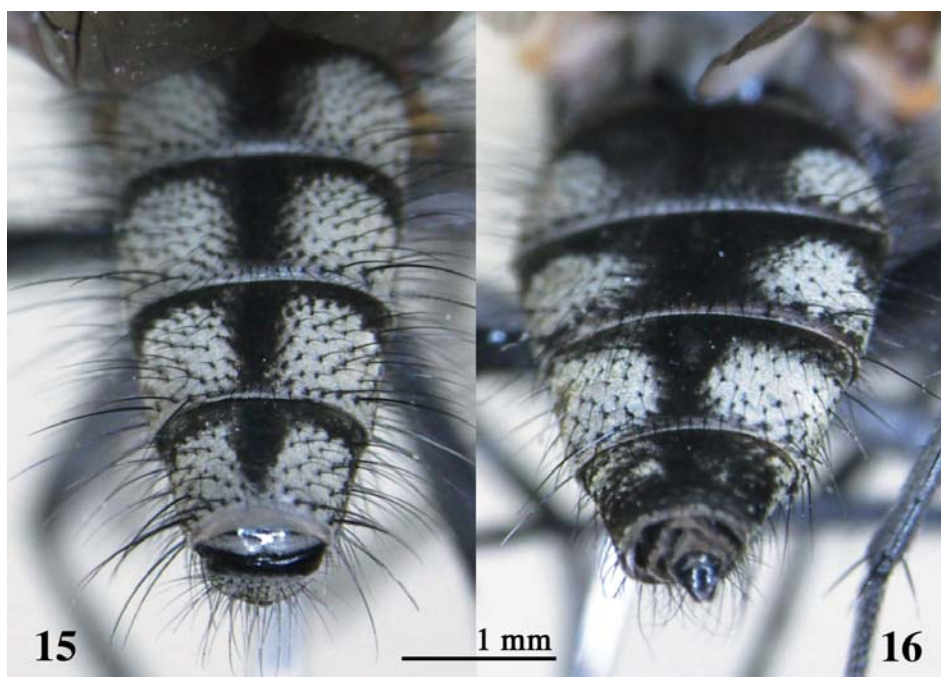
Mesonotum with ground setulae fine and lengthened, rather dense along rows of *dc* and on lateral declivities; 2–4 irregular pairs of rather strong *pre-acr* in closely approximated rows, with 0–4 fine setulae on each row, and with 0–2 fine setulae between the rows; 1 or 2 setulae around anterior *ph* more or less differentiated from adjacent setulae; posterior *ph* differentiated from adjacent setulae; *pra* a little longer than anterior *ntpl*; notopleuron with no accessory setulae; propleuron with 3 or occasionally 4 *prpl*; mesopleuron with a strong anterior *mpl*; 1 strong and 12–15 fine *pstg*; *stpl* 1:2, a weakly differentiated setula being discernible below the lower posterior in a few specimens; scutellum rather narrowly bare on dorsal center, and distinctly haired near apex ventrally.

Mid femur with ground setulae more or less lengthened on about basal half of anterior to posteroventral surface, with no distinct *av*, and with a row of *pv*, those on apical third being short and weak, those on basal fourth long and fine, and some around basal fourth to apical third well developed and much longer than height of the femur (Fig. 19); *f*₃ with 5–8 strong and a few or some weak *av* on apical two-thirds (Fig. 20), some weakly differentiated *pv* on apical third or half and 1 strong *pv* near apex (Fig. 21); *t*₁ with no *ad* and 1–3 slender *pv* longer than tibial diameter, and with apical *pv* weak though longer than adjacent setulae; *t*₂ with 1–3 fine *av* weakly or barely discernible, and with 3–5 (2–4 strong and 0–2 weak) *pd/p*, and 3–7 (1–3 rather strong and 0–5 weak) *pv*; *t*₃ with 4–7 *av*, 4–6 (3–4 strong and 1 or a few weak) *ad*, 5–8 (3–4 strong and a few or some weak) *pd*, and 4–6 *pv*, and with apical *pv* well developed (Fig. 22). Wings with costa on ventral surface setulose before subcostal break, and almost bare beyond the break; costal thorns small, as strong as or only a little stronger than costal spinules; *dm-cu* a little oblique and hardly sinuate.

Abdomen usually a little depressed in dried condition, slightly to rather distinctly longer than twice the width (2.1–2.4 times), and gradually narrowing caudally; marginal setae much weakened medially especially on 2nd to 4th tergites; 6th tergite



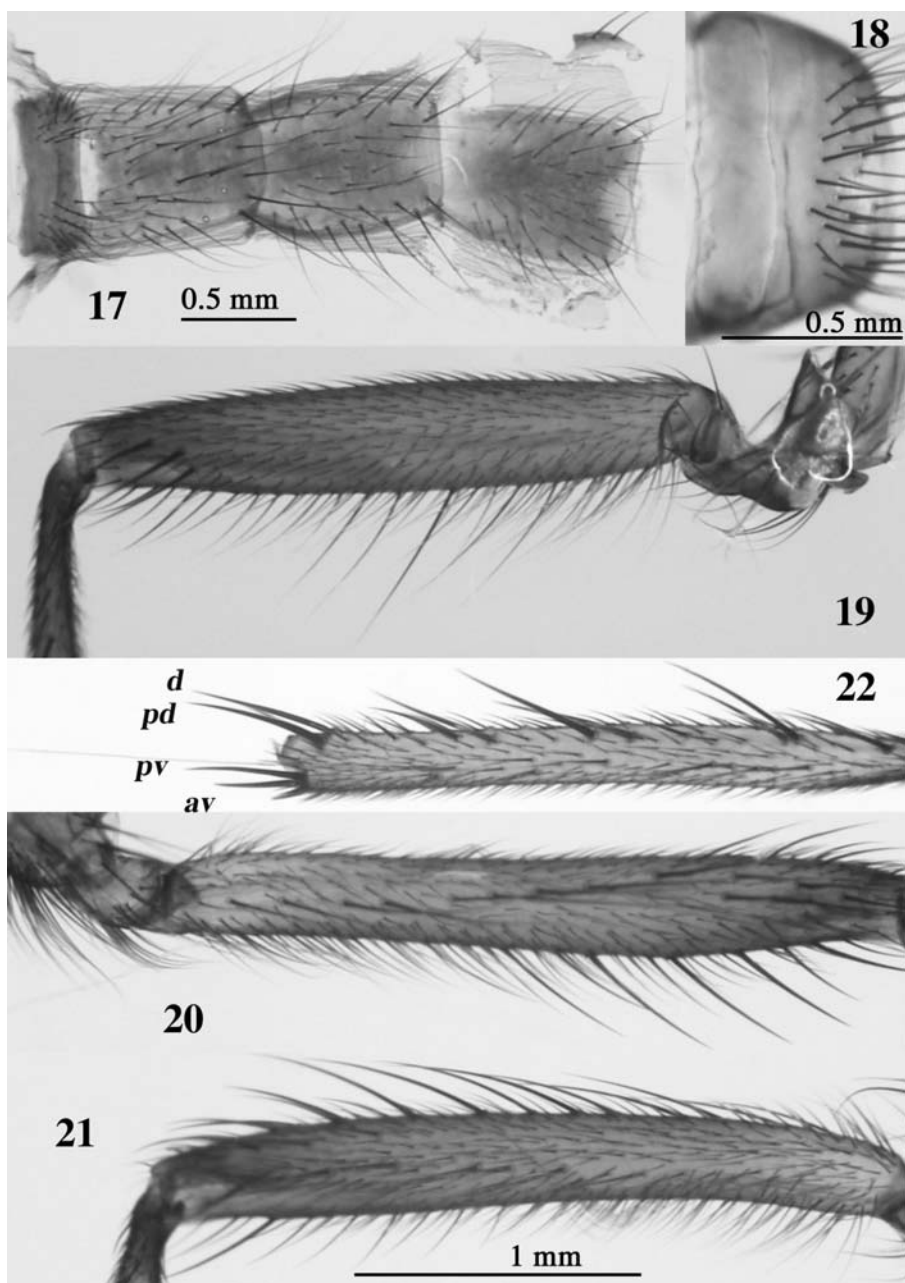
Figs 10–14. Head of *Chirosia kogomi*, ♂ (10–12) and ♀ (13–14). 10, lateral view; 11, 13, frontal view; 12, 14, dorsal view. Jozankei (10–12, holotype; 13–14).



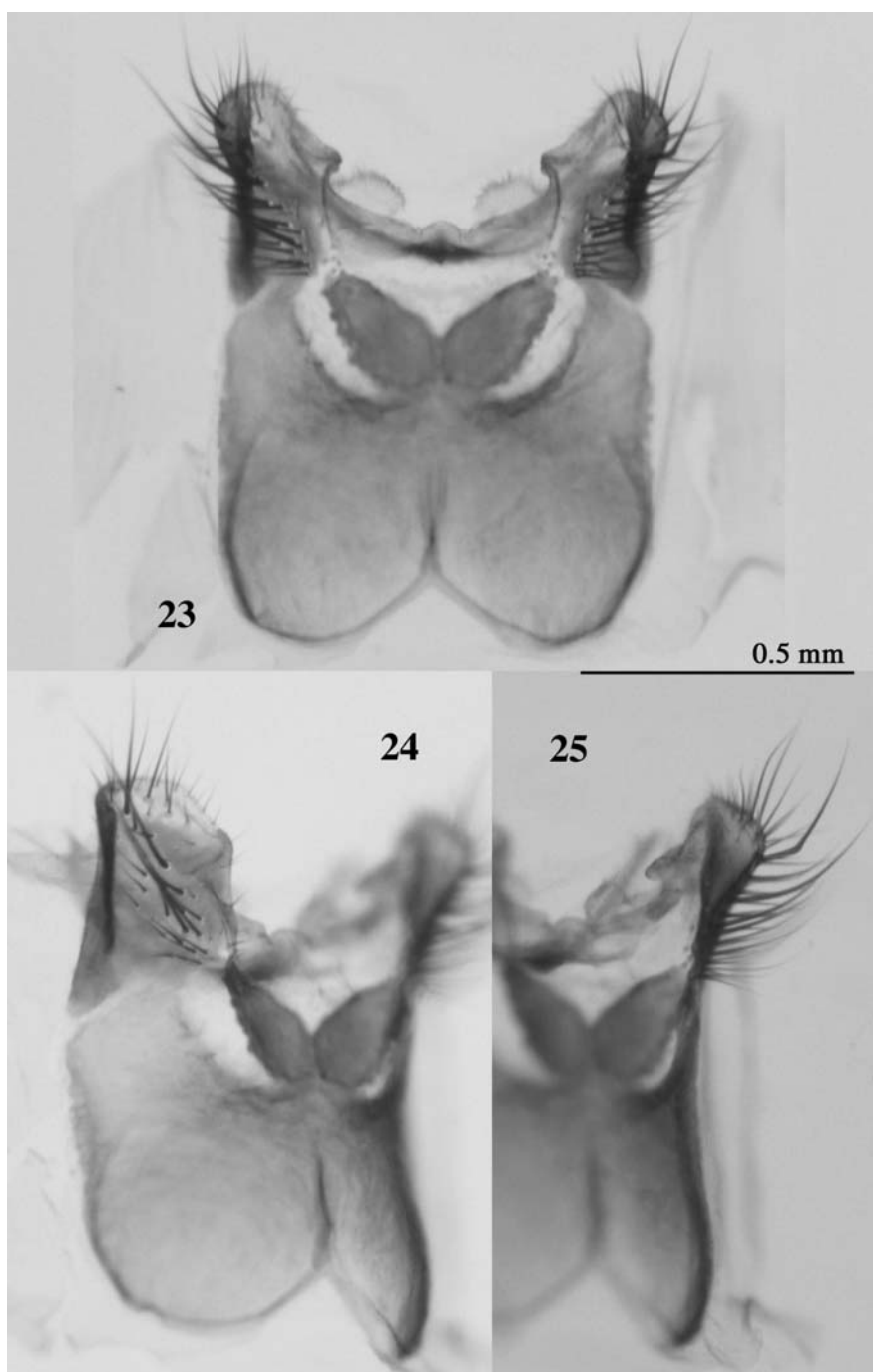
Figs 15–16. Abdomen of *Chirosia kogomi*, ♂ (15) and ♀ (16), dorsocaudal view. Jozankei (15, holotype; 16).

very narrowly separated from pregenital sclerite, with no setae or setulae (Fig. 18); 5th sternite (Fig. 23) with a posteromedian sclerite developed and connected with basal plate, membranous or very weakly chitinized around the sclerite; processes short, rather densely setose from base to apex medially (a seta near middle longest), and protruded on inner margins medially, tip of the protrusion being directed inward to form a papilla (Fig. 25); a pair of membranous and tomentose sacks discernible between 5th and 6th sternites (Fig. 23); genital pouch without median sclerite; hypopygium as in Figs 26–31; epandrium with posterolateral corners somewhat prolonged; cercal plate shield-shaped, wholly tomentose, and bearing fine setae peripherally and anterolaterally; surstylus much expanded dorsobasally, strongly concave dorsomedially and emarginated near apex inside, with 10–12 spine-like setae on and near ridge between median concavity and subapical emargination, dorsal end of the ridge being hook-like; aedeagus as in Figs 32–36; distiphallus prolonged distally to a pair of divergent narrow apices and prominently convex before the distal prolongation, with acrophallus narrowly fused basally with side walls of distiphallus; pregonite with 2 distinct distal setae; postgonite with a distinct seta near middle ventrally.

♀. Less hairy than in male. Wing length 5.9–7.5 mm. Body variable in colour of pollinosity, almost wholly pale bluish grey to pale brownish yellow. Head more or less brownish in ground colour on interfrontalia and genae. Mesonotum with a brownish pollinose median vitta distinctly visible in paler pollinose specimens. Abdomen with median vitta (Fig. 16) much broadened anteriorly, about one-third or more as wide as 2nd tergite at hind margin of the tergite, and narrowing caudally to form a large wedge



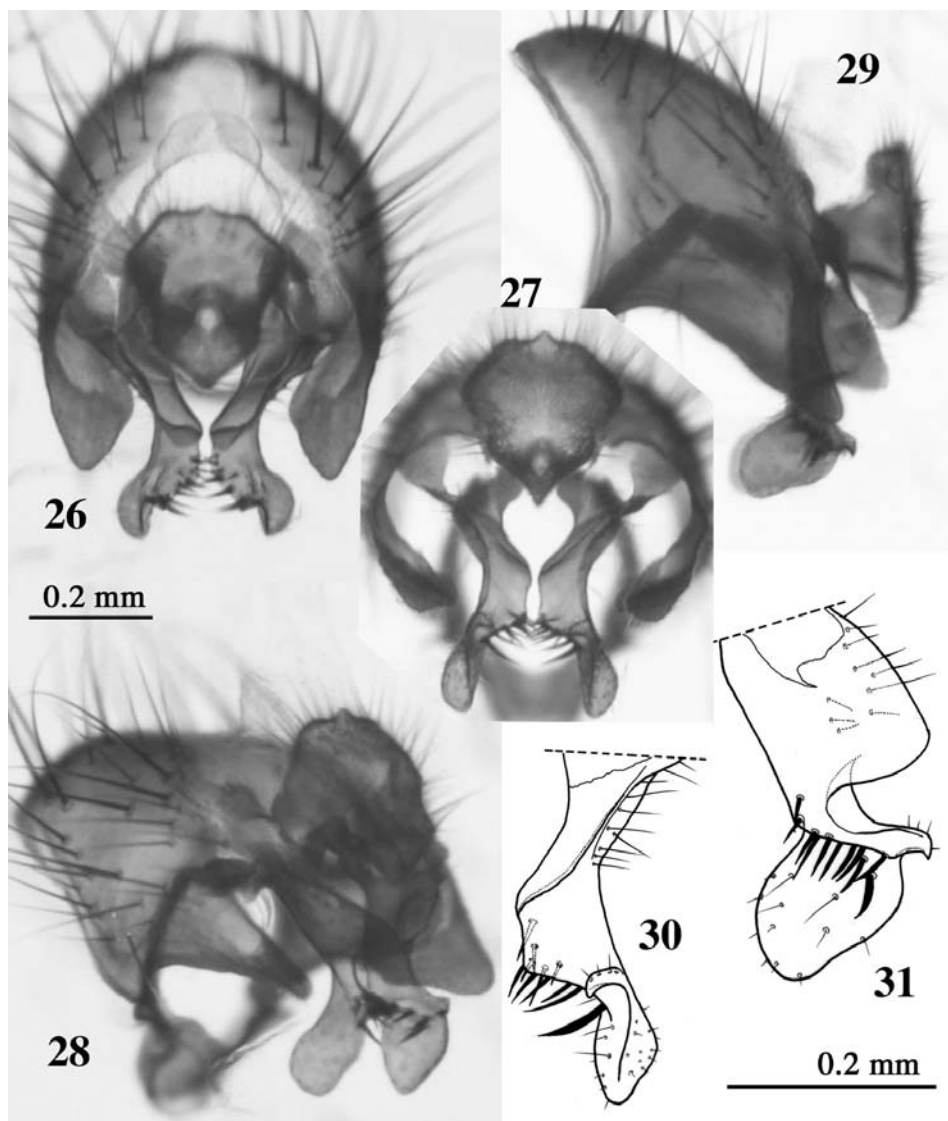
Figs 17–22. *Chiroisia kogomi*, ♂. 17, 1st (leftmost) to 4th sternites; 18, 6th tergite (left) and pregenital sclerite, dorsal view; 19, left mid femur, posterior and a little dorsal view; 20, left hind femur, anterodorsal view; 21, ditto, posterodorsal view; 22, left hind tibia, posterior view, *av*: apical anteroventral seta, *d*: apical dorsal seta, *pd*: apical posterodorsal seta, *pv*: apical posteroventral seta. Magnification same for Figs 19–22. Memuro (17); Jozankei (18–22).



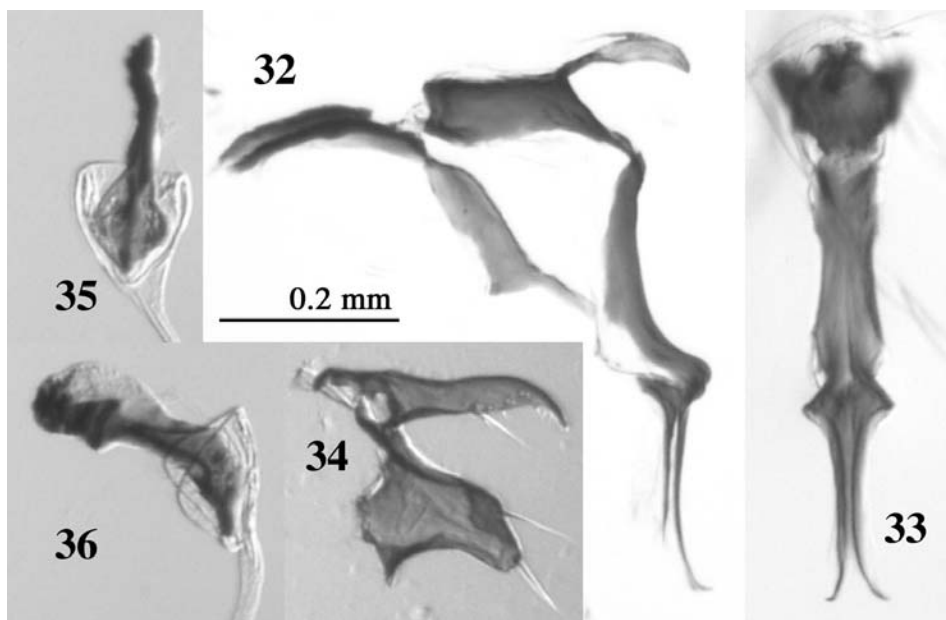
Figs 23–25. Fifth sternite of *Chiroisia kogomi*, ♂. 23, ventral view; 24, ventrolateral view; 25, ditto, focused on right process. Jozankei.

on 2nd to 5th tergites; 5th tergite largely darkened at low angle in caudal view; fore-marginal bands discernible on 2nd to 4th tergites, rather broad on the 2nd. Wings tinged with brownish yellow.

Frons 0.36–0.41 times as wide as head (Figs 13–14); interfrontalia slightly narrower to a little wider than parafrontalia at level of 2nd *ors*, and without *if*; parafrontals with 5–9 distinct to strong and 1 or a few fine *ori* often arranged in an irregular row, and with 3–4 or rarely 2 *ors* (usually the uppermost being reclinate and others proclinate); orbits at parafrontal angle 1.8–2.2 times as wide as A_3 ; genal setae in 1 or 2 rows.



Figs 26–31. Hypopygium of *Chiroisia kogomi*, ♂. 26, dorsal view; 27, dorsocaudal view; 28, dorsolateral view; 29, lateral view; 30, right surstylus, dorsal view; 31, ditto, inner lateral view. Jozankei (26–29); Memuro (30–31).



Figs 32–36. *Chiroisia kogomi*, ♂. 32, aedeagus, lateral view; 33, ditto, dorsal view; 34, pregonite and postgonite; 35, ejaculatory apodeme, frontal view; 36, ditto, lateral view. Jozankei (32–34; 35–36, holotype).

Mid femur with setae less developed than in male, with basal *pv* often a little developed and longer than height of the femur, and usually with 1 or a few distinct to strong *pv* on about median third; f_3 with 4–6 strong and usually 1 or a few weak *av* on apical half or two-thirds, and 1 strong and 1 or a few weak *pv* near apex; t_1 with 1 small *ad*, 2 or rarely 3 strong *pv*, and occasionally 1 *pd*, and with apical *pv* well developed; t_2 with 1 *av*, 1 or rarely 2–3 *ad*, 3–4 *pd/p* and 1–2 *pv*; t_3 with 2–4 (rarely 5) *av*, 3–4 strong and 1 or a few weak *ad*, 3–4 strong and 1 or a few weak *pd* and 0–5 *pv*.

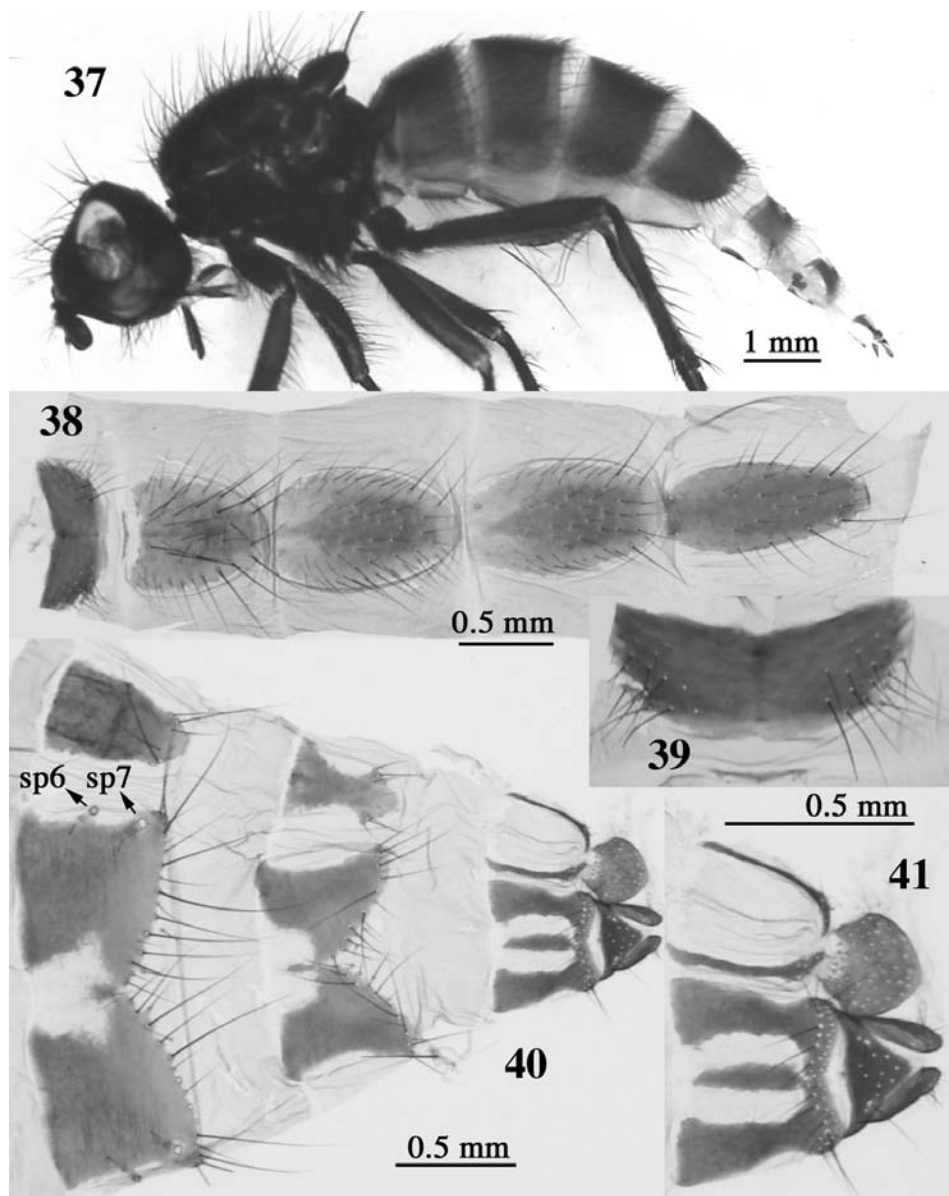
Abdomen with 1st to 5th sternites as in Fig. 38; 1st sternite rather densely setulose laterally (Fig. 39); 5th sternite more than twice as long as wide; ovipositor more than half as long as preabdomen in macerated condition (Fig. 37); 6th and 7th tergites cut off posteromedially to form v-shaped posterior margins, each with a complete row of setae along the margin (Fig. 40); 6th spiracle in membrane just near middle of lateral margin of 6th tergite, 7th spiracle on the tergite posterolaterally; 7th sternite emarginated laterally; 8th tergite continuous across dorsum posteriorly, with a discrete plate medially; 8th sternite represented by a pair of elongate sclerites, each bearing a small setula and some minute setulae; epiproct with a pair of rather long setae subbasally; hypoproct with 2 pairs of fine setae before middle laterally and near apex, and with minute setulae scattered; cerci shorter than hypoproct, rather densely setose on apical third, longest seta near apex being shorter than cercus; 3 spermathecae of equal size.

Puparium. Up to 10.5 mm in length. Posterior spiracles (Figs 4–5) with slits complicatedly sinuate.

Remarks. The surstyli have a prominent expansion dorsobasally and bear some stout setae inside, and the distiphallus of aedeagus is strongly convex dorsally near base of

acrophallus. These may indicate a close relationship with *Chirosia sikisima* (Suwa, 1974) and its allied *Chirosia major* Suwa, 2013, which are, however, much different in details of terminalia as well as in many aspects of external structures (cf. Suwa, 1974; Suwa, 2013).

This species appears in spring together with the following *C. rametoka*. They share the Ostrich fern as their host plant. The puparium of *C. kogomi* is distinguished from that



Figs 37–41. *Chirosia kogomi*, ♀. 37, general features; 38, 1st (leftmost) to 5th sternites; 39, 1st sternite; 40, ovipositor, sp6: 6th spiracle, sp7: 7th spiracle; 41, 8th segment and proctiger. Magnification same for Figs 39 and 41. Jozankei (37–39; 40–41).

of *C. rametoka* by the posterior spiracles with sinuate slits.

Chirosia rametoka (Suwa, 1974)
(Figs 6–8, 42–69)

Shakshainia rametoka Suwa, 1974: 36; Wei et al., 1998: 666.

Chirosia rametoka: Suwa, 1999: 216.

Material reared from *Matteuccia struthiopteris*. Hokkaido. Jozankei, Sapporo, alt. 350–400 m, 8♂, 6♀, emerged 10–19.v.2012, from puparia obtained at 8.v.2012 (M. Suwa), 1♂, 1♀, emerged 14–15.v.2013, from puparia obtained at 13.v.2013 (M. Suwa); Bisei, Memuro, near Obihiro, 6♂, 5♀, emerged 15–25.iv.2012, from puparia obtained some days earlier (H. Torikura).

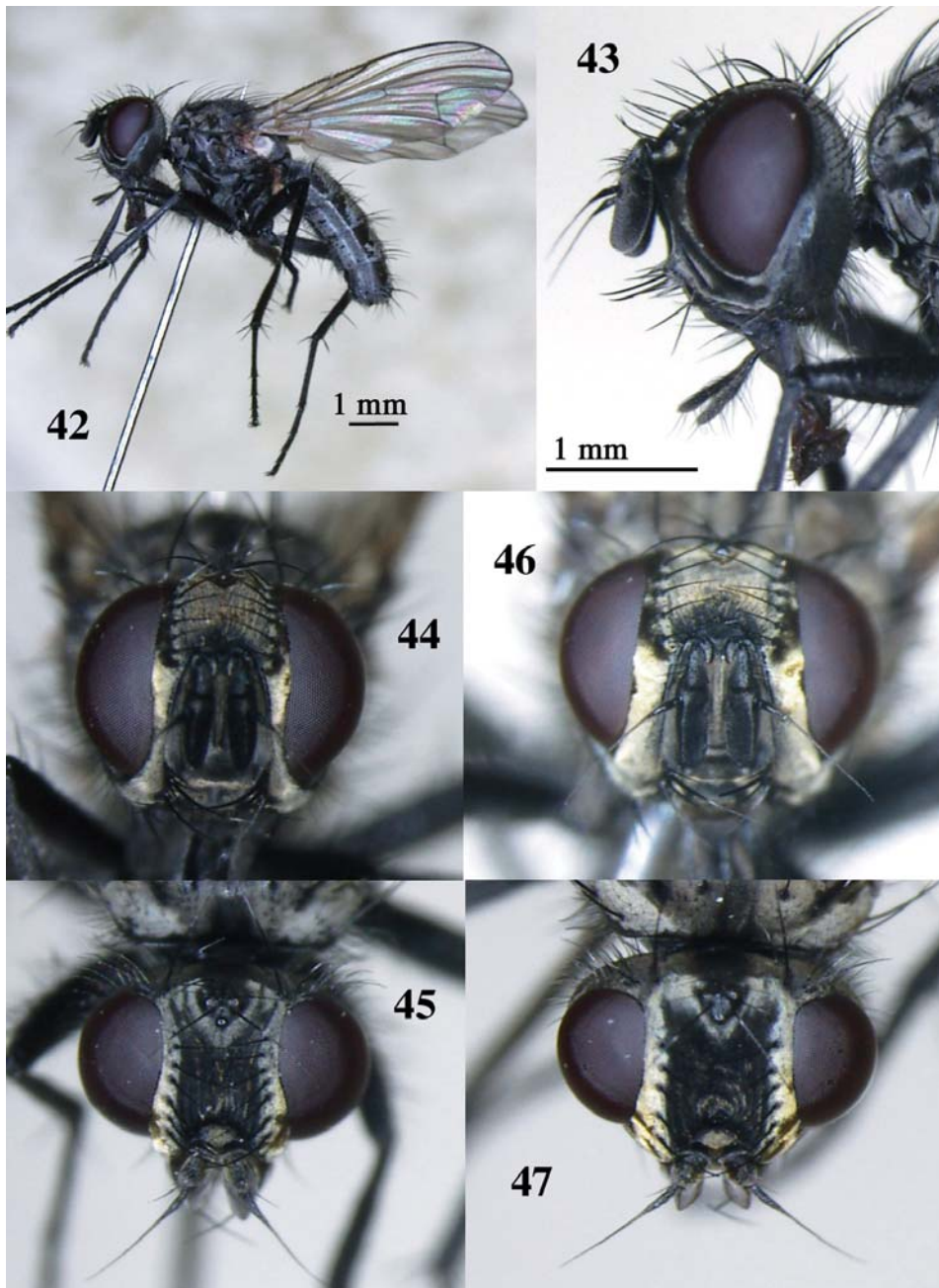
Other material in addition to the records given in Suwa (1974). Hokkaido. Jozankei, Sapporo, alt. 350–400 m, 3♂, 6.v.2012 (M. Suwa), 7♂, 2♀, 8.v.2012 (M. Suwa), 1♀, 31.v.2012 (M. Suwa), alt. 400–450 m, 5♂, 1♀, 31.v.2012 (M. Suwa); Toyotaki, Sapporo, alt. 200 m, 1♂, 5.v.2011 (M. Suwa); Sapporo, 1♀, 9.v.1904 (no name), 1♂, 27.v.1966 (T. Kocha), 1♂, 1.v.1968 (T. Kocha); Jozankei, 1♂, 29.v.1987 (M. Suwa); Mt. Soranuma, alt. 300–500 m, 2♂, 7.vi.1985 (M. Suwa), 1♂, 19.vi.1985 (M. Suwa), alt. 500–900 m, 1♂, 23.v.1985 (M. Suwa), 5♂, 4♀, 28.v.1985 (M. Suwa), 2♂, 7.vi.1985 (M. Suwa); Nopporo, 1♀, 3.vi.1973 (M. Suwa), 1♂, 21.v.1980 (M. Hatanaka), 1♂, 21.v.1980 (M. Suwa), 1♂, 1♀, 5.vi.1984 (M. Suwa), 18♂, 1♀, 9.v.1985 (M. Suwa); Mita, Hamamasu, 2♀, 23.v.1984 (M. Suwa); Ashoro, Tokachi, 18♂, 2♀, 12–22.vi.1985 (M. Abe); Yamabe, Furano, 1♀, 24–26.vi.1985 (M. Abe); Shibeche, Kushiro, 1♀, 16.vi.1985 (M. Abe). Honshu. Iwate-ken: Morioka, 1♂, 29.iv.1967 (S. Yamane). Saitama-ken: Obokawa, Yokose (= Yokoze), 3♂, 5.iv.1977 (K. Hara). Yamanashi-ken: Kanayama, Masutomi, 9♂, 3♀, 26.v–4.vi.1975 (T. Saigusa et al.). Nagano-ken: Mt. Yatsugatake, 1♀, 29.v.1975 (J. Emoto); Shimashima-dani, 1♂, 1♀, 22–24.v.1975 (Nakanishi & Emoto); Mt. Nyûkasa, 1♂, 28.v.1975 (Emoto & Nakanishi); Shigakôgen, 2♂, 30–31.v.1975 (Saigusa et al.). Ishikawa-ken: Kanazawa, 1♂, 2.v.1965 (H. Kurahashi), 5♂, 5♀, 27.iv.1969 (H. Kurahashi), 16♂, 8♀, 22.iv.1970 (H. Kurahashi); Kumabashiri, Kanazawa, 3♂, 2.v.1965 (H. Kurahashi); Saigawa dam, Kanazawa, 1♂, 1♀, 23.v.1968 (Y. Kato); Nukadani, Kanazawa, 1♂, 8.iv.1971 (H. Kaji); Kuragadake, 1♂, 3♀, 22.iv.1965 (H. Kurahashi), 13♂, 4♀, 13.iv.1969 (H. Kurahashi); Sunodani, 1♂, 23.v.1966 (H. Kurahashi); Mt. Sunagozen, 1♀, 7.vi.1970 (no name); Fukase, Hakusan, 1♀, 7.v.1972 (I. Togashi); Mt. Hakusan, 5♂, 2♀, 23.iv.1970 (H. Kurahashi).

Distribution. Japan (Hokkaido; Honshu); NE China.

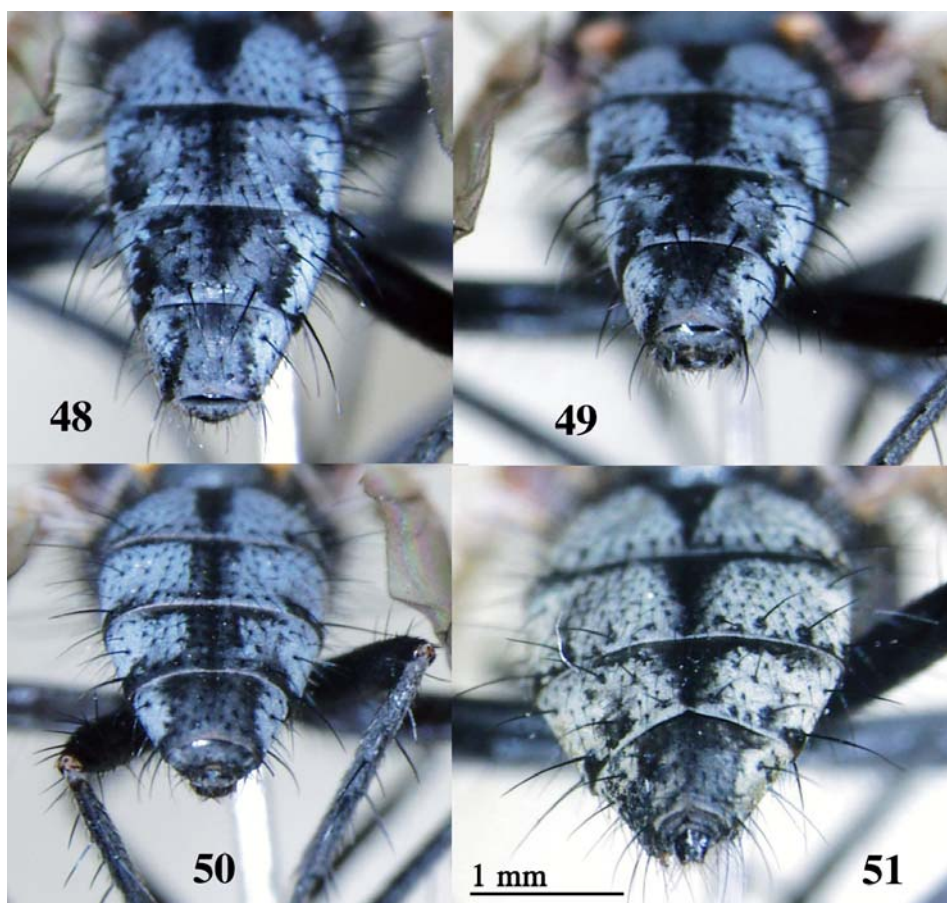
Host plant. *Matteuccia struthiopteris* (L.) Todaro. *C. rametoka* is probably a stalk borer of this fern. Puparia are usually found singly in a stipe base of frond grown in the preceding year. In one case a puparium of this species was found together with that of *C. kogomi* in the same stipe. Pupariation takes place in the base of stipe to keep the cephalic area toward tip of frond.

The original description of *C. rametoka* is supplemented as follows. Information on the ovipositor is given for the first time.

♂. Wing length 4.3–6.1 mm. Body in pollinosity tinged with brown or brownish yellow to various degrees; in one extremity almost wholly pale bluish grey, with a brownish tinge on face, genae and pleura, and along rows of *acr* and *ia* of mesonotum; in the other extremity distinctly tinged with brown or brownish yellow on head and thorax, paler on abdomen. Abdomen with median vitta rather broad (Figs 49–50), usually much broadened on 5th tergite to wider than f_3 -height.



Figs 42–47. *Chirosia rametoka*, ♂ (42–45) and ♀ (46–47). 42, general features; 43, head, lateral view; 44, 46, ditto, frontal view; 45, 47, ditto, dorsal view. Magnification same for Figs 43–47. Jozankei (42–45; 46–47).

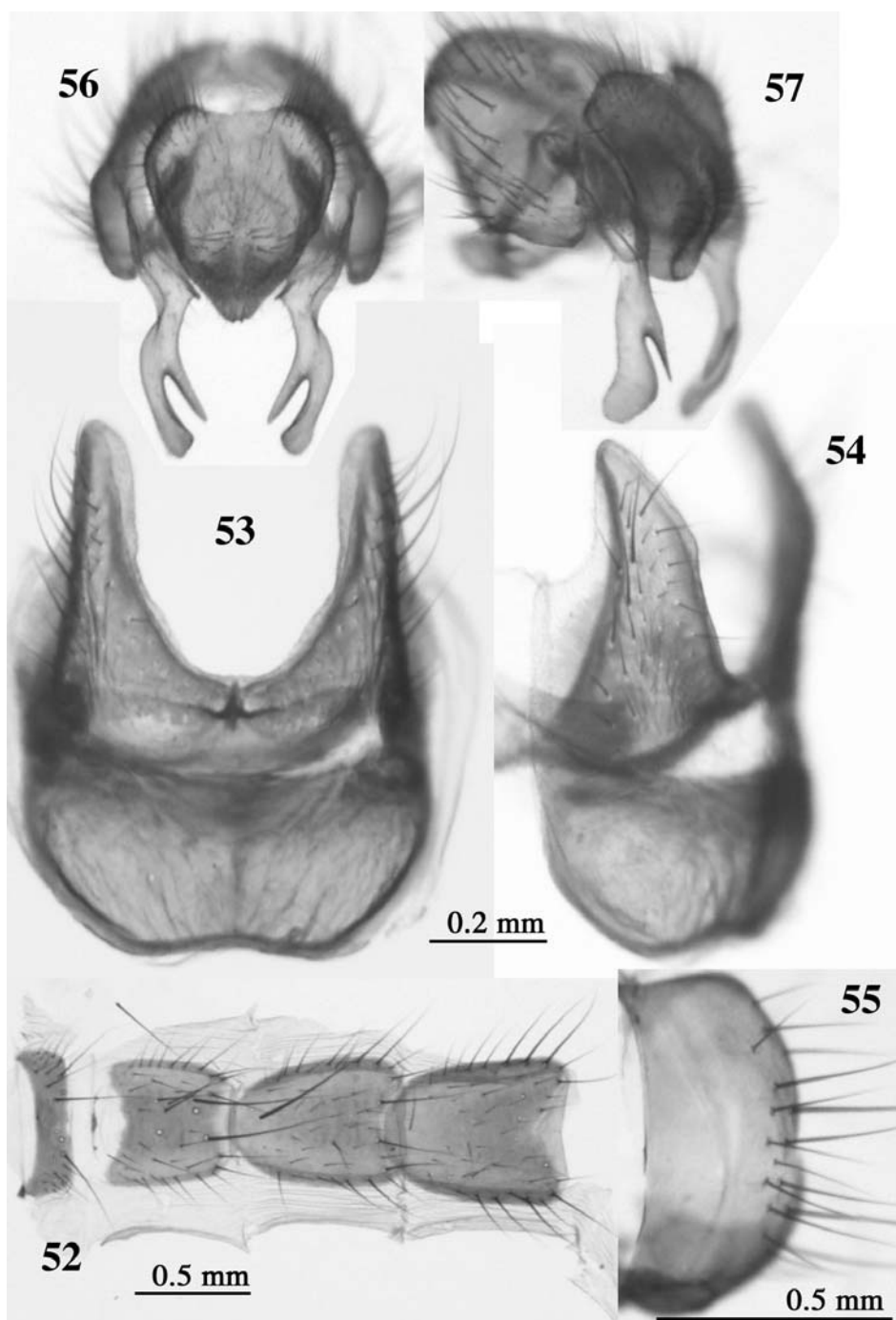


Figs 48–51. Abdomen of *Chirosia rametoka*, ♂ (48–50) and ♀ (51). Dorsocaudal view, a little higher angle in Fig. 48. Jozankei (48–49; 51); Nopporo (50).

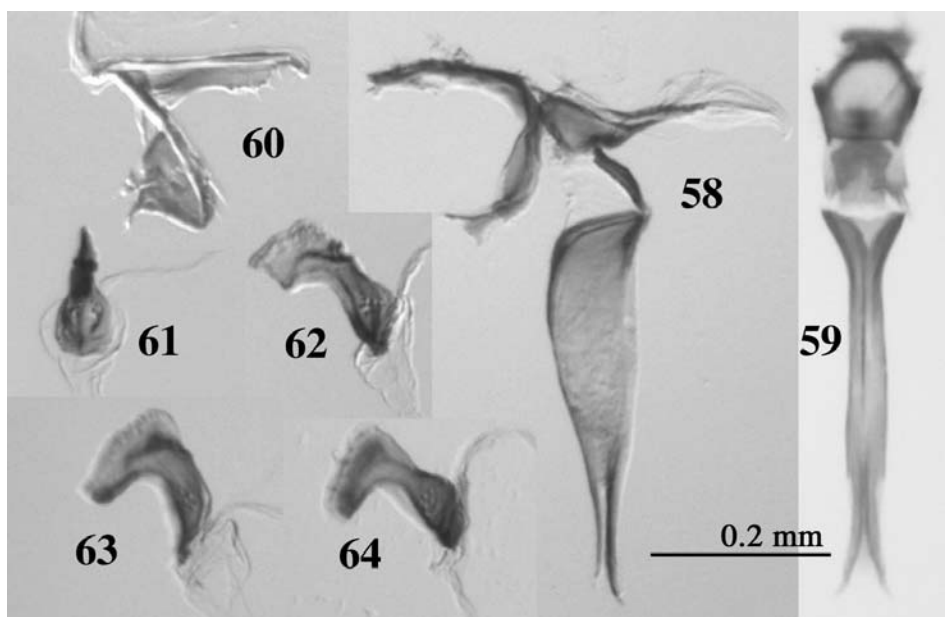
Frons 0.37–0.41 times as wide as head (Figs 44–45); interfrontalia 1.7–1.9 times as wide as distance between posterior ocelli inclusive, without *if*, at most with 1 or 2 minute or fine setulae; parafrontals with some (usually 5–7) strong *ori* and no *ors*, but in some specimens a fine to rather strong proclinate *ors* discernible around the uppermost *ori* on one or both of parafrontals; A_3 2.0–2.3 times as long as wide; arista minutely pubescent; proboscis comparatively small (Fig. 43).

Mesonotum with ground setulae sparse; 2 *prpl*; 1 strong and 1 weak *pstg*, with no associated setulae in specimens from Hokkaido, but usually with 1 to some in specimens from Honshu.

Mid femur usually with no distinct *av* though some setulae near base being barely to weakly differentiated, occasionally with 1 distinct to strong *av* near basal third or middle, and with some *pv* on basal half or two-thirds, basal *pv* being distinct to rather strong, a few near base usually fine, and others (3–5 in number) distinct to strong, the longest near middle 1.0–1.5 times as long as height of the femur; f_3 on apical half or two-thirds with some (usually 5–6) *av*, the longest 1.1–1.5 times as long as height of the femur, and



Figs 52–57. *Chiroisia rametoka*, ♂. 52, 1st (leftmost) to 4th sternites; 53, 5th sternite, ventral view; 54, ditto, ventrolateral view; 55, 6th tergite (left) and pregenital sclerite, dorsal view; 56, hypopygium, dorsal view; 57, ditto, dorsolateral view. Magnification same for Figs 53–54 and 56–57. Jozankei (52; 53–57).



Figs 58–64. *Chirosia rametoka*, ♂. 58, aedeagus, lateral view; 59, ditto, dorsal view; 60, pregonite and postgonite; 61, ejaculatory apodeme, frontal view; 62–64, ditto, lateral view. Jozankei (58–62; 63; 64).

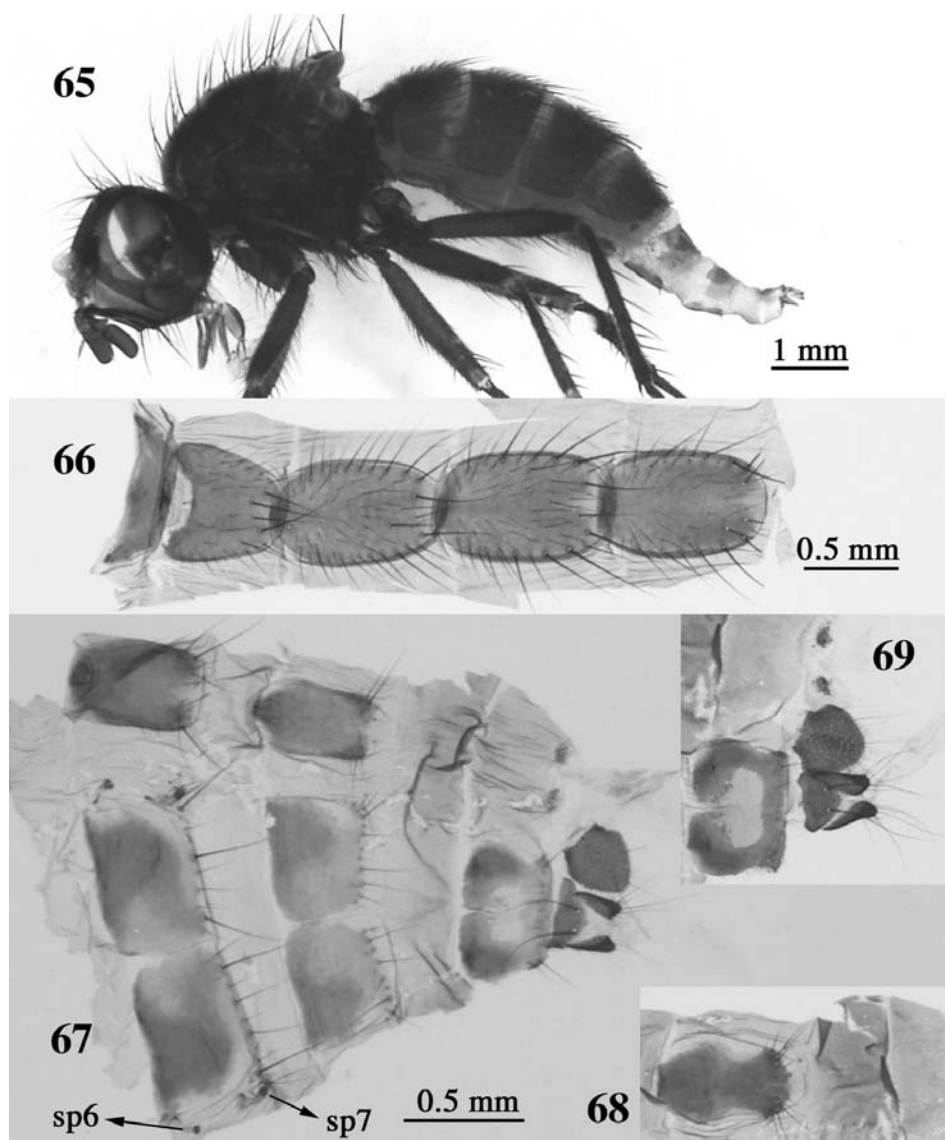
with a few or some *pv* around middle and 1 or a few *pv* near apex, preapical one being strong and 1.0–1.4 times as long as the femur height; t_1 with 1 distinct and occasionally 1 additional *ad*, occasionally 1 *pd*, and 2 or occasionally 3 *p/pv*, and with apical *pv* well developed; t_2 with 1 *ad* and 3–5 or rarely 6 *pd/pv* (variable in strength); t_3 with 2–5 *av*, 3–6 (2–3 strong and 0–3 weak) *ad*, 3–6 (usually 3 strong and 0–3 weak) *pd* and no *pv*, and with apical *pv* well developed. Wings with costa setulose on ventral surface both before and beyond subcostal break.

Abdomen more or less depressed dorsoventrally; 6th tergite (Fig. 55) bare, fused with pregenital sclerite, fusion line weakly discernible; 5th sternite (Figs 53–54) with processes blade-like, tapering apically, and weakly setose; hypopygium as in Figs 56–57; epandrium with posterolateral corners barely prolonged; cercal plate discoid, weakly ridged medially on aical third or more, minutely tomentose, sparsely with short setulae on main area, and more densely with longer setulae on anterolateral corners and along median ridge, some setulae around anterior end of the ridge being distinct; surstylus apically divided into narrow and acute inner lobe and broad and obtuse outer lobe, with no distinct setae; aedeagus as in Figs 58–64; acrophallus at base firmly fused with distiphallus; pregonite with 2 fine setulae discernible around dorsal corner; postgonite with no distinct setae, only with some minute setulae discernible on apical half ventrally; ejaculatory apodeme distinctly protruded forward distally.

♀. Wing length 5.2–7.3 mm. Eyes relatively smaller than in male, and orbits relatively broader; frons 0.42–0.47 times as wide as head (Figs 46–47); interfrontalia 1.9–2.3 times as wide as distance between posterior ocelli inclusive.

Abdomen with 1st to 5th sternites as in Fig. 66; 1st sternite with a few or some

fine setulae laterally; 5th sternite about 1.5 times as long as wide; ovipositor as long as or a little longer than half length of preabdomen in macerated condition (Fig. 65); 6th tergite weakened medially and almost divided into 2 plates, with 6th and 7th spiracles in membrane near anterolateral and posterolateral corners respectively (Fig. 67); 7th tergite weakened medially to be divided into 2 plates; 7th sternite hardly to rather distinctly emarginated laterally (Fig. 68); 8th tergite broadly weakened centrally, and narrowly so anteromedially; 8th sternite represented by a pair of small sclerites bearing some minute



Figs 65–69. *Chirosia rametoka*, ♀. 65, general features; 66, 1st (leftmost) to 5th sternites; 67, ovipositor, sp6: 6th spiracle, sp7: 7th spiracle; 68, 7th sternite; 69, 8th segment and proctiger. Magnification same for Figs 67–69. Jozankei (65–66); Ashoro (67); Kanazawa (68–69).

setulae; epiproct with a pair of long setae subapically, and with a few or some minute setulae around the setae; hypoproct rather densely covered with minute setulae, and with 2 pairs of fine setae near middle laterally and near apex; cerci shorter than hypoproct, rather densely setose on apical third, longest seta around apex being much longer than cercus; 3 spermathecae of almost equal size.

Puparium. Up to 8.5 mm in length. Posterior spiracles (Fig. 8) with slits short and thick.

Remarks. This species differs from other members of the *C. megacephala* section in having the head with wide frons and no differentiated *ors* in both sexes. Although information on the ovipositor of the section is insufficient, *C. rametoka* may be unique in having the female 8th sternite represented by small sclerites.

The present species was originally described as a single representative of the genus *Shakshainia*, which was named after “Shakshain”, a well-known brave leader of Ainu flourished in the 17th century in Hidaka, Hokkaido. The specific epithet “*rametoka*” is derived from the Ainu word “rametok” meaning “brave”.

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