



Title	Descriptions of twenty new species of the genus <i>Caloptilia</i> Hübner from Japan including the Ryukyu Islands (Lepidoptera : Gracillariidae)
Author(s)	Kumata, Tosio
Citation	<i>Insecta matsumurana</i> , 29(1), 1-21
Issue Date	1966-11
Doc URL	<a href="https://hdl.handle.net/2115/9739">https://hdl.handle.net/2115/9739</a>
Type	departmental bulletin paper
File Information	29(1)_p1-21.pdf



DESCRIPTIONS OF TWENTY NEW SPECIES  
OF THE GENUS *Caloptilia* HÜBNER FROM JAPAN  
INCLUDING THE RYUKYU ISLANDS

(LEPIDOPTERA : GRACILLARIIDAE)

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The genus *Caloptilia* Hübner, 1825, is a large group of the family Gracillariidae, being represented by about 300 known species in the world. So far as I am aware, 14 species of this genus have been known to occur in Japan. I have had the opportunity to examine a number of specimens belonging to the Entomological Institute of Hokkaido University, the Entomological Laboratory of Kyusyu University, the Entomological Laboratory of Osaka Prefectural University, and Professor Issiki's private collection. I have also examined specimens preserved in the Bishop Museum, Hawaii, which are collected by Mr. G. A. Samuelson in the Ryukyu Islands under the Japan-U.S. Co-operative Science Program. As a first step towards a revision of the genus in Japan, I will describe twenty new species in the following pages.

Before going further I wish to express my sincere gratitude to Prof. C. Watanabe for his kindness in giving his constant encouragement and in reading through this manuscript. Thanks are also due to Prof. S. Issiki, Dr. H. Kuroko, Prof. S. Ito and Dr. S. Asahina for their kindness in giving the opportunities to examine valuable material for the present use.

*Caloptilia aceris*, sp. nov. (Pl. I, Fig. 1)

♂ & ♀. Alar expanse, 9.5–12.0 mm. (in most specimens, 11.5 mm.). Face lemon-yellow; head bright dark gray, mixed with brownish, violet-glossy scales laterally. Palpi yellowish-white; apical segment of labial palpus with a blackish subapical ring. Antenna pale ochre-yellow, annulated with dark brown. Thorax bright brassy-yellow, the tegula being dark brown, tinged with a violet gloss. Fore and mid legs uniformly blackish-brown except for tarsi, which are shining white, with a blackish apical ring on all segments; hind coxa and basal half of hind femur lemon-yellow, the apical half of the femur being blackish-brown; hind tibia and tarsus ochre-yellowish, usually darkened or ringed with blackish brown apically on each segment. Fore wing brownish-fuscous, rather strongly tinged with bluish-violet reflections, with brassy-yellow in a costal blotch and a hind one at base, the costal blotch extending on costa from basal 1/5 to 3/5, scalene-triangular or rarely semicircular, obtusely truncated just before hind margin, without any dark spot along costa; cilia around apex of wing brownish-fuscous, with two pale lines, and those along hind margin pale gray. Hind wing gray, with cilia pale gray.

Male genitalia (Pl. IV, Fig. 25): Tegumen of normal shape slightly longer than vinculum; subscaphium narrow, anchor-shaped with a pair of hooks at basal extremity. Valva about twice as long as vinculum, upcurved, much dilated apically, round on terminal margin, with a number of slender marginal setae. Vinculum gradually tapering towards bluntly pointed apex. Aedoeagus about 1.5 times as long as vinculum, bar-shaped, slightly sinuate, with 4-7 minute, spiniform cornuti. Posterior corematis consisting of hair-like scales as well as anterior one, which is about 1.5 times as long as the posterior; ventral pouch of seventh abdominal segment very short,  $1/4-1/5$  as long as dorsal ridge of eighth segment.

Female genitalia (Pl. XIII, fig. 45): Lamella postvaginalis elongate-trapezoid in shape, the cephalo-median area projecting narrowly towards ostium bursae; lamella antevaginalis absent. Ductus bursae rather slender, membranous, with a sclerotized antrum, which is about as long as postapophysis, and of which caudal half is widened towards ostium bursae; corpus bursae pyriform, membranous, with two corniform signa which are equal in size, rather narrow, and curved.

Holotype ( $\delta$ ): 7/vi, 1961, Abasiri, Hokkaido<sup>1)</sup>. Paratypes: 1 $\varphi$ , 23/viii, 1958, Risirito, near Hokkaido, ex *Acer mono*; 3 $\delta\delta$  & 2 $\varphi\varphi$ , with the same data as holotype; 2 $\delta\delta$ , 31/v, 1956, Sapporo, Hokkaido; 1 $\delta$  & 1 $\varphi$ , 21-24/vii, 1956, and 1 $\delta$ , 28/vii, 1957, Sapporo, ex *A. mono*; 1 $\delta$  & 2 $\varphi\varphi$ , 28/vii, 1957, Sapporo, ex *A. palmatum*; 2 $\delta\delta$  (N. Okabe leg.) and 2 $\delta\delta$  (E. I. Schlinger leg.), 25/v, 1961, Sapporo; 1 $\varphi$ , 8/vi, 1958, Sapporo (K. Kamijo leg.); 3 $\delta\delta$  & 1 $\varphi$ , 22-23/vii, 1963, and 3 $\delta\delta$  & 1 $\varphi$ , 28-30/vii, 1964, Sapporo, ex *A. saccharum*; 1 $\varphi$ , 13/vi, 1959, Teine, Hokkaido; 1 $\delta$ , 5/iv, 1958, Zyôzankei, Hokkaido, ex *A. mono*; 1 $\delta$ , 5/vi, 1961, Zyôzankei; 1 $\varphi$ , 27/v, 1954, Iwawakisan, Osaka, Honsyu (T. Yasuda leg.). The holotype is in the Ent. Inst., Hokkaido University.

Host plants: *Acer mono* Maxim., *Acer palmatum* Thunb. and *Acer saccharum* Marsch. (Aceraceae).

Remarks: This species is somewhat similar to *C. theivora* (Walsingham, 1891) in colouration, but is immediately distinguished from the latter by the fore wing with a brassy-yellow hind blotch at base, by the longer vinculum, by the aedoeagus with cornuti, by the ductus bursae with a much sclerotized, rather long antrum, and by the corpus bursae with two corniform signa.

***Caloptilia acericola*, sp. nov.** (Pl. I, Fig. 2)

This species is closely related to the preceding one, *aceris*, from which it is distinguished by the following aspects:—

$\delta$  &  $\varphi$ . Alar expanse, 9.0-11.0 mm. (in most specimens, 10.0 mm.). Posterior half of face shining white. Tegula of thorax brassy-yellow as well as anterior half of face, head and thorax, darkened along outer margin. Ground colour of fore wing brown, with much weaker bluish-violet reflections; a brassy-yellow costal blotch much wider, extending on costa from basal  $1/5$  to near apex, and little narrowing towards fold, with 2-7 small dark spots along costa; in a few specimens, this blotch occupying merely costal  $1/4-1/2$  of wing breadth at its outer half and extending in its inner half towards fold in a triangle; a series of dark brownish, ill-defined strigulae situated on hind margin below costal blotch.

1) The specimens without collector are collected by myself.

Genitalia (Pl. IV, Fig. 26; Pl. XIII, Fig. 46): In male tegumen about as long as vinculum; aedoeagus slenderer, without any cornutus; ventral pouch of seventh abdominal segment slenderer, longer, 1/3-1/4 as long as dorsal ridge of eighth segment; posterior corematis about half as long as anterior one. In female sclerotized antrum much longer, about twice as long as postapophysis, and about 2/3 as long as membranous part of ductus bursae.

Holotype (♂): 25/vii, 1964, Sapporo, Hokkaido, ex *Acer japonicum*. Paratypes: 2♂♂, 5/iv, 1958, and 1♂, 30/vii, 1964, Sapporo, ex *A. japonicum*; 1♂ & 3♀♀, 22/vii, 1963, and 1♂ & 2♀♀, 20/vi-28/vii, 1964, Sapporo, ex *A. palmatum*; 1♂, 31/vii, 1964, Sapporo, ex *A. mono*; 1♂ & 2♀♀, 20/vi, 1964, Kyōto, Honsyu, ex *A. palmatum*; 2♂♂, 25/vi, 1964, Kawatinagano, Osaka, Honsyu, ex *A. palmatum*; 1♀, 14-20/v, 1964, Kozagawa, Wakayama-ken, Honsyu; 2♂♂, 31/v-2/vi, 1957, Hikosan, Kyusyu; 6♂♂ & 6♀♀, 9-25/vi, 1965, Kumamoto, Kyusyu, ex *A. palmatum*. The holotype is in the Ent. Inst., Hokkaido University.

Host plants: *Acer japonicum* Thunb., *Acer mono* Maxim. and *Acer palmatum* Thunb. (Aceraceae).

Remarks: This species is quite close to *C. acerivorella* (Kuznetsov, 1956) described from Turkmen, USSR as a leaf-miner of *Acer turcomanicum*, but it may be distinctly separated from the latter by the colour of the face which is whitish on the posterior half and brassy-yellow on the anterior half, and by the bursa copulatrix with a very long, sclerotized antrum, whereas in *acerivorella* the face is wholly yellowish and the bursa copulatrix wholly membranous without any sclerotized antrum.

***Caloptilia heringi*, sp. nov.** (Pl. I, Fig. 3)

♂ & ♀. Alar expanse, 11.5-13.0 mm. Head and thorax dark grayish-brown, with weak iridescent reflections; face dark brown, with a pale patch at anterior extremity. Palpi ochre-whitish, darkened with brownish scales on outer and lower sides; apical segment of labial palpus dark brown except for apex. Antenna pale yellowish-gray, annulated with blackish brown broadly. Fore and mid legs dark brown, with a pale, small patch at middle of tibiae, the tarsi being white, finely ringed with black at apex of each segment, broadly suffused with dark brown at middle of first segment; hind coxa and basal half of hind femur brassy-yellow, the apical half of the femur being dark brown; hind tibia and tarsus ochre-yellow, darkened on apical half of each segment. Fore wing dark brownish, slightly tinged with iridescent reflections, with dark brown streaklets and ochre-yellow spots arranged alternately on whole length of hind margin and on apical half of costa; a golden-yellow, scalene-triangular or rarely quadrangular blotch extending on costa from basal 1/4 to 3/5, obtusely truncated at fold, mixed with brownish scales throughout, with a few blackish dots along costa; cilia around apex of wing dark brown, with three blackish lines, and those along hind margin pale brownish-gray. Hind wing dark gray, with cilia pale brownish-gray.

Male genitalia (Pl. IV, Fig. 27): Tegumen about as long as vinculum; subscaphium rather broad, T-shaped at basal extremity. Valva about 1.5 times as long as vinculum, upcurved, much dilated apically, round on terminal margin, with a number of slender marginal setae, and with a few minute spines at base of cucullus. Vinculum gradually tapering towards bluntly pointed apex. Aedoeagus a little longer than 1.5 times length of vinculum, corniform, straight, with 7-9 needle-form cornuti, one or rarely two lying

on aedoeagus, usually longer than aedoeagus, and the rest on phallobase, much shorter. Posterior corematis consisting of hair-like scales, a little longer than half length of anterior one; ventral pouch of seventh abdominal segment about  $1/3$  as long as dorsal ridge of eighth segment.

Female genitalia (Pl. XIII, Fig. 47): Lamella postvaginalis moderate in size, trapezoid in shape; lamella antevaginalis narrow, band-shaped. Ductus bursae very wide, dilated towards corpus bursae, scobinate on whole length; cervix bursae squamous, with a characteristic, narrow projection; corpus bursae elongate-ovoid in shape, much longer than ductus bursae, hardly sclerotized on caudal  $1/4$ , squamous on median half, with two corniform signa at cephalic  $1/4$ , both signa being equal in size, rather short, and curved.

Holotype ( $\delta$ ): 7/x, 1963, Wassamu, Hokkaido, ex *Acer mono*. Paratypes: 1♀, 2/x, 1962, and 1♀, xii, 1964, Wassamu, ex *A. mono*; 1♀, 23/vii, 1963, Apoi, Hidaka, Hokkaido, ex *A. mono*; 1♂, 24/vii, 1956, and 1♀, 29/ix, 1964, Sapporo, Hokkaido, ex *A. mono*; 1♂, 19/ix, 1958, and 1♀, 20/v, 1962, Teine, Hokkaido, ex *A. mono*; 1♂, 1/viii, 1956, Zyôzankei, Hokkaido, ex *A. mono*. The holotype is in the Ent. Inst., Hokkaido University.

Host plants: *Acer mono* Maxim. (Aceraceae).

Remarks: On account of the projection of the cervix bursae, this species is quite distinct from any other species of the genus. From the preceding two, *aceris* and *acericola*, it is immediately distinguished by the darker ground colour of the fore wing which lacks a yellowish hind-basal blotch, and by the more complicated structure of the genitalia.

The name of the present species is dedicated to Prof. Dr. E. M. Hering of Berlin, leading authority of the leaf-mining insects.

***Caloptilia hidakensis*, sp. nov.** (Pl. I, Fig. 4)

♀. Alar expanse, 11.0 mm. Head and thorax ochre-brown, somewhat tinged with gray; face brassy-yellow. Palpi pale yellow; apical segment of labial palpus with a dark brown subapical ring. Antenna ochre-yellow, annulated with dark brown. Fore and mid legs dark brown, irrorated with ochre-brown scales, with an ochre-yellow, ill-defined patch at middle of femora and tibiae, the tarsi being white, with a blackish apical ring on each segment, the ring of first tarsal segment being much broader than the others; hind coxa and femur brassy-yellow, the latter with a dark brown, large blotch on apical half; hind tibia and tarsus ochre-yellowish, darkened with brownish scales apically on each segment. Fore wing ochre-brown, irregularly irrorated with blackish-brown scales on apical area and along costal and hind margins, the blackish scales on costal and hind margins forming small blotches or sometimes spots; an obtuse-triangular, brassy-yellow blotch extending on costa from basal  $1/4$  to middle, truncated at fold, margined with blackish-brown irrorations laterally, with 4-6 small, blackish spots along costa; cilia pale ochre-gray, with three lines of dark brown irrorations around apex of wing. Hind wing dark gray, with cilia pale ochre-gray.

Female genitalia (Pl. XVII, Fig. 55): Lamella postvaginalis rather large, semicircular in shape; lamella antevaginalis absent. Antrum hardly sclerotized, much dilated towards very large ostium bursae; membranous part of ductus bursae rather narrow, about twice as long as antrum, densely scobinate or weakly squamous; cervix bursae rather weakly squamous on whole area; corpus bursae ovoid, membranous, with two slightly curved,

corniform signa which are equal in size.

Holotype (♀): 3/ix, 1957, Apoi, Hidaka, Hokkaido, ex *Acer mono*. Paratype: 1♀, 4/ix, 1957, with the same locality and host as holotype. The holotype is in the Ent. Inst., Hokkaido University.

Host plants: *Acer mono* Maxim. (Aceraceae).

Remarks: On account of the colour markings of the fore wing and legs, this species is closely related to the preceding one, *heringi*, from which it is readily distinguished by the wholly yellowish face and by the more simple structure of the bursa copulatrix, which is narrower, less squamous, without a projection on the cervix bursae.

***Caloptilia wakayamensis***, sp. nov. (Pl. I, Fig. 5)

In colouration the new species has a superficial resemblance to the preceding two, *heringi* and *hidakensis*, except for some points mentioned below, while in genital structures of both sexes it is quite peculiar and easily distinguished not only from *heringi* and *hidakensis*, but also from any other species of the genus.

♂ & ♀. Alar expanse, 10.0–11.0 mm. Head, thorax and fore wing chestnut-brown, with very weak iridescent reflections; face golden-yellow in whole. Palpi pale golden-yellow; labial palpus with a dark brown subapical ring alone. Fore and mid tarsi with a dark brown subapical ring on first segment and a dark brown median one on second segment besides blackish apical ring. Golden-yellow costal blotch of fore wing isosceles-triangular, extending on costa from basal 1/4 to 3/5, with 4–8 small, blackish dots along costa.

Male genitalia (Pl. V, Fig. 28): Tegumen 2/5 as long as vinculum; subscaphium narrow, T-shaped at basal extremity. Valva rather long, upturned near base, strongly dilated apically, round on terminal margin, with a number of slender marginal setae. Vinculum peculiarly long, about 1.5 times as long as valva, gradually tapering towards knob-shaped apex. Aedoeagus a little longer than vinculum, needle-shaped, with a long, hook-shaped cornutus which is stretched from the apex of the aedoeagus. Posterior corematis consisting of hair-like scales, a little shorter than half length of anterior one; ventral pouch of seventh abdominal segment slender, rather long, about 2/5 as long as dorsal ridge of eighth segment.

Female genitalia (Pl. XIV, Fig. 48): Lamella postvaginalis large, semilunar in shape; lamella antevaginalis much larger than the postvaginalis, unique and complicated in shape as shown in the figure. Ductus bursae hardly sclerotized, gradually dilated towards cervix bursae, which is also hardly sclerotized and joined with the ductus through a short membranous area; corpus bursae pyriform, membranous, with two slightly curved, corniform signa which are equal in size.

Holotype (♂): 6/vi, 1964, Kozagawa, Wakayama-ken, Honsyu, ex *Acer palmatum*. Paratypes: 1♂ & 1♀, 2–8/vi, 1964, with the same locality and host as holotype; 1♂, 21/vi, 1957, Nati-san, Wakayama-ken (T. Kodama leg.), ex *Acer* sp.; 1♂ & 1♀, 2/vi, 1952, Ôsugidani, Wakayama-ken (S. Issiki leg.), ex *Acer* sp. The holotype is deposited in the Ent. Inst., Hokkaido University.

Host plants: *Acer palmatum* Thunb. (Aceraceae).

***Caloptilia semifasciella***, sp. nov. (Pl. I, Figs. 6 & 7)

♂ & ♀. Alar expanse, 11.0–12.0 mm. (in a small specimen, 8.5 mm.). Ground colour

of head, thorax and fore wing very variable, dark brown to blackish. Face shining white, rarely yellowish-white, or yellowish-white on the anterior half and shining white on the posterior half. Palpi white; apical segment of labial palpus with two blackish rings, the basal one being very narrow, sometimes disappearing, and the other occupying almost apical half of segment. Antenna blackish-brown, annulated with pale gray narrowly. Fore and mid legs dark brown to blackish-brown, with two or three pale spots on femora and tibiae, the tarsi being white, with apical half of each segment blackish; hind coxa and basal half of hind femur golden-yellow, the apical half of the femur being dark brown to blackish; hind tibia and tarsus ochre-white, darkened apically on each segment. Fore wing dark brown to blackish, slightly tinged with iridescent reflections, with rather variable markings: in blackish specimens a series of golden-yellow spots situated on costa and termen, and a golden-yellow costal streak at basal  $1/3$ , extending to fold obliquely, very narrow, straight, sometimes broken at its middle with ground colour; in lighter specimens many golden-yellow strigulae and blackish spots situated alternately on costa, and an oblique costal streak wider, shading into ground colour outwardly; cilia around apex of wing dark brown to blackish, with two pale lines, and those along hind margin dark gray. Hind wing and its cilia dark gray.

Male genitalia (Pl. V, Fig. 29): Tegumen short, about half as long as vinculum; subsclaphium slender, expanding to and fan-shaped at basal extremity. Valva rather short, slightly upturned, quadrangular, obliquely truncated at terminal margin, with a shallow concavation near apex of ventral margin, with a few spines around ventro-apical corner, and with many slender, rather short setae along terminal margin. Transtilla present, rather wide, hardly sclerotized, with a pair of large, obtusely pointed upper processes. Vinculum a little longer than valva, nearly parallel-sided, round apically. Aedoeagus a little longer than vinculum, with two cornuti, one lying on apical half of aedoeagus, round apically, and the other at phallobase, needle-shaped. Posterior core-matis consisting of hair-like scales, about half as long as anterior one; ventral pouch of seventh abdominal segment  $1/3$ - $2/5$  as long as dorsal ridge of eighth segment.

Female genitalia (Pl. XIV, Fig. 49): Lamella postvaginalis small, acute-triangular; lamella antevaginalis fan-shaped, fused with ventral wall of ostium bursae. Ductus bursae rather short, scobinate, with a complicated antrum, which has a large, much sclerotized protuberance on the dorsal side; cervix bursae sclerotized on most area, about as long as ductus bursae; corpus bursae membranous, with a corniform signum, which is rather long, slender, and curved.

Holotype ( $\delta$ ): 6/ix, 1964, Soranuma-dake, Hokkaido, ex *Acer tschonoskii*. Paratypes: 3 $\text{f}$   $\text{f}$ , 12/viii, 1957, Aizankei, Daisetu-zan, Hokkaido, ex *A. tschonoskii*; 1 $\delta$ , with the same data as holotype; 2 $\text{f}$   $\text{f}$ , 6/vii, 1965, Sasayama, Hyōgo-ken, Honsyu, ex *A. crataegifolium*; 2 $\delta$   $\delta$ , 26-29/vii, 1956, Nara, Honsyu (S. Issiki leg.), ex *A. rufinerve*; 1 $\delta$ , 18/v, 1954, Iwakakisan, Osaka, Honsyu (T. Yasuda leg.), ex *Acer* sp.; 1 $\text{f}$ , 15/x, 1954, Hikosan, Kyusyu (H. Kuroko leg.), ex *A. crataegifolium*. The holotype is deposited in the Ent. Inst., Hokkaido University.

Host plants: *Acer crataegifolium* Sieb. et Zucc., *Acer rufinerve* Sieb. et Zucc. and *Acer tschonoskii* Maxim. (Aceraceae).

Remarks: Although the new species is very variable in colour and markings, it is distinguished at once from any other Japanese species of the genus by the presence of a golden-yellow, oblique, narrow costal streak of the fore wing. In having this costal

streak, however, it resembles closely *C. semifascia* (Haworth, 1828) of Europe and *C. scansoria* (Meyrick, 1910) of Himalaya. From *semifascia* it is easily distinguished by the colour of the costal streak of the fore wing (the costal streak is whitish in *semifascia*), by the quadrangular shape of the valva and by the corpus bursae having only one signum; from *scansoria* by the shape of the costal streak, which is straight and reaches the fold of the wing.

*Caloptilia kurokoi*, sp. nov. (Pl. I, Fig. 8)

♂ & ♀. Alar expanse, 15.5 mm. Head and face dark brown, mixed with some gray scales, the latter becoming whitish anteriorly. Palpi ochre-white, suffused with dark brown on lower side; apical segment of labial palpus much darkened on lower and lateral sides of apical half. Antenna wholly blackish-brown. Thorax dark reddish-brown. Fore and mid legs dark reddish-brown, with a yellowish stripe on outer side of fore femur and basal half of mid tibia; the tarsi white, first segment medianly and apically and all others apically blackish; hind coxa and basal 1/3 of hind femur whitish, the apical 2/3 of the femur being reddish-brown; hind tibia and tarsus dark ochre-gray, paler at bases of tibia and all tarsal segments. Fore wing reddish-brown or chestnut-brown, becoming slightly paler towards apex; an obtuse-triangular, whitish blotch extending on costa from basal 1/4 to 3/5, irrorated with brownish scales on almost whole area, with 7-9 blackish-brown spots along costa; cilia around apex of wing pale reddish-brown, with two or three dark lines, and those along hind margin dark ochre-gray. Hind wing dark gray, with cilia dark ochre-gray.

Male genitalia (Pl. VI, Fig. 30): Tegumen a little shorter than vinculum; subscaphium rather narrow, T-shaped at basal extremity. Valva large, upcurved, much dilated apically, round on terminal margin, with a shallow concavation near apex of ventral margin, with a few short spines just beyond concavation, and with a number of slender, long marginal setae. Vinculum about 3/4 as long as valva, gradually tapering towards round apex. Aedoeagus 1.3 times as long as vinculum, somewhat dilated at apical 1/3, with 19 corniform cornuti arranged in a row on almost whole length of aedoeagus and phallobase, one at apical 1/3 of aedoeagus being much larger, hook-shaped, about 1/4 as long as aedoeagus. Posterior cremaster consisting of hair-like scales, about 1/3 as long as anterior one; ventral pouch of seventh abdominal segment about 1/3 as long as dorsal ridge of eighth segment.

Female genitalia (Pl. XV, Fig. 50): Lamella postvaginalis large, trapezoid in shape; lamella antevaginalis absent. Bursa copulatrix sclerotized on almost whole area except for corpus bursae; antrum slightly widened caudad, with ostium bursae separated by convolute walls of antrum; ductus bursae slightly dilated cephalad, once coiled on median area as in *C. hemidactylella* (Fabricius); corpus bursae pyriform, with two rather slender, curved, corniform signa which are equal in size.

Holotype (♂): 27/x, 1960, Hikosan, Kyusyu (H. Kuroko leg.), ex *Acer rufinerve*. Paratype: 1♀, 20/x, 1960, with the same locality and host as holotype. All the types are preserved in the Ent. Lab., Kyusyu University.

Host plants: *Acer rufinerve* Sieb. et Zucc. (Aceraceae).

Remarks: At first sight this species resembles closely *C. stigmatella* (Fabricius, 1781), which attacks leaves of willow and poplar. It is, however, distinguished from the latter by the genital structure of both sexes and by the more deeply reddish fore wing,

thorax and legs.

The present species is named in honour of Dr. H. Kuroko of Osaka Prefectural University.

***Caloptilia monticola***, sp. nov. (Pl. II, Fig. 9)

♂ & ♀. Alar expanse, 12.0–13.0 mm. Head and thorax ochre-brown, the former being sparsely mixed with dark ochre-gray; face and palpi ochre-yellow; apical segment of labial palpus darkened on lower and lateral sides. Antenna pale ochre-gray, annulated with dark brown. Fore and mid legs reddish-brown, densely irrorated with blackish-brown scales, with a whitish spot at middle of tibiae and femora, the tarsi being white, ringed with black on apical half of each segment; hind coxa and femur brassy-yellow, with a large, blackish blotch at middle of femur; hind tibia and tarsus ochre-white, darkened apically on all segments. Fore wing ochre-brown, narrowly yellowish along costal margin from basal 1/3 to apex, somewhat clouded in disc, especially the apical area being densely irrorated with blackish-brown scales; a series of blackish dots situated along costa throughout and rarely along hind margin; an ill-defined, yellowish, triangular blotch situated at basal 1/3 of costa, sometimes reduced to a yellowish spot above fold; cilia around apex of wing pale ochre-brown, with three lines of blackish irrorations, and those along hind margin dark gray. Hind wing gray, with cilia dark gray.

Male genitalia (Pl. VII, Fig. 30): Tegumen nearly as long as vinculum; subscaphium very narrow, expanding to and fan-shaped at basal extremity. Valva large, upcurved, much dilated apically, round on terminal margin, with one or two short spines at basal 2/3 of ventral margin, and with a number of slender, long marginal setae. Vinculum rather short, a little longer than half length of valva, tapering towards round apex. Aedoeagus about 1.5 times as long as vinculum, bar-shaped, straight, acutely pointed apically, with 11–15 small, corniform cornuti on phallobase, the posterior two lying solitarily and the rest arranged in a row. Posterior corematis consisting of hair-like scales, about 1/3 as long as anterior one; ventral pouch of seventh segment about 1/3 as long as dorsal ridge of eighth segment.

Female genitalia (Pl. XV, Fig. 51): Lamella postvaginalis elongate-trapezoid in shape; lamella antevaginalis absent. Bursa copulatrix very large, long, with a specifically complicated structure; antrum rather weakly sclerotized, narrower than ductus bursae; ductus bursae not distinguished from cervix bursae, weakly sclerotized on caudal 1/3, strongly sclerotized and thickened on cephalic 2/3, usually folded at caudal 1/3 and 2/3 as shown in the figure; corpus bursae membranous, elongate-ovoid in shape, with two large, sclerotized blotches on caudal half, and with two slightly curved, corniform signa, which are stretched from the median area of the corpus bursae, equal in size, and rather short.

Holotype (♂): 26/viii, 1963, Daisen, Tottori-ken, Honsyu (T. Yasuda leg.), ex *Acer rufinerve*. Paratypes: 1♂, 14/viii, 1957, Aizankei, Daisetuzan, Hokkaido, ex *A. tschonoskii*; 3♂♂ & 2♀♀, 23–26/viii, 1963, with the same locality and host as holotype. The holotype is in the Ent. Inst., Hokkaido University.

Host plants: *Acer rufinerve* Sieb. et Zucc. and *Acer tschonoskii* Maxim. (Aceraceae).

Remarks: On account of the presence of many corniform cornuti on the phallobase, the much wider cucullus of the valva, and the once-coiled and much sclerotized ductus

bursae, this species may be closely related to *C. hemidactylella* (Fabricius, 1787) and *C. kurokoi* Kumata. It is, however, easily distinguished from *hemidactylella* by the presence of a series of blackish, remarkable spots along the costa and by the smaller, ill-defined, yellowish costal blotch of the fore wing; and from *kurokoi* by the ochre-brownish ground colour, by the yellowish, ill-defined costal blotch and by the details of the genital structure.

*Caloptilia gloriosa*, sp. nov. (Pl. II, Fig. 10)

♂ & ♀. Alar expanse, 8.5-10.0 mm. Face golden-yellow; head and thorax dark purplish-brown, the former being mixed with leaden-metallic scales. Palpi ochre-white; apical segment of labial palpus blackish-brown except for apex and base. Antenna pale ochre-gray, annulated with blackish brown. Fore and mid legs blackish-brown, irrorated with pale brown, the tarsi being white, with a blackish apical ring on each segment, the fore coxa being pale golden-yellow on basal 3/4; hind coxa and basal half of hind femur pale golden-yellow, the apical half of the femur being blackish-brown; hind tibia and tarsus ochre-yellow, suffused with dark gray on apical half of tibia and first tarsal segment, with a blackish apical ring on all tarsal segments. Fore wing bright purple, with two pale golden-yellow costal blotches; first costal blotch extending on costa from basal 1/4 to just before middle, oblique outwardly, usually reaching hind margin, narrowest at fold, sometimes parallel-sided or acutely pointed at hind margin, with two or three indistinct blackish spots on costa; second costal blotch at apical 1/5 smaller, triangular or rarely semicircular, reaching half breadth of wing; in some specimens a small, yellowish spot appearing at costa between two costal blotches, and a similar spot at tornus opposite second costal blotch; cilia around apex of wing dark purplish-brown, with two pale lines, and those along hind margin dark gray. Hind wing brilliant gray, with cilia dark gray.

Male genitalia (Pl. VII, Fig. 33): Tegumen rather short, a little shorter than vinculum, which is about half as long as the valva and tapers very slightly towards the round apex; subscaphium narrow, slightly widened at basal extremity. Valva rather large, much dilated apically, truncated on terminal margin perpendicularly to ventral margin, with a short, remarkable projection at ventro-apical corner, and with a number of slender, long marginal setae. Aedoeagus about 1.3 times as long as vinculum, corniform, with two long, corniform cornuti lying on aedoeagus, one being a little shorter than, and the other about half as long as, aedoeagus. Posterior corematis consisting of long hair-like scales and many short normal-shaped ones, and about half as long as anterior one; ventral pouch of seventh abdominal segment rather thick, about half as long as dorsal ridge of eighth segment.

Female genitalia (Pl. XVI, Fig. 53): Lamella postvaginalis rather small, triangular, with cephalic margin notched; lamella antevaginalis very slightly sclerotized, slender. Bursa copulatrix rather short, the caudal section (antrum) being very weakly sclerotized, slender, about 1/4 as long as whole length of bursa copulatrix, and the cephalic one (ductus bursae + corpus bursae) being membranous, dilated at median area, usually wrinkled longitudinally on caudal 3/4, with two corniform signa, which are situated near the cephalic end, equal in size, short, and almost straight.

Holotype (♂): 9/vii, 1964, Sapporo, Hokkaido, ex *Acer mono*. Paratypes: 6♂♂ & 6♀♀, 15-29/ix, 1964, Nopporo, Hokkaido, ex *A. mono*; 2♀♀, 17/ix, 1964, Nopporo, ex

*A. sieboldianum*; 1♂ & 1♀, 22/ix, 1964, Nopporo, ex *A. japonicum*; 7♂♂ & 13♀♀, 14/ix-1/x, 1964, Sapporo, ex *A. mono*; 2♂♂ & 1♀, 17-22/ix, 1964, Sapporo, ex *A. sieboldianum*; 4♀♀, 31/v-8/vi, 1964, Kozagawa, Wakayama-ken, Honsyu, ex *A. palmatum*. The holotype is in the Ent. Inst., Hokkaido University.

Host plants: *Acer japonicum* Thunb., *Acer mono* Maxim., *Acer palmatum* Thunb. and *Acer sieboldianum* Miquel (Aceraceae).

Remarks: In colour this species is very similar to *C. bimaculatella* (Ely, 1915) occurring in North America and *C. magnifica* (Stainton, 1867) in South Europe, but may be distinguished from *bimaculatella* by the golden-yellow face and by the two costal blotches of the fore wing separated widely from each other; and more easily from *magnifica* by the fore wing without a golden-yellow hind-basal blotch and by the shape of the valva, which is quadrangular, with a short projection at ventro-apical corner.

***Caloptilia geminata*, sp. nov.** (Pl. II, Fig. 11)

♂ & ♀. Alar expanse, 10.0-13.5 mm. Face brassy-yellow, shading into pale purplish-brown head at vertex; thorax purplish-brown, with a brassy-yellow median stripe. Palpi yellowish-white or pale brassy-yellow, with apical segment of labial palpus ringed with dark brown near apex. Antenna dark brown, annulated with light brown. Fore and mid legs purplish-brown, darker than thorax, the tarsi being white, ringed with dark brown apically on each segment; hind coxa and basal half of hind femur golden-yellow, the apical half of the femur being dark purplish-brown; hind tibia and tarsus yellowish-white, somewhat suffused with brown on apical half of tibia and basal half of first tarsal segment, ringed with dark brown apically on all tarsal segments. Fore wing bright purplish-brown, appearing dark brown in some light, with two brassy-yellow, triangular costal blotches, and with one elongate hind spot at base; first costal blotch extending on costa from basal 1/5 to just before middle, reaching fold in its apex, the inner margin being oblique and round, and the outer margin being nearly straight and slightly oblique inwardly; second costal blotch separated from the first one by about its width, obtuse-triangular or rarely semioval, reaching half breadth of wing; cilia around apex of wing dark brownish-gray, with three lines of blackish-brown irrorations, and those along hind margin ochre-gray. Hind wing dark brownish-gray, with cilia ochre-gray.

Male genitalia (Pl. VI, Fig. 31): Tegumen a little longer than vinculum, round apically; subscaphium very narrow, somewhat widened triangularly at basal extremity. Valva rather long, upcurved, dilated on apical half, round on terminal margin, with a semielliptical lobe in centre, and with a number of slender marginal setae. Vinculum rather short, about half as long as valva, widely truncated apically. Aedoeagus 1.3 times as long as vinculum, slender, tapering apically, without any cornutus. Posterior core-matis consisting of slender scales as well as anterior one, about 1/4 as long as the anterior; ventral pouch of seventh abdominal segment absent.

Female genitalia (Pl. XVI, Fig. 54): Lamella postvaginalis large, triangular or elongate-trapezoid in shape, with ostium bursae opening in centre. Ductus bursae slender, moderate in length, wholly membranous except for short antrum which is widened towards ostium bursae; corpus bursae large, ovoid in shape, with two slightly curved signa, which are equal in size, and somewhat dilated near apex.

Holotype (♂): 8/viii, 1954, Niyūgawa, Gihu-ken, Honsyu (S. Issiki leg.), ex *Vaccinium* sp. Paratypes: 1♂, with the same data as holotype; 1♂, 29/vi, 1952, Higasiyama, Kyōto,

Honsyu (A. Mutuura leg.); 1♂, 21/vi, 1956, Kokubu, Osaka, Honsyu (S. Moriuti leg.); 1♂ & 2♀♀, 4/vi, 1953, Sandankyo, Hirosima-ken, Honsyu (S. Issiki & T. Kodama leg.). The holotype is deposited in the Ent. Inst., Hokkaido University.

Host plants: *Vaccinium* sp. (Ericaceae).

Remarks: In colouration this species is quite related to *C. vacciniella* (Ely, 1915), which is known to attack the leaf of *Vaccinium* sp. in North America, but may be distinguished from the latter by the brassy-yellowish face and hind coxa, by the presence of one brassy-yellow median stripe of the thorax and by the larger costal blotches of the fore wing.

*Caloptilia ryukyuensis*, sp. nov. (Pl. II, Fig. 12)

♂ & ♀. Alar expanse, 12 mm. Face pale golden-yellow; head and thorax reddish-brown, strongly tinged with violet reflections, the latter with an orange-yellow, large postmedian blotch. Palpi yellowish-white; labial palpus suffused with orange-yellow on lower side, the apex being slightly roughened and thickened with blackish scales. Antenna pale yellowish-gray, annulated with dark brown broadly. Fore and mid legs reddish-brown, usually darker than thorax, the tarsi being shining white, with a reddish-brown basal ring and a pale orange-yellow median one on first segment, and a pale orange-yellow apical band on other segments; hind coxa and basal half of hind femur pale orange-yellow, apical half of the femur being dark reddish-brown; hind tibia and tarsus ochre-whitish, somewhat suffused with gray on tibia and first tarsal segment, with a dark gray apical ring on all tarsal segments. Fore wing elongate, slightly dilated at middle, long-pointed, reddish-brown, strongly tinged with purplish reflections, with 6-8 small tufts of strigulae consisting of a few blackish, raised scales on hind margin and termen, with two bright orange-yellow, isosceles-triangular costal blotches, and with a small, elongate hind spot at base; first costal blotch extending on costa from basal 1/4 to just beyond middle, reaching nearly dorsal margin, distinctly margined with black scales on both sides, with a few dark dots along costa; second costal blotch rather close to the first, about half as small as the first, with a few blackish marginal scales; cilia around apex and along termen of wing pale brown, with three lines of dark brown irrorations, and those along hind margin dark ochre-gray. Hind wing dark gray, with cilia dark ochre-gray.

Male genitalia (Pl. IX, Fig. 36): Tegumen a little shorter than vinculum; subscaphium very narrow on whole length. Valva about 1.4 times as long as vinculum, rather narrow, upturned near base, slightly dilated apically, obliquely truncated on terminal margin, with a row of spine-like, apically trifurcate setae arranged outside usual marginal setae. Vinculum gradually tapering towards bluntly pointed apex. Aedoeagus about 1.5 times as long as vinculum, rather straight, narrowed apically, without any cornutus. Posterior corematis consisting of hair-like scales, about 3/4 as long as anterior one; ventral pouch of seventh abdominal segment about 1/3 as long as dorsal ridge of eighth segment.

Female genitalia (Pl. XVI, Fig. 52): Lamella postvaginalis rather small, short-trapezoid in shape, with both caudal and cephalic margins concave or notched as shown in the figure. Ductus bursae very slender, long, membranous except for weakly sclerotized, short antrum; corpus bursae elongate-ovoid or pyriform, with two sinuate, corniform signa, one being 1.7-2 times as long as the other.

Holotype (♀): 2/v, 1960, Tokuno-sima, the Amami Islands (T. Kodama leg.). Paratypes: 2♀♀, 22/iv-2/v, 1960, with the same locality as holotype; 3♂♂, 17-20/xi, 1963, Mt. Omoto, Isigaki Is., Ryukyu (G. A. Samuelson leg.); 1♀, 4-5/xi, 1963, Sirahone, Iriomote Is., Ryukyu (G. A. Samuelson leg.); 1♀, 3-7/xi, 1963, Mt. Usiku, Iriomote Is. (G. A. Samuelson leg.); 1♀, 18/iv, 1962, Iriomote Is. (G. Kuno leg.). The holotype is in the Ent. Inst., Hokkaido University.

Host plants: Unknown.

Remarks: This species is closely related to *C. palaearcha* (Meyrick, 1930) of Fiji Islands, but may be distinguished from the latter by the presence of an orange-yellow blotch on the thorax and 6-8 small tufts of a few blackish raised scales on the hind margin of the fore wing, and by the absence of a yellowish dot at the tornus of the fore wing.

***Caloptilia alni*, sp. nov.** (Pl. II, Figs. 13 & 14)

♂ & ♀. Alar expanse, 14.5-16.0 mm. Head, thorax and fore wing rather variable in ground colour, ochre-brown to dark reddish-brown, and in dark specimens slightly tinged with bluish reflections. Face usually golden-yellowish. Palpi ochre-brown, paler on upper side. Antenna pale ochre-gray, annulated with blackish brown broadly. Fore and mid legs dark reddish-brown, densely mixed with blackish scales, the tarsi being white, with a black apical ring on each segment; hind leg shining grayish, the coxa being yellowish-brown to dark brown, and the femur being blackish on basal 3/4. Fore wing very similar to *C. elongella* (Linné) in shape and colouration; in most specimens the wing uniformly coloured or having only one inconspicuous, paler costal blotch before middle; in a few specimens having some irregular dark spots along costa and just below fold; cilia around apex of wing concolorous with wing, without any line, and those along hind margin gray. Hind wing dark gray, with cilia gray.

Male genitalia (Pl. VIII, Fig. 34): Tegumen about as long as vinculum; subscaphium suddenly widened triangularly at basal extremity. Valva about 1.5 times as long as vinculum, rather strongly dilated apically, round on terminal margin, with a number of slender marginal setae. Vinculum rather narrow, tapering towards pointed apex. Aedoeagus about 1.5 times as long as vinculum, needle-shaped, with two very slender apical prongs, one being longer, simple, and the other bifurcated apically, much slenderer and spinose on the basal 2/3; a double longitudinal row of 20-30 small spine-like cornuti placed on median area of phallobase. Posterior corematis consisting of hair-like scales, about 2/3-1/2 as long as anterior one; ventral pouch of seventh abdominal segment very short, 1/4-1/3 as long as dorsal ridge of eighth segment.

Female genitalia (Pl. XVII, Fig. 56): Lamella postvaginalis rather small, trapezoid in shape, with caudal margin convex medianly; lamella antevaginalis rather large, with each latero-caudal corner projecting in a round lobe. Antrum weakly sclerotized, short, slender. Ductus bursae very long, slightly thicker than antrum, hardly sclerotized on basal area of ductus seminalis, distinctly squamous on succeeding caudal half, and then hardly sclerotized again on remaining cephalic half that is irregularly curved and twice coiled. Corpus bursae elongate-pyriform, membranous, with two curved corniform signa which are equal in size.

Holotype (♂): 6/ix, 1964, Nopporo, Hokkaido, ex *Alnus japonica*. Paratypes: 1♀, 22/ix, 1963, and 1♀, 3/x, 1964, Wassamu, Hokkaido, ex *A. hirsuta*; 1♂, 28/vii, 1959,

Nukabira, Hokkaido, ex *A. hirsuta*; 1♀, 12/vii, 1957, Aizankei, Daisetu-zan, Hokkaido, ex *A. hirsuta*; 4♂♂ & 4♀♀, 4-16/ix, and 1♂, 21/vii, 1959, Apoi, Hidaka, Hokkaido, ex *A. hirsuta*; 1♀, with the same data as holotype; 2♂♂, 11-29/ix, 1964, Nopporo, ex *A. hirsuta*; 1♀, 12/vii, 1956, Sapporo, Hokkaido, ex *A. hirsuta*; 1♂, 19/vii, 1959, Sapporo; 1♂, 12/ix, 1963, Muine-dake, Hokkaido, ex *A. hirsuta*; 1♀, 9/viii, 1962, Soranuma-dake, Hokkaido; 1♂, 21/x, 1957, Yatuga-dake, Nagano-ken, Honsyu (K. Kamijo leg.), ex *A. hirsuta*; 1♀, 17/v 1953, Utukusigahara, Nagano-ken (A. Mutuura leg.). The holotype is in the Ent. Inst., Hokkaido University.

Host plants: *Alnus japonica* Steud. and *Alnus hirsuta* Turcz. (Betulaceae).

Remarks: This species has been erroneously identified with *C. elongella* (Linné, 1761) by former authors. By courtesy of Prof. Dr. E. M. Hering and Dr. J. Klimesch, I have had the opportunity to examine European specimens determined by them as *elogella*. After my careful comparison of the genitalia of both the species I have come to the conclusion that *alni* should be a distinct species, being distinguished from *elongella* by the structure of the aedoeagus and the ductus bursae as shown in Pls. VIII and XVIII. From *C. alnicolella* (Chamber, 1875), an alder-feeding species in North America, *alni* is also readily distinguished by the structure of the aedoeagus, which is provided with two apical prongs and a double longitudinal row of small cornuti on the median area of the phallobase (in *alnicolella* the aedoeagus bears a simple apical prong and a double longitudinal row of cornuti running from the base of the phallobase to the apex of the aedoeagus)<sup>2)</sup>.

***Caloptilia pulverea*, sp. nov.** (Pl. II, Figs. 15 & 16)

♂ & ♀. Alar expanse, 12.5-14.0 mm. Almost whole surface dull straw-yellow in ground colour. Face becoming paler anteriorly and leaden-metallic posteriorly. Palpi irrorated with blackish brown on lower and lateral sides. Antenna annulated with blackish-brown. Anterior four femora and tibiae reddish-brown, mixed with blackish-brown scales; hind femur with a blackish subapical blotch; hind tibia suffused with dark gray; all tarsi with a blackish apical ring on each segment. Thorax somewhat suffused with dark brownish-gray anteriorly and medianly in most specimens. Fore wing irregularly clouded with dark or brownish gray on almost whole area, slightly tinged with violet reflections, with a series of blackish dots or strigulae along costa, and with three blackish large spots, one being situated just beyond middle of costa, another at basal 2/3 of fold, and the third at basal 1/3 of fold, sometimes indistinct; in a few specimens fore wing uniformly straw-yellow without such grayish clouds, but having usual blackish dots and spots (see Pl. II, Fig. 16); cilia around apex of wing dull straw-yellow, with two or three dark lines, and those along hind margin gray. Hind wing dark gray, with cilia gray.

Male genitalia (Pl. IX, Fig. 37): Tegumen short, about 3/5 as long as vinculum, round apically, setaceous on apical area, with a triangular lobe near base of each latero-caudal margin; subscaphium very short, wedge-shaped at basal extremity. Valva similar to *C. populetorum* (Zeller) in shape, slightly longer than vinculum, much dilated apically, shallowly concave at middle of terminal margin, with marginal setae occurring very densely around apex. Vinculum rather narrow, tapering towards obtusely pointed apex. Aedoeagus about as long as valva, needle-shaped, without any cornutus. Posterior

2) McDonnough, J. 1946. Canad. Ent. 78: 92, fig. 3.

corematis consisting of slightly widened scales as well as anterior one, about  $2/3$  as long as the anterior; seventh abdominal segment without ventral pouch.

Female genitalia (Pl. XVIII, Fig. 58): Lamellae postvaginalis and antevaginalis absent. Ductus bursae very slender, long, wholly membranous except for weakly sclerotized and very short antrum. Corpus bursae membranous, ellipsoidal, with two slender, hook-shaped signa, one being slightly shorter and situated more caudad than the other.

Holotype ( $\delta$ ): 22/viii, 1963, Soranuma-dake, Hokkaido, ex *Alnus maximowiczii*. Paratypes: 1 $\delta$  & 1 $\varphi$ , 23-25/viii, 1958, Risiri-to, near Hokkaido, ex *A. maximowiczii*; 1 $\delta$  & 6 $\varphi\varphi$ , 14-30/viii, 1957, and 1 $\varphi$ , 10/viii, 1964, Sapporo, Hokkaido, ex *A. japonica*; 1 $\delta$  & 2 $\varphi\varphi$ , with the same data as holotype; 1 $\delta$  & 1 $\varphi$ , 19/vi, 1952, Sunagawa, Osaka, Honsyu (T. Kodama leg.), ex *A. japonica*; 1 $\varphi$ , 1/vii, 1957, Ino, Koti-ken, Sikoku, ex *Alnus* sp.; 4 $\delta\delta$  & 4 $\varphi\varphi$ , 1-25/vii, 1965, Takakuma-yama, Kagosima-ken, Kyusyu, ex *A. firma*. The holotype is deposited in the Ent. Inst., Hokkaido University.

Host plants: *Alnus firma* Sieb. et Zucc., *Alnus japonica* Steud. and *Alnus maximowiczii* Callier (Betulaceae).

Remarks: This species is closely related to *C. populetorum* (Zeller, 1839) which attacks the leaf of birch in Europe, but is at once distinguished from the latter by lacking the cornutus and the lamella postvaginalis. It is also quite close to *C. alnivorella* (Chamber, 1875), an alder-feeding species in North America, from which it may be separated by the structure of the tegumen in the male and by the unequal signa in the female.

***Caloptilia cecidophora*, sp. nov.** (Pl. III, Fig. 17)

$\delta$  &  $\varphi$ . Alar expanse, 12.0 mm. Face pale golden-yellow; head dark reddish-brown, with a deep metallic gloss. Palpi pale yellow, with a small, dark apical spot on lower side of labial palpus. Antenna ochre-yellow, annulated with dark brown. Thorax and patagium deep orange-yellow, shading into reddish brown laterally, the tegula being dark reddish-brown. Fore and mid legs dark reddish-brown, usually darker than head; tarsi ochre-white, the first segment medianly and others basally orange-yellowish; hind leg pale ochre-yellow, the femur with a reddish-brown subapical blotch, the tibia being darkened apically. Fore wing rather broad, with a long termen, the ground colour being reddish-brown, much darkened on costal area before an isosceles-triangular, orange-yellow costal blotch and on discal area near outer margin of the blotch, which extends from basal  $1/3$  to apical  $1/3$  on costa and is margined with blackish irrorations on both inner and outer margins; a smaller, ill-defined, pale mark situated also on costa near apex; hind margin before tornus narrowly orange-yellow, shading into ground colour towards fold; cilia almost wholly pale reddish-brown, with three lines of dark brown irrorations. Hind wing blackish-gray, with cilia pale ochre-gray.

Male genitalia (Pl. X, Fig. 38): Tegumen a little shorter than vinculum; subscaphium slightly widened on basal  $2/5$ . Valva rather elongate, upcurved, much dilated apically, straight on terminal margin, with a number of slender setae on almost whole surface of cucullus. Vinculum about  $2/3$  as long as valva, gradually tapering towards obtusely pointed apex. Aedoeagus a little longer than vinculum, needle-form, without any cornutus. Posterior corematis consisting of hair-like scales, a little shorter than anterior one; ventral pouch of seventh abdominal segment about  $2/5$  as long as dorsal ridge of eighth segment.

Female genitalia (Pl. XVIII, Fig. 60): Papilla analis with a few short, spine-like setae on dorso-caudal corner besides usual slender setae. Lamella postvaginalis sub-elliptical in shape, without latero-cephalic prongs extending to antapophyses; lamella antevaginalis absent. Ductus bursae very long, slender, membranous except for very short, weakly sclerotized antrum. Corpus bursae elongate-ovoid in form, membranous, with two short, curved, corniform signa which are equal in size.

Holotype (♂): 3/vii, 1965, Nisinoomote, Tanega-sima, near Kyusyu, ex *Glochidion obovatum*. Paratype: 1♀, 5/vii, 1965, with the same locality and host as holotype. The holotype is in the Ent. Inst., Hokkaido University.

Host plants: *Glochidion obovatum* Sieb. et Zucc. (Euphorbiaceae).

Remarks: This species makes a gall upon the upper side of leaves of the host plant, *Glochidion obovatum*, along the vein. The gall is very similar to those of some sawflies belonging to the genus *Euura* in form. So far as I am aware, *C. murtfeldtiella* (Busck, 1904), is only another gall-marker of this genus (see Braun, 1922, *Canad. Ent.* 54: 91).

The present species is characterized by the broad fore wing and the valva bearing a number of setae on almost whole surface of the cucullus as well as the peculiar larval habit. It is somewhat similar *C. ryukyuensis* Kumata in colour pattern, but is immediately separated from the latter by the presence of only one well-defined, triangular costal blotch and the absence of small tufts of raised scales on the fore wing.

***Caloptilia solaris*, sp. nov.** (Pl. III, Fig. 18)

♂ & ♀. Alar expanse, 14.0–15.0 mm. Face shining white; head and thorax coppery-reddish, usually tinged with bluish or violet reflections, the latter being paler in central area. Palpi white; second segment of labial palpus slightly yellowish, with a few reddish-brown scales on lower side, the apical segment with a blackish-brown apical ring. Antenna orange-yellow, annulated with grayish brown. Fore coxa dark reddish-brown uniformly; anterior four femora and tibiae coppery-reddish, becoming purely reddish on lower side, with a few irregular, dark bands, the tarsi being white, with a reddish-brown basal ring and an orange-yellow, broad median one on first segment, and an orange-yellow basal one on other segments; hind leg pale brassy-yellow, the tibia being suffused with gray on upper half, the tarsus becoming whitish towards apex. Fore wing very bright brassy-yellow, the basal 1/7 and hind margin being wholly coppery-reddish, with a series of deep bluish-glossy fuscous strigulae, the coppery-reddish hind area occupying a little less than posterior 1/3 of wing breadth; cilia around apex of wing orange-yellow to reddish-coppery, with two pale lines, and those along hind margin dark gray. Hind wing and its cilia dark gray.

Male genitalia (Pl. X, Fig. 39): Tegumen about as long as vinculum; subscaphium very long, slender, and suddenly widened and T-shaped at basal extremity. Valva a little shorter than twice length of vinculum, upcurved, slightly dilated apically, round on terminal margin, with a number of slender setae along whole length of ventral and terminal margins, the setae diminishing towards base of ventral margin. Vinculum gradually tapering towards obtusely pointed apex. Aedoeagus a little longer than vinculum, bar-shaped, without any cornutus. Posterior corematis consisting of slender scales, rather thickly tufted as well as anterior one, about half as long as the anterior; ventral pouch of seventh abdominal segment very long, about as long as dorsal ridge

of eighth segment.

Female genitalia (Pl. XVIII, Fig. 59): Lamella postvaginalis very weakly sclerotized, short-trapezoid in shape, with cephalic margin deeply notched, the notch reaching almost caudal margin; lamella antevaginalis absent. Ductus bursae very slender, slightly dilated towards cephalic end, membranous except for very short, cup-shaped antrum. Corpus bursae elongate-ellipsoidal in form, with two hook-shaped, rather short signa which are equal in size.

Holotype (♂): 12/vi, 1964, Kozagawa, Wakayama-ken, Honsyu, ex *Pasania edulis*. Paratypes: 2♀, 9-12/vi, 1964, with the same locality and host as holotype; 1♀, 5/vii, 1956, Kosugidani, Yaku-sima, near Kyusyu, ex *P. edulis*. The holotype is deposited in the Ent. Inst., Hokkaido University.

Host plants: *Pasania edulis* Makino (Fagaceae).

Remarks: This species is closely related to *C. isochrysa* (Meyrick, 1908) described from Assam, India, from which it may be distinguished by the fore wing with much broader, brassy-yellow costal area, which is a little more than 2/3 as broad as wing in *solaris*, while a little more than half in *isochrysa*.

***Caloptilia heliciae*, sp. nov.** (Pl. III, Fig. 19)

This species is very closely related to the preceding one, *solaris*, from which it is distinguished by the following features:—

♂ & ♀. Much smaller: alar expanse, 10.0 mm. Labial palpus crimson, lined with white on upper side, with a blackish subapical ring. Antennal scape crimson, the annulations of other antennal segments being less conspicuous. Fore coxa shining white as well as face; anterior four tarsi with a blackish apical ring alone on each segment. Fore wing elongate-lanceolate; crimson-coppery area along hind margin narrower, about 1/4 as wide as wing, with dark strigulae sparser, smaller and less bluish-grossy; brassy-yellow costal area extending more basally; a minute, blackish, triangular spot situated usually at base of costa of wing; cilia around apex of wing pale crimson, without any dark or pale line.

Genitalia (Pl. X, Fig. 40; Pl. XX, Fig. 63): In male subscaphium very slender on whole length, not widened at basal extremity; valva slightly slenderer, about 2.5 times as long as vinculum, which is rather short, about half as long as tegumen; aedeagus needle-shaped, about 1.2 times as long as vinculum; ventral pouch of seventh segment shorter, about 2/3 as long as dorsal ridge of eighth segment; posterior corematis consisting of rather wide scales in a spade-shape. In female lamella postvaginalis very hardly sclerotized, small, obtuse-triangular; corpus bursae less elongate, with slightly curved, corniform signa, which are unsymmetrical in situation.

Holotype (♂): 30/xi, 1959, Anbo, Yaku-sima, near Kyushu (H. Kuroko leg.), ex *Helicia cochinchinensis*. Paratype: 1♀, 22/xi, 1959, with the same locality and host as holotype. All the types are deposited in the Ent. Lab., Kyusyu University.

Host plants: *Helicia cochinchinensis* Lour. (Proteaceae).

Remarks: In colour this species is closely related to *C. ariana* (Meyrick, 1914) of Ceylon, but may be distinguished from the latter by the white fore coxa, by the fore wing with crimson-coppery hind area being about 1/4 as wide as the wing, and by the smaller size (the alar expanse is 10.0 mm. in the present species, while 13.0 mm. in *ariana*).

*Caloptilia magnoliae*, sp. nov. (Pl. III, Fig. 20)

♂ & ♀. Alar expanse, 14.5–15.5 mm. Face pale brownish-gray; head a little darker than face, mixed with ochre-brown scales laterally. Palpi brownish-fuscous, becoming paler towards base. Antenna violet-blackish, annulated with pale gray narrowly. Thorax dark reddish-brown, suffused with violet-black in central area, the ventral surface with a pair of acute-triangular white stripes. Fore coxa white, the apical half being violet-blackish; anterior four femora and tibiae dark reddish-brown, mixed with fuscous scales densely; tarsi white, the first segment medianly and apically and other segments apically blackish; hind coxa and basal 1/3 of hind femur shining white, the apical 2/3 of the femur being violet-blackish; hind tibia and tarsus pale ochreous, darkened apically on all segments. Fore wing dark reddish-brown, very slightly violet-grossy, irregularly irrorated with white scales at apical area sparsely and along fold and costa rather densely, the white scales at basal 1/3 of costa forming an oblique streak which reaches middle of wing, and those along costa forming many small strigulae which are alternated with violet-blackish strigulae; an ill-defined, violet-blackish streak running along inner margin of white-irrorated costal streak, sometimes extending along costa towards base, a similar streak running along dorsal margin near base, and other one running in discal area from apex of white-irrorated costal streak to apex of wing, rather sinuate; cilia around apex of wing ochre-brown, becoming slightly paler towards base, with a pale, straight line at subapex, and those along hind margin dark gray. Hind wing and its cilia dark gray.

Male genitalia (Pl. XI, Fig. 41): Tegumen about as long as vinculum, rather wide, round apically; subscaphium gradually narrowed basally, irregularly hashed with transverse wrinkles of tegumen near basal 1/4, short-bifurcated at basal extremity. Valva about twice as long as vinculum, upturned, much dilated apically, rather straight on terminal margin, with marginal setae occurring densely at both ventro- and costo-apical corners. Vinculum wide, gradually tapering towards short-truncated apex. Aedoeagus a little longer than vinculum, bar-shaped, suddenly narrowed on about apical 1/8, without any cornutus. Posterior corematis consisting of elongate scales which are arranged in a row, about half as long as posterior one; ventral pouch of seventh abdominal segment 1/3 to 1/2 as long as dorsal ridge of eighth segment.

Female genitalia (Pl. XIX, Fig. 61): Lamella postvaginalis rather small, trapezoid in shape, the caudal margin being round or sinuate, and the cephalic margin being slightly convex; lamella antevaginalis short, band-shaped. Ductus bursae very long, slender on whole length, membranous except for weakly sclerotized, short antrum; corpus bursae very large, ovoid or globular, with two slender, hook-shaped signa, which are equal in size, but unsymmetrical in situation.

Holotype (♂): 11/ix, 1964, Nopporo, Hokkaido, ex *Magnolia kobus*. Paratypes: 1 ♀, 22/vi, 1959, Apoi, Hidaka, Hokkaido; 1 ♀, 24/vi, 1961, Yuni, Hokkaido; 40 ♂♂ & 62 ♀♀, 8–22/ix, 1964, with the same locality and host as holotype; 2 ♂♂, 19/vii, 1959, Sapporo, Hokkaido; 13 ♂♂ & 17 ♀♀, 15–22/ix, 1964, Sapporo, ex *M. kobus*. The holotype is preserved in the Ent. Inst., Hokkaido University.

Host plants: *Magnolia kobus* DC. (Magnoliaceae).

Remarks: This species is gregarious in the larval stage: in young instars 5–20 larvae live together in a large blotch mine, and in the 4th and 5th instars in a cigarette-formed leaf-roll.

The new species is somewhat similar to *C. zonotarsa* (Meyrick, 1936) of India and *C. zopherotarsa* (Meyrick, 1936) of China, but is at once distinguished from those by the presence of the white-irrorated streak at the basal 1/3 of the fore wing and by the more reddish ground colour.

***Caloptilia schisandrae*, sp. nov.** (Pl. III, Figs. 21 & 22)

♂ & ♀. Alar expanse, 14.5–15.5 mm. Face creamy-ochreous, slightly paler than head, the posterior half being tinged with a leaden gloss; head and thorax creamy-ochreous, with a dark, longitudinal median line running throughout; tegula darkened basally. Palpi creamy-ochreous; second segment of labial palpus slightly thickened with rough, blackish scales apically, the apical segment being more slightly roughened beneath, blackish except for apex and base. Antenna ochreous, annulated with dark brown broadly. Fore coxa brownish, the apical 2/5 being violet-blackish; anterior four femora and tibiae violet-blackish, with one or two brownish spots, the tarsi being creamy-ochreous, with a dark apical ring on third to fifth segments; hind coxa and femora violet-blackish, the tibia and tarsus being creamy-ochreous, darkened on apical 2/3 of tibia, on whole area of first and second tarsal segments, and on apical 1/3 of other segments. Fore wing ochre-brown, somewhat darker along discal area from middle to apex, irregularly irrorated with violet-blackish scales on whole area, the violet-blackish scales forming an outwardly oblique streak at basal 1/5 of costa, a small blotch at middle of costa, a short line at basal 2/7 of hind margin, and a discal line near apex of wing; cilia dark gray with a pale ochreous subapical line at apex of wing, pale ochre-brown with a dark gray apical line along termen, and wholly ochre-gray along hind margin. Hind wing gray, with cilia ochre-gray.

Male genitalia (Pl. XI, Fig. 42): Tegumen about as long as vinculum; subsclaphium rather wide, much widened and fan-shaped at basal extremity, finely spinous on basal half. Valva about 1.5 times as long as vinculum, slightly upturned near base, gradually dilated apically, rather straight on terminal margin, with a number of usual marginal setae. Vinculum triangular, the apex extending narrowly in a round lobe. Aedoeagus a little longer than vinculum, slender, bar-shaped, without any cornutus. Posterior corematis consisting of hair-like scales, about half as long as anterior one; ventral pouch of seventh abdominal segment absent.

Female genitalia (Pl. XIX, Fig. 62): Lamella postvaginalis very large, somewhat spatulate in shape, extending greatly beyond caudal margin of eighth abdominal segment; lamella antevaginalis absent. Ductus bursae very long, slender, membranous except for weakly sclerotized, short antrum. Corpus bursae very large, ovoid or globular, with two slender, long, hook-shaped signa, which are equal in size, but slightly unsymmetrical in position.

Variation: A male specimen at hand which was reared in autumn differs in the colour markings from the above description, but agrees well in genitalia. The differences are as follows:—face and head wholly leaden-metallic; thorax and fore wing violet-blackish on whole surface, without markings; hind tibia and tarsus suffusedly dark gray on whole length. This variation may be a melanic autumnal form.

Holotype (♂): 18/viii, 1964, Tomakomai, Hokkaido, ex *Schisandra chinensis*. Paratypes: 1♂, 29/vii, 1958, Horokanai, Hokkaido; 1♂ (melanic form), 8/ix, 1964, Soranumadake, Hokkaido, ex *S. chinensis*; 1♂ & 2♀♀, with the same data as holotype; 1♀,

31/viii, 1951, and 1 ♂, 24/vii, 1952, Iwawaki-san, Osaka, Honsyu (S. Issiki leg.). The holotype is deposited in the Ent. Inst., Hokkaido University.

Host plants: *Schisandra chinensis* Baill. (Magnoliaceae).

Remarks: From the preceding *magnoliae*, the present species is immediately distinguished by the basally brownish fore coxa, by the wholly violet-blackish hind coxa and hind femur, by the spinous subsclerite and by the much larger lamella postvaginalis.

***Caloptilia kadsurae*, sp. nov.** (Pl III, Fig. 23)

♂ & ♀. Alar expanse, 13.0-14.0 mm. Face, head and thorax dark fuscous, heavily tinged with violet reflections, the face with a pale ochreous anterior blotch. Palpi ochre-yellow; apical segment of labial palpus blackish except for upper side. Antenna dark fuscous, annulated with ochre-gray narrowly, the scape being ochre-yellow. Fore coxa yellowish-white, mixed with a few brownish scales, the apical 1/4 being violet-blackish; anterior four femora and tibiae violet-blackish, the tarsi being pale ochre-brown, suffusedly darkened on almost whole area of first segment and on apical area of other segments; hind coxa and femur yellowish white, mixed with brownish scales apically, the latter being violet-blackish on apical 1/4; hind tibia and tarsus dark gray, somewhat becoming pale ochre-brown towards base of all segments except for first tarsal one. Fore wing fuscous, heavily tinged with violet reflections, sparsely and irregularly spotted with pale ochre-yellow scales on almost whole surface; cilia dark fuscous around apex of wing, with an indistinct, pale median line, along hind margin being dark gray. Hind wing and its cilia dark gray.

Male genitalia (Pl. XII, Fig. 43): Tegumen about 2/3 as long as vinculum, round apically; subsclerite very slightly widened towards base, finely spinous on basal half. Valva a little longer than vinculum, slightly upcurved, moderately dilated apically, round on terminal margin, with usual marginal setae occurring more densely at ventro-apical corner. Vinculum very elongate, gradually tapering towards round apex. Aedeagus as long as or a little shorter than vinculum, bar-shaped, tapering apically, without any cornutus. Posterior corematis consisting of wide scales which occur upon an elongate area, the anterior one consisting of hair-like scales, about thrice as long as the posterior; ventral pouch of seventh abdominal segment 1/3-1/2 as long as dorsal ridge of eighth segment.

Female genitalia (Pl. XX, Fig. 64): Lamella postvaginalis very weakly sclerotized, rather small, trapezoid in shape, the caudal margin being straight or slightly convex, and the cephalic margin being moderately convex at middle; lamella antevaginalis absent. Ductus bursae very long, entirely slender, membranous except for weakly sclerotized, short antrum. Corpus bursae very large, ellipsoidal or globular, with two curved, slender, corniform signa, one of which is slightly longer and situated more caudad than the other.

Holotype (♂): 6/vi, 1964, Kozagawa, Wakayama-ken, Honsyu, ex *Kadsura japonica*. Paratypes: 5♂♂ & 4♀♀, 30/v-10/vi, 1964, with the same locality and host as holotype; 1♀, 21-24/v, 1964, Kii-Osima, Wakayama-ken; 1♀, 7/vii, 1965, Takakuma, Kagosima-ken, Kyusyu, ex *K. japonica*; 2♀♀, 19/v, 1958, Sata, Kagosima-ken (S. Issiki & T. Yasuda leg.), ex ? *Eurya japonica*; 1♂ & 3♀♀, 1963, Mt. Usiku, Iriomote Is., Ryukyu (G. A. Samuelson leg.). The holotype is in the Ent. Inst., Hokkaido University.

Host plants: *Kadsura japonica* Dunal (Magnoliaceae) and ? *Eurya japonica* Thunb.

(Theaceae).

Remarks: This species is closely related to the preceding one, *schisandrae*, but is distinguished from the latter by the colouration of the fore wing and hind leg, by the shape of the vinculum, the subsaphium and the scales of the posterior corematis in the male genitalia, and by the shape of the lamella postvaginalis and the signa in the female genitalia.

*Caloptilia illicii*, sp. nov. (Pl. III, Fig. 24)

♂ & ♀. Alar expanse, 15.0-16.5 mm. Face dark gray, mixed with brassy-yellow scales laterally; head and thorax brassy-yellow, tinged with greenish reflections, the former being mixed with a few dark gray scales medially, and the latter with a brownish-gray blotch at posterior area; tegula darkened basally; ventral surface of thorax dark violet-fuscous, heavily mixed with brassy-yellow scales. Palpi pale brassy-yellow; second segment of labial palpus with a triangular tuft on lower side, the tuft being sparsely irrorated with brownish gray, and  $1/2-2/3$  as long as the apical segment, which is also moderately tufted with scales apically, and rather densely irrorated with brownish gray. Antenna pale ochre-yellow, annulated with dark brown moderately. Legs fuscous, finely irrorated with pale yellow; hind caxa, basal half of hind femur and basal  $3/4$  of fore coxa suffused with brassy-yellow scales; all tarsi and hind tibia becoming ochreous towards inner side. Fore wing very bright brassy-yellow, tinged with greenish reflections, with an ill-defined, ochre-gray zigzag mark throughout surface, leaving 6 or 7 ground-coloured blotches on costal margin, and with a series of blackish costal spots on these blotches each; blotches on hind area indistinct with ochre-gray strigulae; cilia brassy-yellow with a blackish mark around apex of wing, wholly blackish at tornus, and dark brownish-gray along hind margin. Hind wing and its cilia dark brownish-gray.

Male genitalia (Pl. XII, Fig. 44): Tegumen a little shorter than vinculum, round apically; subsaphium entirely narrow. Valva about 1.3 times as long as vinculum, upturned near base, rather dilated apically, round on ventro-apical corner, with a row of spine-like setae outside slender, usual marginal setae. Vinculum rather large, suddenly tapering towards slightly extending apex. Aedoeagus about as long as vinculum, bar-shaped, suddenly narrowed near apex, without any cornutus. Posterior corematis consisting of hair-like scales, about  $3/4$  as long as anterior one; ventral pouch of seventh abdominal segment short, about  $1/6$  as long as dorsal ridge of eighth segment.

Female genitalia (Pl. XX, Fig. 65): Lamella postvaginalis rather large, subtriangular in shape, the apex being round and extending narrowly beyond caudal margin of eighth abdominal segment; lamella antevaginalis absent. Ductus bursae very long, entirely slender, membranous except for weakly sclerotized, short antrum. Corpus bursae large, ellipsoidal or ovoid, with two slender, hook-shaped signa, one being curved more strongly, slenderer and situated more caudad than the other.

Holotype (♀): 25/vi, 1964, Nati, Wakayama-ken, Honsyu, ex *Illicium religiosum*. Paratypes: 1 ♀, with the same data as holotype; 2 ♀♀, 4-5/vii, 1952, Ôsugidani, Wakayama-ken (T. Kodama leg.), ex *I. religiosum*; 1 ♂, 27/viii, 1957, Omogokei, Sikoku (M. Okada leg.). The holotype is deposited in the Ent. Inst., Hokkaido University.

Host plants: *Illicium religiosum* Sieb. et Zucc. (Magnoliaceae).

Remarks: Although this species has a quite unique colour pattern and a very characteristic structure of the labial palpus, it is rather related to *C. magnoliae* Kumata

and *C. schisandrae* Kumata in the genital structure. In the structure of the labial palpus, it resembles *C. metadoxa* (Meyrick, 1908), from which it is immediately distinguished by the absence of the raised scale-projections of the fore wing as well as the very different colour markings.

### Explanation of plates

**Plates I-III** (Figures 1-24). Wings. Fig. 1, *Caloptilia aceris*, sp. nov. (holotype); 2, *C. acericola*, sp. nov. (paratype); 3, *C. heringi*, sp. nov. (holotype); 4, *C. hidakensis*, sp. nov. (holotype); 5, *C. wakayamensis*, sp. nov. (paratype); 6, *C. semifasciella*, sp. nov. (holotype); 7, ditto (paratype); 8, *C. kurokoi*, sp. nov. (holotype); 9, *C. monticola*, sp. nov. (holotype); 10, *C. gloriosa*, sp. nov. (paratype); 11, *C. geminata*, sp. nov. (holotype); 12, *C. ryukyuensis*, sp. nov. (paratype); 13, *C. alni*, sp. nov. (paratype); 14, ditto (holotype); 15, *C. pulverea*, sp. nov. (holotype); 16, ditto (paratype, a variation); 17, *C. cecidophora*, sp. nov. (holotype); 18, *C. solaris*, sp. nov. (paratype); 19, *C. heliciae*, sp. nov. (holotype); 20, *C. magnoliae*, sp. nov. (holotype); 21, *C. schisandrae*, sp. nov. (holotype); 22, ditto (paratype, a melanic form); 23, *C. kadsurae*, sp. nov. (paratype); 24, *C. illicii*, sp. nov. (holotype).

**Plates IV-XII** (Figures 25-44). Male genitalia. Fig. 25, *C. aceris*, sp. nov.; 26, *C. acericola*, sp. nov.; 27, *C. heringi*, sp. nov.; 28, *C. wakayamensis*, sp. nov.; 29, *C. semifasciella*, sp. nov.; 30, *C. kurokoi*, sp. nov.; 31, *C. geminata*, sp. nov.; 32, *C. monticola*, sp. nov.; 33, *C. gloriosa*, sp. nov.; 34, *C. alni*, sp. nov.; 35, *C. elongella* (Linné); 36, *C. ryukyuensis*, sp. nov.; 37, *C. pulverea*, sp. nov.; 38, *C. cecidophora*, sp. nov.; 39, *C. solaris*, sp. nov.; 40, *C. heliciae*, sp. nov.; 41, *C. magnoliae*, sp. nov.; 42, *C. schisandrae*, sp. nov.; 43, *C. kadsurae*, sp. nov.; 44, *C. illicii*, sp. nov.

**Plates XIII-XX** (Figures 45-65). Female genitalia. Fig. 45, *C. aceris*, sp. nov.; 46, *C. acericola*, sp. nov.; 47, *C. heringi*, sp. nov.; 48, *C. wakayamensis*, sp. nov.; 49, *C. semifasciella*, sp. nov.; 50, *C. kurokoi*, sp. nov.; 51, *C. monticola*, sp. nov.; 52, *C. ryukyuensis*, sp. nov.; 53, *C. gloriosa*, sp. nov.; 54, *C. geminata*, sp. nov.; 55, *C. hidakensis*, sp. nov.; 56, *C. alni*, sp. nov.; 57, *C. elongella* (Linné); 58, *C. pulverea*, sp. nov.; 59, *C. solaris*, sp. nov.; 60, *C. cecidophora*, sp. nov.; 61, *C. magnoliae*, sp. nov.; 62, *C. schisandrae*, sp. nov.; 63, *C. heliciae*, sp. nov.; 64, *C. kadsurae*, sp. nov.; 65, *C. illicii*, sp. nov.

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## NOTES ON SOME LITHOCOLLETIS-MOTHS OCCURRING IN JAPAN (LEP., GRACILLARIIDAE)

By TOSIO KUMATA

As a supplement to my previous paper published in 1963, "Taxonomic Studies on the Lithocolletinae of Japan" (part I, *Ins. Mats.* 25(2): 53-90; part II, 26(1): 1-48; part III, 26(2): 69-88), some notes on localities or host plants of Japanese *Lithocolletis*-species will be given hereinafter.

### *Lithocolletis nipponicella* Issiki

Issiki, 1930, *Ann. Mag. Nat. Hist.* 6: 430 [Hokkaido and Honsyu]. Kumata, 1963, *Ins. Mats.* 25: 79, f. 19 [Hokkaido, Honsyu, Sikoku and Kyusyu. Host plants: *Quercus dentata*, *Q. serrata*, *Q. mongolica* var. *grosseserrata* and *Q. acutissima*].

### Errata

Vol. 26, No. 1, 1963, p. 19, line 13 from top; p. 26, line 5 from top; p. 36, line 11 from top; p. 37, line 5 from bottom; p. 41, line 15 from bottom; and p. 42, line 9 from bottom, for "hardly" read "strongly".

Vol. 29, No. 1, 1966, p. 4, line 9 from top and line 4 from bottom; p. 5, lines 11 and 12 from bottom; p. 6, line 23 from top; p. 12, lines 5 and 7 from bottom; and p. 16, line 11 from bottom, for "hardly" read "strongly".

Vol. 29, No. 1, 1966, p. 7, line 8 from top, for "borwn" read "brown"; p. 8, line 19 from top, for "Fig. 30" read "Fig. 32"; p. 13, line 15 from top, for "XVIII" read "XVII"; and p. 17, line 17 from bottom, for "posterior" read "anterior".

Vol. 29, No. 1, 1966, p. 22, line 6 from bottom, for "*Ltihocolletis*" read "*Lithocolletis*".