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DESCRIPTIONS OF TWO NEW SPECIES OF
THE GENUS *LITHOCOLLETIS*
FEEDING ON *ALNUS* IN JAPAN

(Lepidoptera, Gracilariidae)

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In Japan no *Alnus*-feeding member belonging to the genus *Lithocolletis* HÜBNER has hitherto been known. In the course of the present study the writer has found two species reared from *Alnus*, which are new to science. All the type specimens are deposited in the collection of the Entomological Institute, Hokkaido University.

The writer wishes to acknowledge his indebtedness to Prof. Dr. T. UCHIDA and Prof. Dr. C. WATANABE for their constant guidance and encouragement. His hearty thanks are also due to Prof. Dr. S. ISSIKI of Ōsaka Prefectural University and Mr. H. KUROKO of the Hikosan Biological Laboratory of Kyusyu University for their kind suggestions and help in various ways.

Lithocolletis longispinata sp. nov. (Fig. 1)

Male and female. Frontal tuft ochreous, mixed with white in center; palpus and face silvery-white; antenna whitish-grey, each joint spotted with dark, the dark spots becoming smaller and more obscure towards base and apex. Thorax golden-ochreous, with two white stripes passing over ochreous tegula and with a white spot at hind angle; patagia white. Legs yellowish-white; tibiae and all tarsal joints spotted with dark. Abdomen pale grey, beneath white, with anal tuft whitish.

Fore wing (fig. 1, A) golden-ochreous, somewhat thickened towards apex, with two basal streaks, a fascia, three costal and one or two hind blotches silvery-white. First basal streak placed just above fold, reaching one-third of length of wing, rather broad, slightly arched towards costa, margined with dark along entire margin. Second basal streak along hind margin of wing a little shorter than first basal one, strongly expanding towards apex, margined with dark on costal and apical edges. Fascia situated just before middle, slightly convex outwardly, shading into ground colour on outer side, margined with dark on inner side; dark margin of the fascia combined with that of hind basal streak along hind margin of wing. First pair of blotches at basal two-thirds slightly oblique towards apex, margined with dark on inner sides, the dark margins being often confluent above middle across wing; first hind blotch largest, triangular, opposite

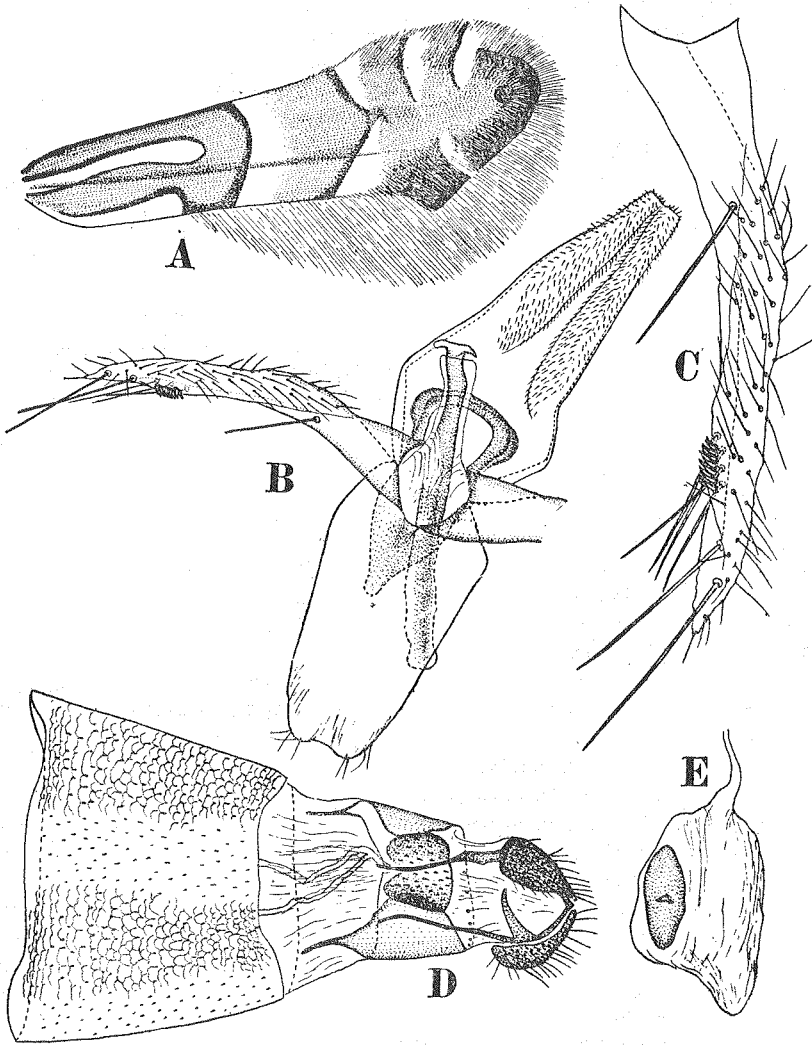


Fig. 1. *Lithocolletis longispinata* sp. nov.

- A: Fore wing.
- B: Caudal view of male genitalia.
- C: Right valva.
- D: Ventral view of female genitalia.
- E: Corpus bursae.

costal blotch smaller, triangular or narrowly wedge-shaped. Second and third costal blotches small, hook- or wedge-shaped, and weakly margined with dark irroration on inner side. Second hind blotch sometimes visible, and only represented by one to seven white scales. A small spot at apex of wing black. A broad purple-brown band on base of cilia passing around apex of wing; cilia yellowish-grey. Hind wing grey, with cilia pale grey.

Expanse of fore wings 7-8 mm.

Male genitalia (fig. 1, B) symmetrical. Valva (fig. 1, C) very elongate, upwardly convex, pointed apically, with six to eight long setae, among which one is placed on inner side at basal one-fourth, and others on apical one-fourth; stout and short setae situated together at hind margin of apical one-fourth of valva, and many slender setae also placed on inner surface. Uncus rather wide, about as long as valva, truncated apically, with a number of microspines on paired ridges inside. Succus triangular, slightly projected apically; ninth sternite a little shorter than valva, with a small indent at apex. Aedoeagus a little shorter than valva, pickel-shaped (in a few specimens bar-shaped, with a triangular barb at apex).

Female genitalia (fig. 1, D) moderately sclerotized. Papillae anales separated from each other, with some setae and with a number of microspines. Sterigma sclerotized in a large plate, somewhat cupped, concave at cephalic margin, with many acute microspines on outer surface, placed between both pieces of eighth sternite which are widely separated on ventrum. Seventh sternite with imbricate patterns on both sides. Corpus bursae (fig. 1, E) placed between third and fourth abdominal segments; signum sclerotized in an elliptical plate, with two cone-shaped projections inside.

Holotype (♂): Sapporo, 28. VII, 1956; allotype (♀): Tomakomai, 24. VIII, 1957; paratypes: 1♂ and 1♀, Sapporo, 24. VIII, 1957; 1♀, Tomakomai, 25. VIII, 1957, T. KUMATA leg.

Locality: Japan (Hokkaido).

Host plant: *Alnus japonica* (THUNB.) STEUD.

Mine: Ptychonome, yellowish- or brownish-green, rather elongate, large, placed on lower surface of leaf, lying between two veins; upper parenchima remained only in the center of mining part of leaf; lower surface of mine bearing longitudinally five to eight stout ridges. Frass situated behind white cocoon in a mass.

The species is allied to *Lithocolletis ulmifoliella* ZELLER, but it is clearly distinguishable from the latter by lacking the dark apical hairs in the cilia of the fore wing and by having six to eight long setae on the elongate valva. It is distinguished from *Lithocolletis martiella* BRAUN from America by having the following characters:— fore wing with a basal white streak along hind margin; basal median white streak of fore wing edged with dark beneath and above; tarsi spotted with dark. It is also related to *Lithocolletis zonochoares* MEYRICK from India, but it differs from the latter by having the apical spot on the fore wing.

Lithocolletis hancola sp. nov. (Fig. 2)

Male and female. Frontal tuft brownish, mixed with many white scales in center; palpus and face white; antenna whitish-grey, narrowly annulated with dark grey, with apical one or two joints blackish. Thorax and tegula golden-ochreous; thorax with two longitudinal white stripes, which are united each other through white patagia, and with a white spot on hind angle. Legs whitish-ochreous, tibiae and tarsi spotted with dark brown. Abdomen grey, with anal tuft whitish.

Fore wing (fig. 2, A) pointed apically, golden-ochreous, lightly yellowish, with a short median basal streak, a hind basal spot, five costal and four or five hind blotches white. Median basal streak placed on fold, distinctly detached from base, sometimes the apex touching first hind streak, without dark margin. Hind basal spot very variable in size, often connecting with first hind blotch. All costal and hind blotches more or less margined with dark-brown scales anteriorly. First hind blotch extending from hind margin of basal one-fifth to fold, rather narrow, moderately oblique towards apex. First costal blotch originating from basal one-fourth, moderately oblique towards apex. Second hind blotch originating at one-third, bent outwardly on fold for a short distance, then extending towards costa, and connecting with second costal one at costal one-third in acutely angulated fascia (in a few specimens fascia not so bent on fold, and sometimes interrupted with ground colour on fold). Third hind blotch situated before tornus, largest, triangular, and reaching costal one-third across wing, with dark margin most conspicuous, extending discal area between third and fourth costal blotches. Remaining blotches perpendicular, small, and wedge-shaped or triangular. Apical median area irrorated with dark brown scales. Cilia ochreous-grey with a median ill-defined dark line along apex of wing from fourth costal blotch to third hind blotch. Hind wing grey, with cilia whitish.

Expanse of fore wings 6.5-7.5 mm.

Male genitalia (fig. 2, B) asymmetrical. Right valva (fig. 2, C) slightly arched upwardly, partially convex at basal one-third of dorsum, apically rounded, with a long and sinuate seta at apical angle of the convex portion, with some stout setae on inner surface of apical area and with many slender marginal setae. Left valva resembles right one, but broader. Uncus about as long as valva, pointed apically, without microspines. Succus short, triangular, apically blunt; ninth sternite elongate, quadrangular, apically sinuate. Aedoeagus bar-shaped, slightly longer than valva, obtusely bent at apical one-fifth, with three triangular barbs on apical one-fifth.

Female genitalia (fig. 2, D and E) stoutly sclerotized. Papillae anales having some setae and a number of microspines; ninth+tenth abdominal segment sclerotized broadly, as long as seventh abdominal segment, with a less sclerotized oval area on dorsum; apophyses posterior very short. Eighth abdominal segment with tergite alone visible, without apophyses anterior; tergite very narrow, new-moon-shaped. Seventh abdominal segment most stout, asymmetrical, with caudal margin of left side strongly indented; on this indented area ostium

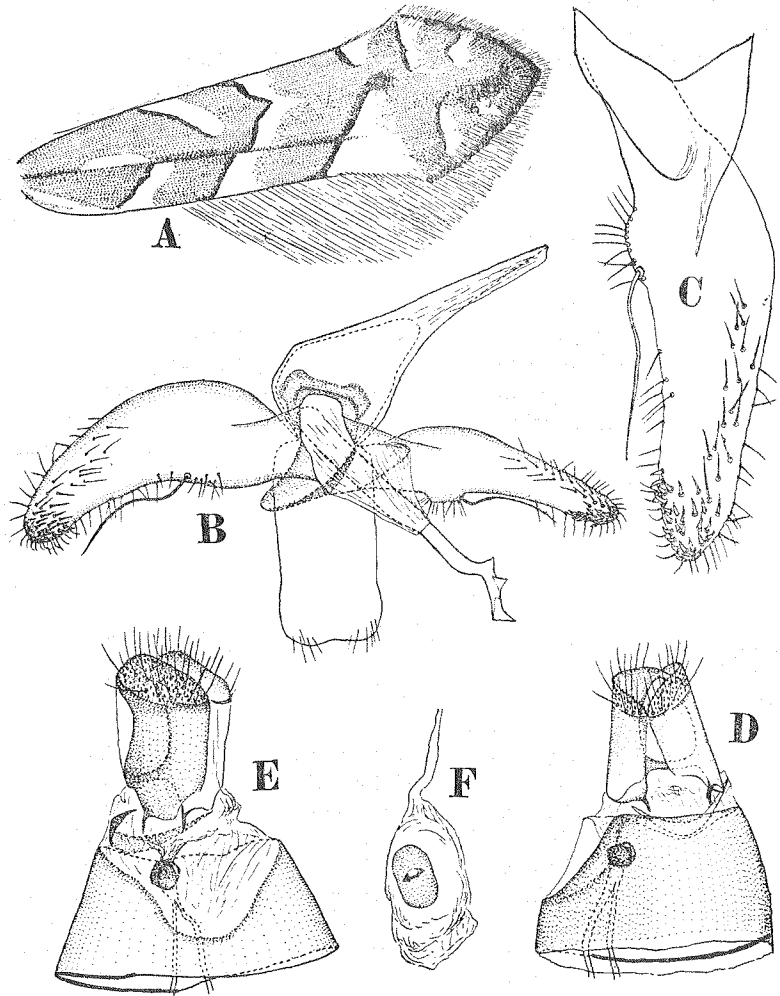


Fig. 2. *Lithocolletis hancola* sp. nov.

- A: Fore wing. B: Caudal view of male genitalia.
 C: Right valva. D: Ventral view of female genitalia.
 E: Lateral view of female genitalia. F: Corpus bursae.

opening. Sterigma absent. Antrum of bursae represented by two circular plates; corpus bursae (fig. 2, F) situated between second and third abdominal segments; signum sclerotized in an elliptical plate with two cone-shaped projections inside.

Holotype (♂): Sapporo, 24. VII, 1956 (host: *Alnus hirsuta*); allotype (♀): Sapporo, 27. VII, 1956 (host: *A. hirsuta*); paratypes: 8♂♂ and 8♀♀, Sapporo, 11. VII—3. VIII, 1956 (host: *A. hirsuta*); 1♂ and 2♀♀, Tomakomai, 24.—30. VIII, 1957 (host: *A. hirsuta*); 1♂ and 4♀♀, Apoi, Hidaka, 26.—28. VIII, 1957 (host: *A. hirsuta*); 4♂♂ and 7♀♀, Apoi, Hidaka, 24.—30. VIII, 1957 (host: *A. japonica*); 1♂ and 1♀, Ôkusu-yama, Kanagawa-ken 17.—21. VII, 1957 (host: *A. japonica*), T. KUMATA leg.

Locality: Japan (Hokkaido and Honsyu).

Host plants: *Alnus hirsuta* THURCZ. and *Alnus japonica* (THUNB.) STEUD.

Mine: Ptychonome, yellowish-or reddish-brown, small, elliptical or quadrate, lying on lower surface of leaf; upper parenchima of mining part of leaf almost destroyed; lower surface of mine with a stout ridge. Cocoon white, very large, almost filling mine-cavity; frass placed behind cocoon in a mass.

This new species is quite distinct by the median fascia bent outwardly on the fold of fore wing, by the median basal streak of the fore wing detached from the base, and by the peculiar structure of the female genitalia from any other species of the genus *Lithocolletis* the writer has ever known. In the structure of the male genitalia it is related to *Lithocolletis insignitella* ZELLER mining on Leguminosae, but is clearly distinguishable by the colour pattern of the fore wing, by the aedeagus bearing three triangular barbs near the apex, by the valva having a long seta, and by the peculiar structure of the female genitalia.