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DESCRIPTION OF A NEW STEM-MINER OF  
CONIFEROUS TREES FROM JAPAN  
(LEPIDOPTERA : GRACILLARIIDAE)

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So far as I am aware, among the members of the family Gracillariidae there has been found no species which attacks coniferous trees. In the course of the entomological survey of introduced trees I have found an interesting stem-miner on *Pinus strobus* and some native coniferous trees. This stem-miner belongs to the family Gracillariidae and is a new species of the genus *Spulerina* Vári, of which some described species are known as stem-miners of dicotyledonous trees.

I express my sincere acknowledgement to Prof. C. Watanabe for his kind guidance and encouragement. Grateful thanks are also due to Prof. E. M. Hering of Berlin for his kindness in sending the specimens of *Spulerina simploniella* to compare with the present specimens, and to Mr. C. Nishiguchi of the Tokyo University for his kind help to our survey at the Tokyo University Experiment Forest, Yamabe. I am also indebted to Mr. T. Yasuda of the Osaka Prefectural University and Dr. K. Kamijo of the Hokkaido Forest Experiment Station in offering the valuable material.

*Spulerina corticicola*, sp. nov.

♂ & ♀. Head, face and palpi smooth, silk-white; second segment of maxillary palpus with a narrow, blackish apical ring; second segment of labial palpus about as long as the third, with a blackish blotch on outer side. Antenna pale grey, somewhat darkened towards apex; scape white, with a blackish apical ring and a tuft of fuscous scales. Legs whitish; fore femur suffused with blackish brown except for median area; fore tibia dark brown except for basal half of inner side; mid femur blackish, with two white spots on apical half of inner side; mid tibia blackish basally and apically; fore and mid tarsi with blackish rings at basal 1/4, middle and apical 1/4; hind femur with a blackish subapical blotch on outer side; hind tibia bristled on upper side, silk-white, with a blackish subbasal spot and a postmedian one on outer side; hind tarsus silk-white, the first segment being rather finely bristled on upper side, with a brownish subbasal spot and a postmedian one on outer side, the second with a brownish median ring, and the third with a brownish apical ring. Thorax white, with a small, dark brownish dot at posterior angle; tegula white, somewhat brownish basally. Fore wing lanceolate, pointed, with vein  $Cu_2$  absent, the ground colour being white, with ochreous-brown marks which are wholly margined with blackish scales; a small spot at base of costa irrorated with dark brown scales; three fasciae rather straight, broad,

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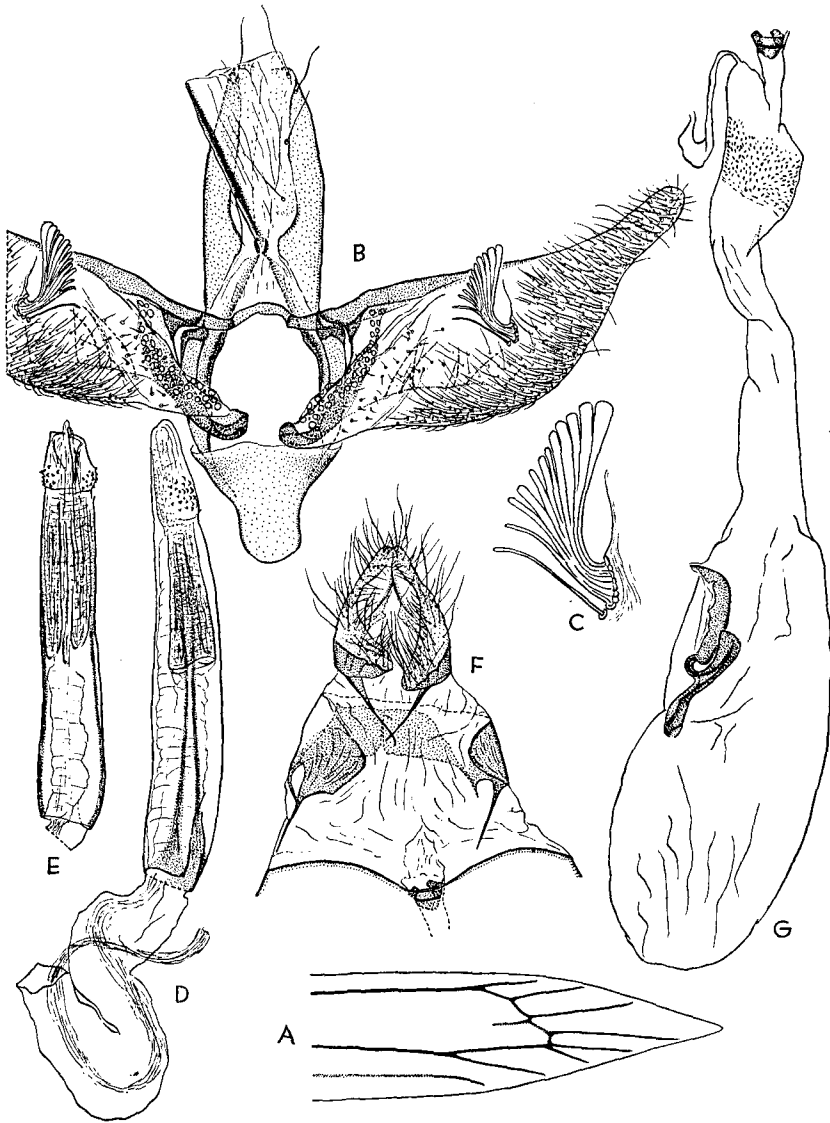


Fig. 1. *Spulerina corticicola*, sp. nov.

A: Venation of apical part of fore wing; B: male genitalia in caudal view, aedeagus and apical half of left valva removed; C: comb of valva, enlarged; D: aedeagus in lateral view; E: ditto in dorsal view; F: female genitalia in ventral view, bursa copulatrix removed; G: bursa copulatrix.

the first being situated at basal 1/5, direct or slightly oblique inwardly, the second just before middle, oblique outwardly (in some specimens a little arched outwardly), and the third at basal 3/4, almost parallel to the second; a costal blotch situated at middle between second and third fasciae, reaching nearly half across wing, with two arms stretched from the apex, the anterior arm being directly connected to second fascia in disc, and the posterior one connected also to third fascia in disc (in about one-third of examined specimens this costal blotch disappearing on costal margin of wing or its anterior arm disappearing); a V-shaped patch situated near apex just beyond third fascia, the anterior arm being parallel to third fascia, rather narrow, less than half as wide as posterior one; cilia pale ochreous, with a blackish basal line situated at apical area of wing beyond white apical dot, and a white area along termen between two blackish-irrorated bars. Hind wing pale brownish-grey, with cilia pale ochreous.

Expanse of fore wings, 9.0–11.5 mm.

Male genitalia: Valva slightly arched downwards, tapering beyond apical 1/3, bluntly pointed, with many slender setae on inner surface and a comb in centre of disc, the comb being composed of seven to eleven spreading teeth. Transtilla narrow. Tegumen rather long, with four to five pairs of setae on inner surface; tuba analis with a weakly sclerotized, narrow subscaphium. Saccus moderate in size, broadly produced medially, rounded apically. Aedoeagus bar-shaped, about as long as valva, straight, with a pair of rod-like sclerotizations from base to apical 1/3, and a pair of scobinate areas near apex. Eighth tergite with a narrow median prong, of which the cephalic extremity is widened and bilobed.

Female genitalia: Papilla analis narrow, with dense, narrow setae on caudal area; postapophysis slender, rather short, almost straight. Sclerotized sternite of eighth segment broadly separated on ventrum, the tergite being trapezoid in shape; antapophysis slightly shorter than postapophysis, slender, straight. Sterigma simple, membranous; antrum provided with a well-sclerotized, narrow ring; ductus bursae rather broad and long, with a scobinate area which occupies almost whole basal area beyond antrum; corpus bursae nearly as long as ductus bursae, rather narrow, with a well-sclerotized, long, narrow signum (see Fig. 1, G).

Holotype (♂): Zyôzankei, Hokkaido, 24 VII, 1963, T. Kumata (host: *Abies sachalinensis*). Paratypes: 1♂, Aizankei, Hokkaido, 11. VII, 1958, T. Yasuda (host: *Abies sachalinensis*); 8♂♂ & 5♀♀, Yamabe, Hokkaido, 13. VII, 1960, T. Kumata (host: *Pinus strobus*); 2♀♀, Yamabe, Hokkaido, 13. VII, 1958, T. Yasuda (host: *P. strobus*); 3♂♂ & 4♀♀, Yamabe, Hokkaido, 8–18. VII, 1963, K. Kamijo (host: *P. strobus*); 2♂♂ & 1♀, Apoi, Hidaka, Hokkaido, 15. VII, 1963, T. Kumata (host: *Pinus strobus*); 2♂♂, Apoi, Hidaka, Hokkaido, 15. VII, 1963, T. Kumata (host: *P. parviflora* var. *pentaphylla*); 3♂♂ & 1♀, Tomakomai, Hokkaido, 15–22. VII, 1963, T. Kumata (host: *P. strobus*); 1♂, Naganuma, Hokkaido, 22. VII, 1963, T. Kumata (host: *Abies sachalinensis*); 2♂♂ & 3♀♀, Teine, Hokkaido, 24–30. VII, 1963, T. Kumata (host: *Larix leptolepis*); 3♂♂ & 13♀♀, Zyôzankei, Hokkaido, 22–30. VII, 1963, T. Kumata (host: *Abies sachalinensis*). The types are preserved in the collection of the Entomological Institute, Hokkaido University.

Distribution: Japan (Hokkaido).

Host plants: *Abies sachalinensis* Masters, *Pinus strobus* Linné, *Pinus parviflora* Siebold et Zuccarini var. *pentaphylla* Henry and *Larix leptolepis* Gordon (Pinaceae).

Mine: The mine occurs under the epidermis of young shoots, rarely of old trunks, of food plants. In early larval stages it is linear and irregularly curved, while in the latter stages it broadens into a very large, irregular-formed blotch, and finally becomes a linear-blotch mine or ophistigmatonome, being 15–30 cm. in length in the linear part, and 8–13 cm. in the longest diameter of the blotch-formed part. The epidermis of the mine is heavily loosened and discoloured with reddish brown. Frasses are scattered inside the mine-cavity. The cocoon is usually found on the inner surface of the loosened epidermis at the blotch-formed part, rather thick, pale brownish, and similar to that of *Acrocercops*- and *Caloptilia*-species in form.



Fig. 2. *Spulerina corticicola*, sp. nov. (holotype).

Remarks: This species can be at once separated from the other members of the genus *Spulerina* Vári by the absence of the vein  $Cu_2$  of the fore wing. It is closely related to *S. simploniella* (Röslerstamm), which is the type-species and a stem-miner of oaks in Europe, but is distinguished from the latter by the smaller size and the genital structures of both sexes. In the present species the expanse of the fore wings is 9.0–11.5 mm., the saccus rounded apically, the comb of the valva strongly curved near the base and the ductus bursae markedly scobinate near the base, whereas in *simploniella* the expanse of the fore wings is 13–14 mm., the saccus somewhat pentagonal and pointed apically, the comb almost straight or slightly curved near the base and the ductus bursae wholly membranous without any distinctly scobinate area.