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New Species of Coleophoridae, with Notes on Other Species (Lepidoptera)

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Coleophora salicivorella McDunnough

Coleophora salicivorella McDunnough, 1945, Canadian Ent., vol. 77, p. 49, figs. 1, 4 (genitalia).

Dr. Hackman has noted (*in litt.*) that this species may be a synonym of *viminitella* Zeller and has kindly sent a pair of specimens for study. The two species are undoubtedly extremely close, but a comparison of the genitalia of both sexes shows sufficient differences to warrant the conclusion that *salicivorella* is distinct from Zeller's species. In the male genitalia of *viminitella* the spined area of the aedeagus is confined to the extreme apex and consists, in the specimen examined, of a small preapical spine and three very minute spines distad of it. In our North American species the spines are much more numerous and occur dorsally over the whole distal half of the organ, as may be seen in the illustration given with the original description (fig. 1). In the female genitalia of *viminitella* the initial chitinized portion of the ductus bursae is longer than the same section in *salicivorella* and bends strongly to the left towards its distal end; the following heavily spiculate section is shorter than the preceding section, not equal in length to it as in *salicivorella*. The life history of the larva of *salicivorella* shows also some differences. The larvae are fully fed late in the fall, and no further feeding takes place in the spring as noted in the original description. According to the European literature, *viminitella* feeds again in the spring after hibernation. The cases of the

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two species (holster cases) and also the larval food plant (willow) are similar.

Coleophora canadensisella, new species

MALE: Palpi thin, upturned, closely scaled, outwardly deep smoky, inwardly whitish; second joint narrowly whitish ventrally in basal area and with a terminal ventral scale tuft approximately half of the length of the third joint which is thin and pointed. Head, thorax and basal antennal joint deep smoky, the latter somewhat rough scaled but with little indication of a terminal ventral tuft. Remainder of antennae sharply annulate with white and deep brown. Primaries and secondaries evenly deep smoky, with concolorous fringes. Abdomen deep smoky dorsally, silvery ventrally, with anal tuft slightly yellowish. Forelegs light smoky; mid legs and hind legs paler, slightly silvery; tarsi ringed with brown, more distinctly so on mid tarsi. Hind tibiae rough haired. Expanse, 12–13 mm.

FEMALE: Much paler in color than the male, the dark color of head, thorax, and primaries being replaced by a rather light yellow-brown. Secondaries as in male. Expanse similar.

MALE GENITALIA: Very similar to those of *kalmiella* McDunnough, differing chiefly in the more compact nature of the whole organ, the somewhat longer terminal tooth of the sacculus, and the much smaller and more closely appressed cornuti of the vesica. Sacculus curving strongly dorsad distally and terminating in a projecting tooth which scarcely reaches the lower margin of the clasper; its inner edge is somewhat irregular, forming a slight inward projection subapically. Clasper rather narrow, projecting well beyond apex of sacculus. Valvula large, semitriangular, clothed with numerous, scattered setae. Aedeagus cylindrical, the apical third armed dorsally with numerous spines, the proximal ones short and stubby, the distal ones longer and more pointed and terminating in a long apical spine. Vesica armed with a compact cluster of thin cornuti. Gnathos small, upright, much as in *kalmiella.*

FEMALE GENITALIA: Scarcely distinguishable from the same organ in *kalmiella.* The initial, chitinized portion of the ductus bursae is slightly shorter but shows the same apical bend to the left; the following, strongly spiculate section is longer and thinner and fully equal in length to the preceding section as a comparison of the present figure with that of *kalmiella* (*vide* 1945, Canadian Ent., vol. 77, p. 149, fig. 4) shows. Otherwise the parts are practically similar.

LARVAL HISTORY: Cases of the species in various states of development were first observed on *Cornus canadensis* (bunchberry), during the latter half of July, 1953, at White Point Beach, Queens County, Nova

Scotia, the large pale blotches on the leaves at once indicating the presence of the larvae. The pale whitish cases are of the holster type and very long, having an average length of 13–15 mm. when mature. The final section is cut from the leaf in late summer and is large, with a dorsal tooth of varying size, somewhat as in *viburniella*. The larva feeds for a

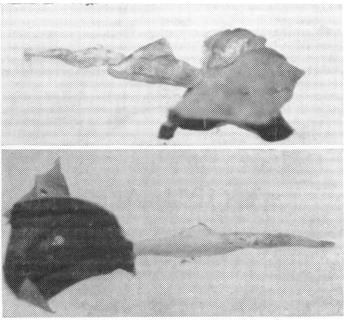

FIG. 1. Larval cases of *Coleophora canadensisella* McDunnough.

short time after the mature case is formed, leaving the case entirely and frequently eating the parenchyma of an entire section between the veins before returning to the case. Later a period of aestivation is entered upon, and feeding is not resumed until late fall. Such quiescent periods occur frequently in other larvae with the holster type of case, notably *kalmiella*.

On my return to Halifax about mid August, search was instituted in Point Pleasant Park, where bunchberry is very common. Traces of feeding were found, but no cases could be discovered until early September when they appeared in large numbers, the larvae continuing feeding until the advent of frost in November, and then settling down on the sides of the containers for hibernation. One female from the White Point Beach collection emerged prematurely on October 8. No feeding occurred the following spring, and the moths emerged in confinement from late April through May.

HOLOTYPE: Male, Halifax, Nova Scotia, April 30, 1954 (J. McDunnough); bred from *Cornus canadensis*.

ALLOTYPE: Female, same data, but April 26.

PARATYPES: Four males, same data, but April 23, 26, May 3, 4; five females, same data, May 4, 5, 6, 8; two females, White Point Beach, Queens County, Nova Scotia, October 8, 1953, April 29, 1954 (all bred from *Cornus canadensis*).

The holotype will be deposited in the Canadian National Collection. The allotype remains in the author's collection for the present. Paratypes will be deposited in the American Museum of Natural History.

Coleophora vacciniivorella, new species

MALE: Palpi porrect, light smoky, paler inwardly; third joint longer than second joint, rather smooth scaled; second joint with roughened scales apically, forming a slight projecting tuft ventrally. Head, thorax, and basal joint of antenna deep metallic greenish over an almost black base. Balance of antenna rather feebly annulate with brown and whitish except the terminal eight to 10 joints which are plain white. Primaries unicolorous deep blackish, with a decided metallic green tinge; dark fringes. Secondaries and their fringes blackish, non-metallic. Expanse, 9 mm.

MALE GENITALIA: Quite similar to those of the recently described *multicristatella* McDunnough (1954, Amer. Mus. Novitates, no. 1686, p. 7) bearing out a relationship already indicated by the type of antenna and by the forewing coloration. Sacculus curving dorsad in its apical section and terminating in a short blunt projection, well separated from the clasper, which is rather narrow and quite short, projecting only slightly beyond the sacculus. Valvula fairly large, roughly triangular, with a clothing of small scattered setae. Aedeagus rather short, armed with lateral chitinous rods, the rod on the right side shorter and narrower and with a sharply pointed apex. The rod on the left side is broad, curving ventrad in its apical section and terminating bluntly; its dorsal edge towards base appears slightly roughened with what seems to be (as far as can be determined) a few minute spicules. Vesica armed with a comb-like cluster of about six short, stubby spines arising from a single base. Gnathos small, upright.

LARVAL HISTORY: The larvae apparently hibernate in their first year when quite small, as immature cases have been found late in the fall. Larger cases were collected on *Vaccinium* in the latter half of June and early July, feeding taking place until late in the latter month, the cases being definitely of the holster type. Following this a period of aestivation occurs, and feeding is resumed only in early fall when the final addition to the cases is made, their appearance being now very similar to that of other holster cases (*pruniella, cretaticostella*). Feeding is continued until the end of October, and at this time the cases are most readily discovered as large, dark blotches form on the leaves. After the second hibernation no further feeding occurs, the larvae evidently pupating in spring and the adult emerging shortly after. Unfortunately, from about a dozen cases collected, only a single male adult was secured, parasitism and the usual mortality during hibernation in captivity taking a heavy toll. As the species appears to be quite distinct from any known eastern North American species and cannot be matched with any of the known

European *Vaccinium* feeders, according to the articles by Hackman and Benander, description as a new species seems to be indicated.

HOLOTYPE: Male, Halifax, Nova Scotia, April 23, 1954 (J. McDunnough); bred from *Vaccinium*. At present retained in the author's collection.

Coleophora contrariella, new species

MALE: Palpi dull whitish; second joint long and practically porrect; third joint upturned, short, less than half of the length of the second one; apicoventral tuft of second joint extending to half of the length of the third joint. Antennae with the basal joint thin and rather short, rough scaled, but with no indication of terminal ventral tuft; remainder of antennal segments fairly distinctly annulate, with white and brown rings. Head and thorax dull whitish. Primaries dull, pale grayish, the costal region for two-thirds somewhat paler, almost white, veins faintly outlined in light brown. Fringes pale. Secondaries pale, smoky. Ventrally both wings deep smoky. Expanse, 9 mm.

MALE GENITALIA: Sacculus with ventral edge long and almost straight, only slightly curved at apex which forms a broad, blunt projection, well separated from the clasper; caudal margin curving cephalad to join valvula near its apex. Clasper broad and fairly long, projecting considerably beyond apex of sacculus. Valvula narrow, triangular, clothed with scattered, fairly long setae. Aedeagus extremely long, furnished with lateral chitinous rods which gradually bend ventrad and project as far as the caudal margin of the clasper. The rod on the left side is furnished with two subequal, apical teeth, arranged one behind the other. The right-hand rod shows three similarly placed teeth, of which the most apical one is the smallest. Vesica armed with a proximal, comb-like cluster of five or six closely appressed cornuti, arising from a single base; this is followed distad by three (possibly four) large, pointed spines, well separated from one another. Gnathos fairly large, globular.

HOLOTYPE: Male, Mount Uniacke, Nova Scotia, June 10, 1953 (D. Ferguson). In the author's collection for the present.

REMARKS: Until the female is known, the exact relationship of this species is doubtful. The male genitalia show little relationship to those of other maritime species.

Coleophora caespititiella Zeller

Coleophora caespititiella ZELLER, 1839, Isis, p. 208. BENANDER, 1939, Opuscula Ent., vol. 3, p. 82, pl. 3, fig. 51, pl. 7, fig. 93 (genitalia). HACKMAN, 1945, Notulae Ent., vol. 25, p. 48.

Eupista caespitiella (*sic*), PIERCE, 1935, The genitalia of the tineid families of the Lepidoptera of the British Islands, p. 65, pl. 39 (genitalia).

Following a misidentification by Walsingham (1882, Trans. Ent. Soc. London, p. 429) of the species now known as *glaucicolella* Wood, the

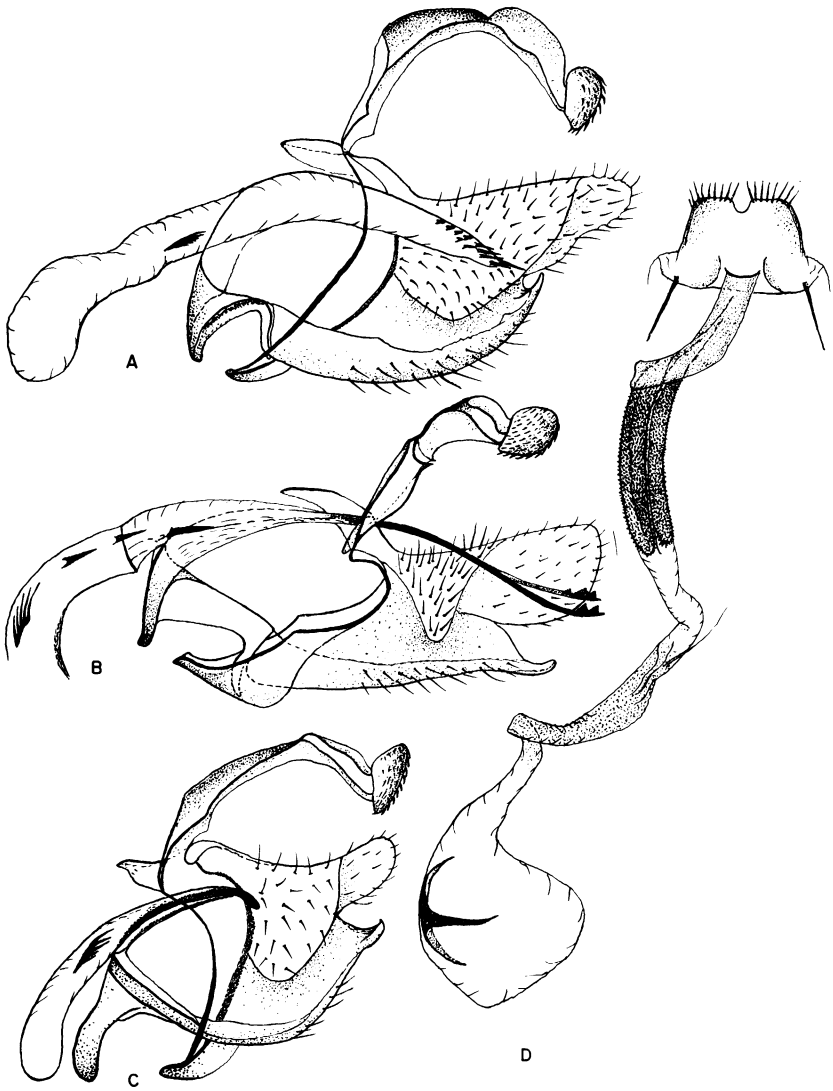

FIG. 2. Genitalia. A. Paratype, male, of *Coleophora canadensisella* McDunnough. B. Holotype, male, of *C. contrariella* McDunnough. C. Holotype, male, of *C. vacciniivorella* McDunnough. D. Paratype, female, of *C. canadensisella* McDunnough.

name *caespititiella* was included in the list of North American Coleophoridae by Dyar (1903, Bull. U. S. Natl. Mus., vol. 52, p. 531) and also by Heinrich (1924, *in* Forbes, Cornell Univ. Agr. Exp. Sta. Mem. 68, p. 214). The error was corrected in 1940 (McDunnough, Trans. Roy. Soc. Canada, sect. 5, p. 54), and since then no authentic record of the occurrence of *caespititiella* in North America has been known.

On June 24, 1953, Douglas Ferguson, while collecting in the Alpine Garden, Mt. Washington, New Hampshire, captured a series of a small coleophorid which he stated was flying around a low-growing species of *Juncus* in large numbers. On his return to Halifax a study of the genitalic characters of both sexes revealed that the specimens belonged undoubtedly to the above species, and the name must therefore once again be added to our North American lists.

Coleophora versurella Zeller

Coleophora versurella ZELLER, 1849, Linnaea entomologica, vol. 4, p. 352. HERING, 1932, *in* Brohmer and others, Die Tierwelt Mitteleuropas, Schmetterlinge, vol. 6, suppl., p. 97.

Coleophora pallorella BENANDER, 1939, Opuscula Ent., vol. 3, p. 94, pl. 5, fig. 66, pl. 6, fig. 87 (genitalia). HACKMAN, 1945, Notulae Ent., vol. 25, p. 55, pl. 13, fig. 125, pl. 17, fig. 159 (genitalia).

Coleophora thallasella MCDUNNOUGH, 1940, Trans. Roy. Soc. Canada, sect. 5, p. 63, pl. 2, figs. 2, 6 (genitalia). New synonymy.

Dr. Walter Hackman of Helsingfors, Finland, suggested to me the above synonymy several years ago. He has recently sent me a pair of specimens labeled as *"pallorella = versurella,"* a synonymy that was doubtfully suggested by both Benander and Hackman and that has apparently been now accepted as correct. I have no means of verifying this, but genitalic slides made from the above specimens appear to confirm the identity of *thallasella* with *pallorella*. At the present time there is only a single topotypical female before me, but a genitalic slide of this specimen matches very closely that of the Finland female. The only slight differences noted are the more prominent projections on the caudal margin on each side of the ostium opening (probably a variable feature, as they do not occur in the original drawing of the allotype genitalia) and the slightly greater length of the strongly spiculate portion of the ductus bursae. According to Hering the larva feeds on both *Atriplex* and *Chenopodium*, forming a striped cigar case (*Röhrensack*) with trilobed apex, evidently very similar to the cases of the *duplicis* group to which the species belongs on genitalic characters.