



Title	Descriptions of a new genus and a new species of Gracillariidae from Japan (Lepidoptera)
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Citation	Insecta matsumurana, 24(1): 52-56
Issue Date	1961-03
Doc URL	<a href="http://hdl.handle.net/2115/9671">http://hdl.handle.net/2115/9671</a>
Type	bulletin
File Information	24(1)_p52-56.pdf



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DESCRIPTIONS OF A NEW GENUS AND  
A NEW SPECIES OF  
GRACILLARIIDAE FROM JAPAN  
(LEPIDOPTERA)

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In the course of his taxonomic study on gracillariid moths the writer has found an interesting species which is new to science. Moreover, he has concluded that a new genus should be erected for the reception of the species.

Before preceding further, the writer expresses his sincere acknowledgement to Prof. Dr. T. Uchida and Prof. Dr. C. Watanabe for their guidance and encouragement. Grateful thanks are also due to Dr. Y. Nishijima of Entomological Institute, Hokkaido University, and Mr. H. Kuroko of Hikosan Biological Laboratory of Kyusyu University for their kindness in offering the interesting material.

*Chrysaster* gen. nov.

Male and female. Head with rather small frontal tuft of hairy scales. Antenna about as long as fore wing; scape very slightly thickened, with a basal pecten of a few hairs. Ocellus not perceptible. Labial palpus short, drooping, filiform, pointed. Thorax without crest. Fore and mid tibiae smooth; hind tibia with several loosely appressed hairs on upper and lower surfaces.

Fore wing narrow, lanceolate, with 8 veins;  $Cu_1$ ,  $M_2$ ,  $M_3$ ,  $R_1$  and  $R_3$  absent,  $An_2$  simple,  $An_1$  rudimentary,  $Cu_2$  originating from lower angle of cell,  $R_5$  arising from middle of  $M_1$  to costa,  $R_4$  originating from apex of cell, and  $R_2$  arising from about apical  $1/8$  of cell. Hind wing  $4/5$  as long as fore wing, very narrow, linear, with 5 veins;  $Cu_1$ ,  $M_2$  and  $M_3$  absent,  $An$  rudimentary,  $Cu_2$  simple,  $M_1$  weak on basal  $2/3$ , and  $R$  ending at basal  $3/5$  of costa; cilia expanding 4 times breadth of the wing.

Male genitalia symmetrical. Transtilla present. Valva moderately complicate; costa developed, visible owing to presence of hairy clasper; sacculus not separated from cucullus. Uncus with a longitudinally sclerotized bar (subscaphium) on the inner side. Saccus very elongate. Ninth sternite not produced into a flap. Anellus sclerotized, without dorso-lateral processes.

Female genitalia symmetrical. Genital plate not defined. Ductus bursae very short, with a sclerotized antrum; corpus bursae entirely membranous, without signum.

Type species: *Chrysaster hagicola* sp. nov.

This genus is closely related to the genera *Cameraria* Chapman and *Lithocolletis* Hübner. It differs from the two by the following points:—(1) The vein  $R_5$  stalked with the vein  $M_1$  in the fore wing. (2) In the male genitalia the subsaphium occurring on the inner side of the uncus and the ninth sternite not produced into a flap. Furthermore, this species has such a peculiar habit that the full-grown larva makes its cocoon outside the mine.

*Chrysaster hagicola* sp. nov.

Male and female. Face and palpus silvery-white, tinged with golden reflections; frontal tuft pale yellowish-brown; antenna brown, with the underside pale brown; each segment darkened towards the top. Thorax silvery- or leaden-metallic, somewhat tinged with yellowish reflections, with tegula and patagia golden-brown. Fore tibia whitish, with the inner side blackish; fore tarsus blackish, with two median and one terminal rings white; mid and hind tibiae whitish, cloudy on the outer side; mid and hind tarsi blackish, with one basal, two median and one terminal rings white.

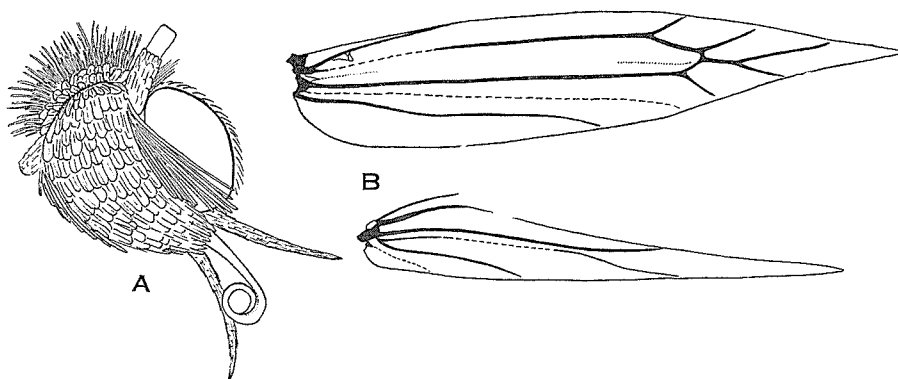


Fig. 1. *Chrysaster hagicola* sp. nov.

A: Lateral view of head.

B: Venations of fore and hind wings.

Fore wing orange-brown, faintly tinged with golden reflections, with silvery-white markings. A basal median streak of ill-defined form very short, merely extending to basal  $1/12$  of wing, without dark margin. Two fasciae internally margined with dark scales, externally shading into ground colour, the first one placed at basal  $1/4$ , slightly outwards-oblique from costa, and the second one at middle slightly inwards-oblique. Two pairs of blotches also internally margined with dark scales, and triangular or wedge-shaped; first pair of these blotches placed at basal  $3/4$ , and the other one at apical  $1/5$ ; the first dorsal blotch largest; the second dorsal one smallest, formed by only a few scales, and not extending onto cilia. A dark line in cilia passing around apical margin of wing from first dorsal blotch to second costal one; cilia yellowish-white.

Expanse of fore wings, 4.5–5.0 mm.

Hind wing pale grey; cilia pale brownish-grey.

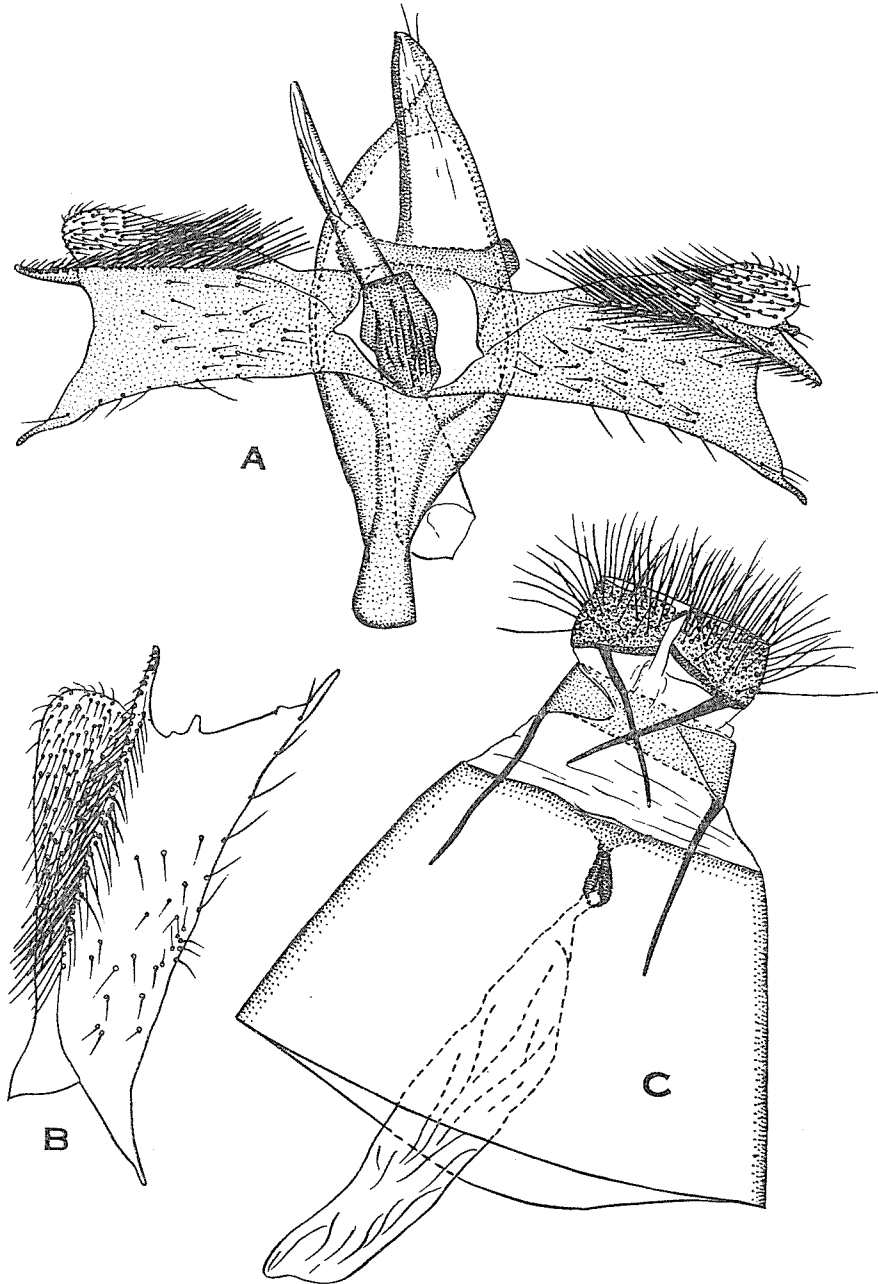


Fig. 2. *Chrysaster hagicola* sp. nov.

A: Caudal view of male genitalia (holotype).

B: Right valva.

C: Ventral view of female genitalia.

Male genitalia symmetrical. Costa slightly weakened, dilated and rounded terminally; sacculus + cucullus with terminal margin concave, its lower apex produced and pointed; clasper longitudinally produced between costa and sacculus + cucullus in a ridge, its apex quite extending beyond apical margin of valva. Transtilla wide, with terminal margin slightly concave in the middle, and apparently obliquely truncated on both sides. Anellus somewhat elongate-hexagonal. Aedoeagus tapering towards apex, slightly bent at middle.

Female genitalia symmetrical. Postapophysis moderate in length, slightly shorter than antapophysis. Sclerotized portion of eighth abdominal segment very broadly interrupted on ventrum. Ductus bursae very short, about  $1/5$  as long as seventh abdominal segment, and sclerotized on the median  $1/3$ .

Holotype: ♂ (host: *Lespedeza bicolor*), Sapporo, Hokkaido, 19. V, 1959, T. Kumata leg.

Paratypes: 3 ♂♂ and 3 ♀♀ (host: *L. bicolor*), Erimo, Hokkaido, 28. VI, 1950, Y. Nishijima leg.; 1 ♀ (host: *L. bicolor*), Sapporo, Hokkaido, 19. XII, 1958, T. Kumata leg.; 2 ♂♂ (host: *L. bicolor*), Sapporo, Hokkaido, 12-14. V, 1959, T. Kumata leg.; 1 ♂ (host: *L. bicolor*), Teine, Hokkaido, 29. V, 1959, T. Kumata leg.; 1 ♀ (host: *L. bicolor*), Agematu, Nagano-ken, Honsyu, 22. II, 1958, K. Kamijo leg.; 1 ♀ (host: *L. cyrtobotrya*), Ino, Kōti-ken, Sikoku, 1. VII, 1957, T. Kumata leg.; 1 ♀, Hikosan, Kyusyu, 3. VI, 1957, T. Kumata leg.; 1 ♂ (host: *L. cyrtobotrya*), Hikosan, Kyusyu, 12. V, 1954, H. Kuroko leg.; 2 ♀♀ (host: *L. cyrtobotrya*), Hikosan, Kyusyu, 29. VII, 1955, H. Kuroko leg.; 1 ♂ (host: *L. cyrtobotrya*), Hikosan, Kyusyu, 4. VIII, 1956, H. Kuroko leg.

The types are deposited in the collection of Entomological Institute, Hokkaido University, except four paratypes, collected by Mr. H. Kuroko, in the collection of Entomological Laboratory, Kyusyu University.

Host plants: *Lespedeza bicolor* Turcz. and *Lespedeza cyrtobotrya* Miq. (Leguminosae).

Distribution: Japan (Hokkaido, Honsyu, Sikoku and Kyusyu).

The larva of this species mines into the leaves of the host plants. In the first four instars the larva is flat and of the sap-feeding type, while in the last instar it is cylindrical and of the tissue-feeding type, but never feeds on the tissue consisting of lower parenchyma cells. At full maturity it cuts a semicircular hole at a corner of the mine through the upper epidermis, and then leaves the mine through the hole to pupate. It spins an oval or ellipsoidal cocoon at an edge of the contracted leaf.

The mine is flat, occurring upon the upper side of the leaf as in most species of the genus *Cameraria* Chapman. It is linear at the first stage, and then suddenly broadens in the succeeding stage, finally becoming a large blotch covering about  $1/4$  to  $1/3$  (sometimes nearly half) of a single leaf. The mine is discoloured with yellow or brown on the upper side. Dark brown frasses are plastered on the central part of the lower wall of the mine-gallery.

Judging from Ely's redescription\* of *Lithocolletis ostensackenella* (Fitcher), a miner

\* Ely, C. R. A revision of the North American Gracilariidae from the standpoint of venation. Proc. Ent. Soc. Washington, 19: 29-77 (1917).

of *Robinia pseudacacia* L. and *R. hispida* L., it seems quite possible that the species is referable to the genus *Chrysaster*. *Chrysaster hagicola* is closely related to *Lithocolletis ostensackenella* (Fitcher), but may be distinguishable from the latter by the presence of a short median streak of silvery-white colour on the base of the fore wing.

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**NEW HOST-RECORDS OF SOME JAPANESE SPECIES OF LITHOCOLLETIS.** As a supplement to my previous papers (Insecta Matsumurana, Vol. 21, Nos. 1/2, pp. 62-68, 1957; *ibid.*, Vol. 21, Nos. 3/4, pp. 132-137, 1958) the following host-records of three *Lithocolletis*-species may be given:—

1. *Lithocolletis longispinata* Kumata, 1958. This species was originally described from specimens reared from leaf mines of *Alnus japonica* (Thunb.) Steud. in Hokkaido and Honsyu. On this occasion *Alnus hirsuta* Turcz. is included in the host list of this species for the first time: that is, four female specimens were bred from mines occurring upon the lower surface of the leaves of *Alnus hirsuta* at Zyōzankei, Hokkaido in April, 1958. These specimens are slightly variant from the types in colour-markings as follows:— Apical eight to ten segments of antenna entirely pure white; two white strips on thorax rather narrower; basal half of patagia golden-ochreous.

2. *Lithocolletis nigristella* Kumata, 1957. Up to the present time, this species has been known to occur in Hokkaido alone as a leaf miner of *Quercus dentata* Thunb. In the following lines will be given two new localities and a new host: in 1957, I obtained three males and one female at Morioka, Honsyu and one male at Ino, Kōti-ken, Sikoku, all of which were reared from mines occurring upon the lower surface of the leaves of *Quercus serrata* Thunb.

3. *Lithocolletis leucocorona* Kumata, 1957. This species was originally described from Hokkaido as a leaf miner of *Quercus dentata* Thunb. Recently, I have examined one female specimen collected by Prof. Dr. S. Issiki at Nisinomiya, Honsyu in June, 1949, and one male specimen reared from a leaf mine of *Quercus serrata* Thunb. at Hukuoka, Kyusyu in July, 1957.

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