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| Title | Redescriptions of the species of the genus <i>Lithocolletis</i> described by Prof. Dr. S. Matumura (Lepidoptera, Gracilariidae) |
| Author(s) | Kumata, Tosio |
| Citation | <i>Insecta matsumurana</i> , 22(3-4), 71-81 |
| Issue Date | 1959-03 |
| Doc URL | http://hdl.handle.net/2115/9637 |
| Type | bulletin (article) |
| File Information | 22(3-4)_p71-81.pdf |



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REDESCRIPTIONS OF THE SPECIES OF THE GENUS
LITHOCOLLETIS DESCRIBED
BY PROF. DR. S. MATSUMURA

(Lepidoptera, Gracilariidae)

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In 1931, Prof. Dr. S. MATSUMURA described three species belonging to the genus *Lithocolletis* from Japan. The types of these species are deposited in the collection of the Entomological Institute, Hokkaido University. Recently, as I have had the chance to examine the types and other specimens reared by myself, I will give redescriptions of these species herein.

On this occasion, I wish to express my deep appreciations to Prof. Dr. T. UCHIDA and Prof. Dr. C. WATANABE for their kind and constant guidance.

Lithocolletis ringoniella MATSUMURA (Figs. 1 A and 2)

Lithocolletis ringoniella MATSUMURA, 6000 Ill. Ins. Jap., 1109 (1931);
ibid., Ins. Mats., VI (4), 200 (1931).

Phyllonorycter ringoniella INOUE, Check list Lep. Jap., 1, 28 (1956).

Lithocolletis lantanella MATSUMURA, 6000 Ill. Ins. Jap., 1102 (1931)
(nec SCHRANK, 1801).

Phyllonorycter lantanella INOUE, Check list Lep. Jap., 1, 28 (1956)
(nec SCHRANK, 1801).

Lithocolletis blancardella ISSIKI, Icones Heterocer. Jap. Coloribus
Naturalibus, 1, 27, 4 (98) (1957) (nec FABRICIUS, 1794).

Male and female. Face pure white; palpus white, terminal segment with blackish outside; frontal tuft golden-brownish, mixed with many white scales in center; antenna whitish, very narrowly ringed with brown except for apical two or three segments, which are entirely blackish. Thorax golden-brownish, with three narrow lines, of which two lateral ones pass along inner margins of ochreous tegulae. Legs whitish; tibiae with dark outside; each tarsal segment of fore and middle legs, and first

and second ones of hind leg with a terminal dark ring. Abdomen silvery-grey, whitish on ventrum, with anal tuft ochreous.

Fore wing golden-brown, lightly tinged with yellow, with white markings. Basal median streak reaching two-fifths length of wing, rather narrow, the apical one-third slightly bent towards costa, with its upper edge margined with dark scales, and with its under apical edge margined with less thick black scales. Basal hind streak narrow, slightly detached from base and first hind streak. First costal, first and second hind streaks margined with dark scales on inner side and to some extent on outer side, and the other streaks on inner side alone. First costal streak situated just before middle, oblique, extending and becoming narrower towards base along costa, and reaching near base. First hind streak extending beyond fold, longer and more oblique than first costal one, bent towards apex of wing, and pointed at its distal end. Second pair of streaks situated at basal three-fifths, triangular, the hind streak larger than the opposite costal one. Third hind streak very small, not extending onto cilia, occurring between apices of third and fourth costal streaks, which are wedge- or hook-shaped. A median longitudinal line scattered with blackish scales, running from discal area between third pair of streaks to near apex of wing. Cilia whitish, with a fine blackish-purple line running around apex of wing.

Hind wing grey, with cilia whitish-grey.

Expanse of fore wings 6.5–8.5 mm.

Male genitalia symmetrical. Valva elongate, bar-shaped, slightly arched upwardly, with its costal apex slightly projected; a very strong seta at apical one-fourth of valva depressed, slightly surpassing apex of valva; many slender setae in a little tuft placed on hind half of apex of valva. Uncus rather broad, as long as valva, truncated apically, with a number of microspines on inner surface. Succus long, rounded apically. Aedoeagus 1.5 times as long as valva, its apical one-third being swollen, with a subapical barb slightly curved.

Female genitalia weakly sclerotized. Sterigma absent. Ostium bursae opened at middle of caudal margin of seventh abdominal sternite; antrum of ductus bursae fusiform, strongly sclerotized; corpus bursae placed between third and fourth abdominal segments; signum sclerotized in an elongate-elliptical plate, with a more sclerotized area in the center, bearing many cone-shaped projections inside.

Specimens examined:—

Lectotype (♂): Labelled "*L. ringoniella* MATS.", VIII, 1907, Sapporo,

Hokkaido, S. MATSUMURA leg.

Allolectotype (♀): 28. VIII, 1918, Sapporo, Hokkaido, S. MATSUMURA leg.

Paralectotypes: 1♂, 13. IV, 1903, 1♂ and 2♀♀, VIII, 1907, 3♂♂, no date, and 2 ex. (sex unknown), 25. VIII, 1918, Sapporo, Hokkaido, S. MATSUMURA leg.

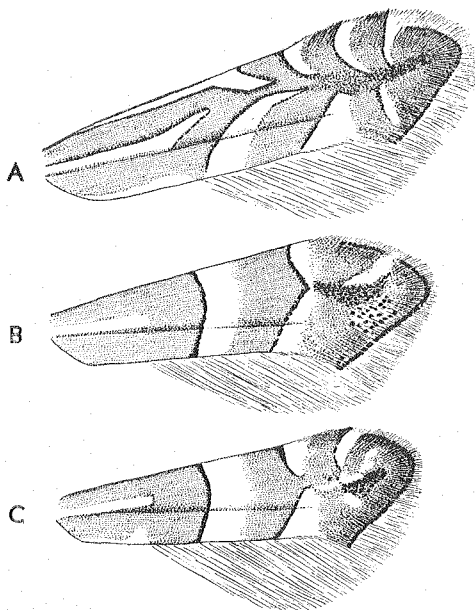


Fig. 1. Fore wings.

A. *Lithocolletis ringoniella* MATSUMURA.

B. *L. bicinctella* MATSUMURA.

C. *L. jezoniella* MATSUMURA.

1♂ (determined as *L. lantanella* SCHR. by S. MATSUMURA, 1931), 15. V, 1900, Sapporo, Hokkaido, S. MATSUMURA leg.; 4♂♂ and 13♀♀ (host—*Malus pumila* var. *dulcissima*), 18–28. I, 1956, 1♂ and 5♀♀ (host—*M. pumila* var. *dulcissima*), 38. VI,—4. VII, 1956, 6♂♂ and 6♀♀ (host—*M. Toringo*), 29. VI,—1. VIII, 1956, 1♂ (host—*M. Toringo*), 19. VII, 1957, 3♂♂ and 2♀♀ (host—*M. Toringo*), 4–13. VIII, 1957, 1♂, 26. VI, 1957, Sapporo, Hokkaido, and 1♀ (host—*M. Toringo*), 23. XII, 1958, Esasi, Hokkaido, T. KUMATA leg.; 2♀♀, 29. VI, and 13. V, 1955, Morioka,

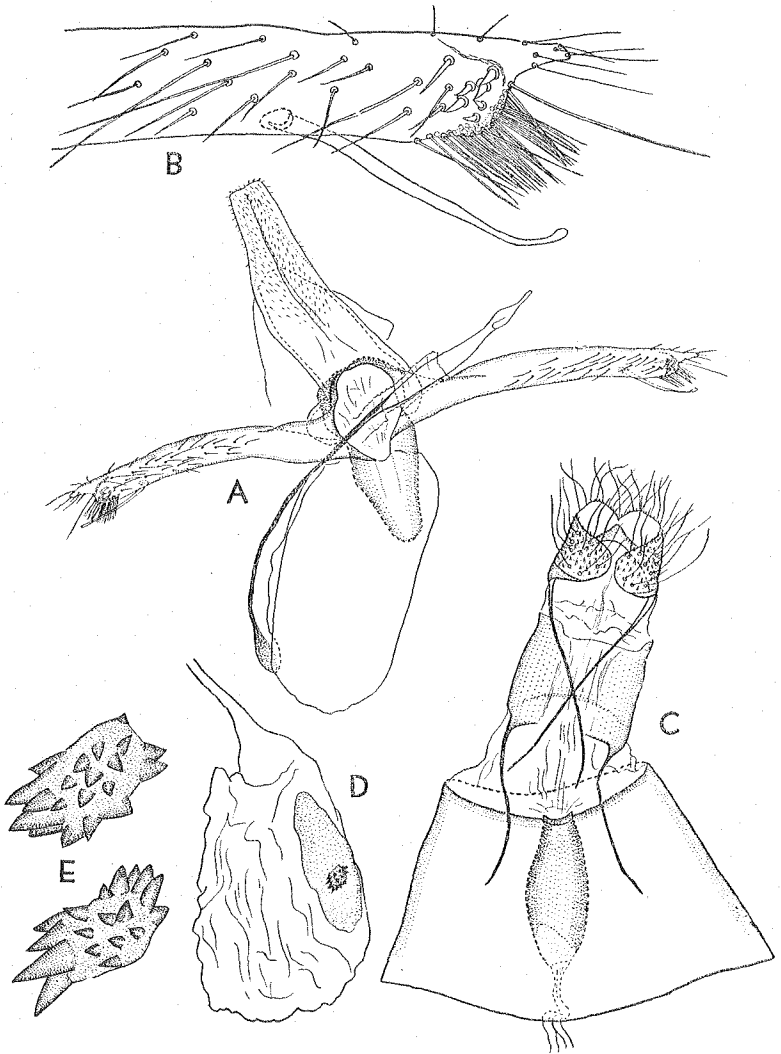


Fig. 2. *Lithocolletis ringoniella* MATSUMURA.

- A. Caudal view of male genitalia. B. Apex of right valva.
 C. Ventral view of female genitalia. D. Corpus bursae.
 E. Variations of sclerotized projections of signa.

Honsyu, M. OKANO leg.; 2 ♀♀ (host—*M. pumila* var. *dulcissima*), 8. VII, 1957, Morioka, Honsyu, T. KUMATA leg.

Distribution: Japan (Hokkaido and Honsyu).

Host plants: *Mulus pumila* MILL. var. *dulcissima* KOIDZ. and *Mulus Toringo* SIEB.

Mine: Ptychonome, placed on lower surface between two veins of leaf, yellowish- or brownish-green, rather large, circular or elliptical in form; upper parenchyma in mine destroyed in numerous specks; lower surface of mining part bearing a longitudinal wrinkle in middle with many weaker wrinkles laterad. Frass situated behind white cocoon in a mass.

The species occurs commonly in the northern part of Japan, feeding on apples. It is clearly distinct from any of the apple-feeding species of this genus known from Europe and North America by the first costal streak reaching near the base of the fore wing running along the costa, and by the valva lacking a costal projection or a filament. It also differs from *L. epichares* MEYRICK described from India by the median basal streak margined with black scales.

Having examined the specimens determined by S. MATSUMURA (1931) as *L. lantanella* SCHRANK and by S. ISSIKI (1957) as *L. blancardella* FABRICIUS, the writer has convinced that they are fairly identical with the present species.

***Lithocolletis bicinctella* MATSUMURA** (Figs. 1 B and 3)

Lithocolletis bicinctella MATSUMURA, 6000 Ill. Ins. Jap., 1101 (1931); *ibid.*, Ins. Mats., VI (4), 200 (1931).

Phyllonorycter bicinctella INOUE, Check list Lep. Jap. 1, 28 (1956).

Male and female. Frontal tuft golden-brown, mixed with a few white scales in center; face and palpus whitish; each segment of palpus with black outside; antenna pale grey, spotted above with black. Thorax golden-brown, with two white stripes along inner margins of tegulae. Legs whitish; tibiae with black outside; each tarsal segment apically ringed with black. Abdomen dark grey, whitish on ventrum, with anal tuft whitish; eighth abdominal segment with a black tuft on ventrum in female.

Fore wing golden-brown, lightly tinged with reddish colour, with white markings. Basal median streak reaching one-fourth length of wing, parallel with costa, without any dark margin. Two fasciae margined with black scales on inner side, and shading into ground

colour on outer side; first fascia situated at about basal one-third, slightly convex towards apex; second fascia situated at basal two-thirds, constricted or even separated just above middle. A costal blotch situated at apical one-sixth, strongly oblique, wedge- or hook-shaped, margined beneath with black scales, which are scattered from the constriction of second fascia to near apex of wing. A lighter area in middle of termen roughly scattered with black scales. Cilia whitish-ochreous, with a line of black specks along apex of wing.

Hind wing pale grey, with cilia whitish-grey.

Expanse of fore wings 6-8 mm.

Male genitalia symmetrical. Valva triangular, ending in a hook-shaped projection, which is strongly sclerotized. Uncus bearing some micorspines on inner surface near its apex alone. Succus short; ninth sternite short, broadly truncated apically. Aedoeagus very short, with basal half globular, slightly bent downwards at middle, then directed again upwards near apex, bearing a slender projection just before apex. Juxta touching middle of aedoeagus.

Female genitalia moderately sclerotized. Papillae anales rather narrow. Apophyses anterior rather short. Caudal margin of seventh abdominal segment quite deeply concave, the concavity occupying almost entire length of the seventh segment. Ostium bursae opened in depth of the concavity; sterigma small, triangular; base of ductus bursae weakly sclerotized; corpus bursae situated between second and third abdominal segments; signum sclerotized in an elliptical or quadriangular plate, with two cone-shaped projections in the center.

Specimens examined:—

Lectotype (♂): Labelled "*L. bicinctella* MATS.", no date, Sapporo, Hokkaido, S. MATSUMURA leg.

Allolectotype (♀): 1. VI, 1917, Sapporo, Hokkaido, S. MATSUMURA leg.

Paralectotypes: 2 ♂♂, 24. V, 1908, and 1 ♂, no date, Sapporo, Hokkaido, S. MATSUMURA leg.

1 ♂ and 4 ♀♀, 6. VI, 1932, Sapporo, Hokkaido, IGARASHI leg.; 3 ♂♂ and 1 ♀ (host—*Ulmus Davidiana* var. *japonica*), 11-16. VII, 1957, Nopporo, Hokkaido, 1 ♂ and 1 ♀ (host—*U. Davidiana* var. *japonica*), 19. VII, 1956, Teine, Hokkaido, 1 ♀ 25. V, 1957, Sapporo, Hokkaido, 2 ♂♂ and 2 ♀♀ (host—*U. Davidiana* var. *japonica*), 20. VII, 1957, Sapporo, Hokkaido, and 1 ♀ (host—*U. Davidiana* var. *japonica*), 24. VIII, 1957, Tomakomai, Hokkaido, T KUMATA leg.

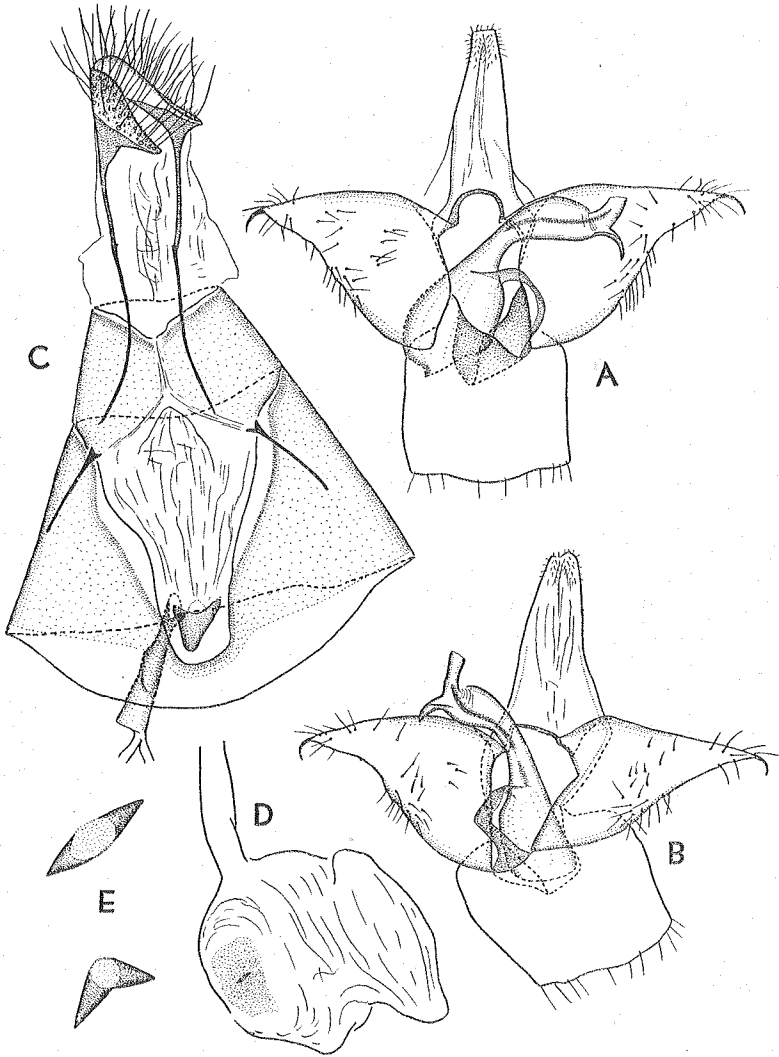


Fig. 3. *Lithocolletis bicinctella* MATSUMURA.

A and B. Caudal views of male genitalia.

C. Ventral view of female genitalia.

D. Corpus bursae.

E. Variations of sclerotized projections of signa.

Distribution: Japan (Hokkaido).

Host plant: *Ulmus Davidiana* PLANCH. var. *japonica* (REHD.) NAKAI.

Mine: Ptychonome, occurring on lower surface between two veins of leaf, rather small, very elongate, brownish; upper parenchyma in mine almost destroyed; lower surface of mine strongly wrinkled, bearing a stout ridge in middle with a few weaker ridges laterad. Frass situated behind whitish cocoon in a mass.

This species is closely related to *L. tristrigella* HOWORTH which mines on *Ulmus* in Europe, but differs from the latter by the following characters:— Median basal streak of fore wing reaching one-fourth length of the wing; fore wing having only two transverse white fasciae, of which one is placed at basal one-third and the other at the basal two-thirds. Aedoeagus slightly bent downwards at middle, then directed again upwards near apex, with a slender projection just before apex. Caudal margin of seventh abdominal sternite of female quite deeply concave; sterigma small, triangular.

Lithocolletis jezioniella MATSUMURA (Figs. 1 C and 4)

Lithocolletis jezioniella MATSUMURA, 6000 Ill. Ins. Jap., 1102 (1931); *ibid.*, Ins. Mats., VI (4), 200 (1931).

Phyllonorycter jezioniella INOUE, Check list Lep. Jap., 1, 28 (1956).

Male and female. Face and palpus pure white; frontal tuft white, mixed with a few brownish scales on sides; antenna whitish-grey, each segment spotted above with black. Thorax golden-ochreous, with three white strips, of which lateral ones pass along inner margins of golden-ochreous tegulae. Legs whitish; each tarsal segment of the fore and middle ones ringed with black. Abdomen pale grey, with whitish on ventrum.

Fore wing golden-brown, lightly tinged with yellow, with white markings. Basal median streak reaching about one-fourth length of wing, almost straight, without any dark margin; hind basal spot at basal one-fifth small, triangular, without dark margin. A fascia just before middle rather broad, slightly convex towards apex or almost straight, margined with black scales on inner side, and shading into ground colour on outer side. First pair of streaks at basal two-thirds subtriangular, margined with black scales on inner side; first costal streak more transverse and a little shorter than first hind one. Second costal blotch elongate, wedge-shaped, slightly oblique towards base, roughly margined with black specks on inner side. Third costal blotch sometimes visible,

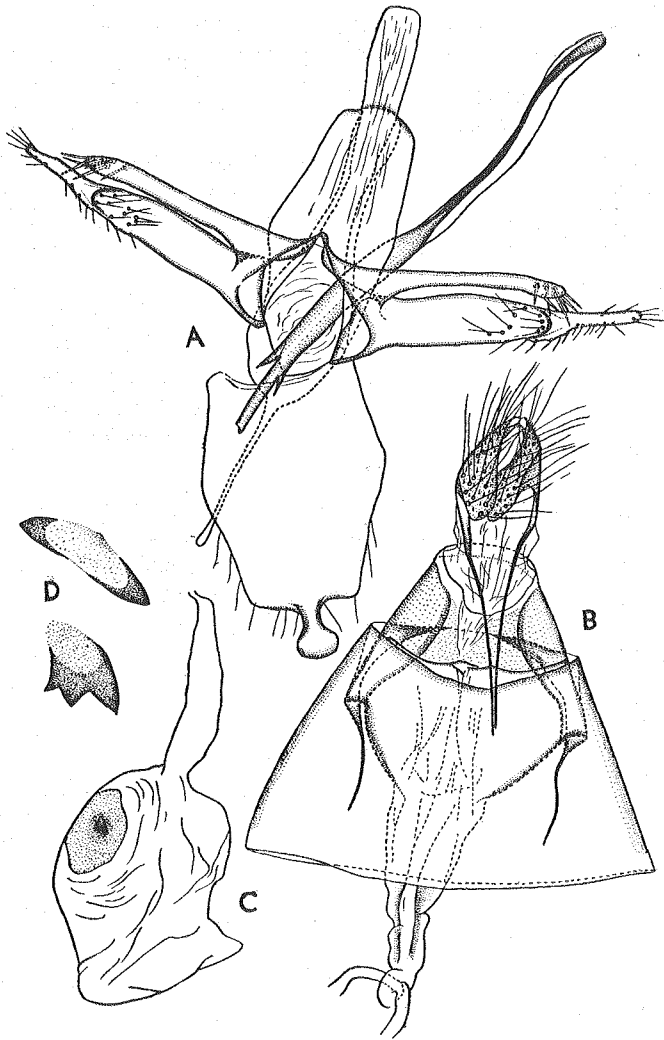


Fig. 4. *Lithocolletis jezioniella* MATSUMURA.

- A. Caudal view of male genitalia.
- B. Ventral view of female genitalia.
- C. Corpus bursae.
- D. Variations of sclerotized projections of signa.

very small, represented by a few long scales. A short black line placed on apical median area, mixed with some white scales. A black line along apical margin of wing; cilia yellowish-white.

Hind wing pale-grey, with cilia whitish-grey or yellowish.

Expanse of fore wings 6-8 mm.

Male genitalia symmetrical. Valva divided into two parallel bars united at their bases; the under bar (proper valva) very long, tapering apically, with a tubercular projection on inner surface of apical one-third, with some setae on apical half; the upper bar (costa) more slender and slightly shorter, with five to ten stout setae on outer apical surface. Uncus distinctly longer than eighth abdominal tergite, elongate-quadrangular, half as wide as eighth tergite, lacking spines. Succus short, with a very long projection at top; ninth sternite elongate-hexangular, with a globular projection at apex. Aedoeagus about twice as long as length of valva with two acute subapical barbs, of which the under one is placed slightly distad than the upper one.

Female genitalia fairly sclerotized. Cephalic half of eighth abdominal segment inserted into seventh abdominal segment, and broadly produced cephalad on ventrum. Ostium bursae directly open at apex of sternite of eighth abdominal segment; antrum of ductus bursae weakly sclerotized, gradually expanding towards anus; corpus bursae placed between third and fourth abdominal segments; signum sclerotized in an elliptical plate, with more sclerotized projections in the center, which are variable in form as shown in the text-figures.

Specimens examined:—

Lectotype (♀): Labelled "*L. jezoniella* MATS.", 9. VI, 1916, Sapporo, Hokkaido, S. MATSUMURA leg.

Allolotype (♂): 9. VI, 1916, Sapporo, Hokkaido, S. MATSUMURA leg.

Paralectotypes: 1♂ and 2♀♀, 9. VI, 1916, Sapporo, Hokkaido, S. MATSUMURA leg.

1♀, 6 VI, 1932, Sapporo, Hokkaido, IGARASHI leg.; 1♂ and 2♀♀ (host—*Acer Mono*), 24-25. VII, 1956, Zyozankei, Hokkaido, and 1♀ (host—*A. Mono*) 7. VIII, 1958, Risiri Isl., T. KUMATA leg.; 1♂ (host—*A. Mono*), 23. XII, 1958, Nagano, Honsyu, K. KAMIJO leg.

Distribution: Japan (Hokkaido and Honsyu).

Host plant: *Acer Mono* MAXIM.

Mine: Ptychonome, placed on lower surface near base of leaf, yellowish, whitish or brownish, moderate in size, elliptical in form; upper

parenchyma in mine extremely destroyed; lower surface of mine bearing some narrow wrinkles, which are crowded together forming a strong median ridge. Black frass situated behind cocoon in a mass.

This species is distinct by the very characteristic structures of the male and female genitalia. Valva divided into two long bars which are united together at their bases; uncus distinctly longer than eighth abdominal sternite, elongate-quadriangular; ninth abdominal sternite with a globular projection at apex in male. Eighth abdominal segment inserted into seventh abdominal segment in female.

In the markings of the fore wing this species is related to *L. cavella* ZELLER, but clearly differs from the latter by the fact that the median basal streak of the fore wing lacks black scales along the margin.