

NEW MICROLEPIDOPTERA FROM ONTARIO

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Of a total of approximately one-hundred and fifty species of Microlepidoptera collected and reared by the writer in July, 1926 at Sparrow Lake, Severn Bridge, Ontario, the following seven species are described as new. Additional notes on a few previously described species are also included.

***Antispila argentifera* n. sp.**

Face golden brown, vertex darker and concolorous with the thorax and fore wings. Antennae brown throughout. Thorax and fore wings shining dark brown; markings pure silvery white. At basal third, a slender, oblique and slightly curved fascia of almost equal width throughout; a large triangular spot at tornus and a small costal spot a little beyond; apical silvery spot very large. Underside of body and legs somewhat paler. Expanse: 5 mm.

Type (♂), Sparrow Lake, Ont., July 16, 1926.

Differing from all the other species in the entire absence of golden tints in the metallic markings, and except *A. eugeniella* Busck, the smallest American species of the genus.

I surmise that the species is a miner of birch (*Betula papyrifera*). Deserted mines of a species of *Antispila* were observed early in July, near where the moth was captured, in the young leaves of birch. A long linear mine ends in a large blotch; with the expanding of the young leaves the mine soon becomes torn and is not easily noticed. The pupal case is broadly oval.

***Coleophora innotabilis* n. sp.**

Labial palpi white inwardly, second segment outwardly obliquely divided white and gray, third gray outwardly. Head gray, face paler, anterior row of scales on the thickened gray basal segment of antenna white, stalk dark gray, conspicuously annulate with white. Fore wings uniformly colored, gray, somewhat coarsely scaled, and hence somewhat irrorate, because of the paler bases of the scales. Hind wings concolorous with the fore wings. Underside of body and legs predominately white, dark scaling almost entirely lacking. Expanse: 14-15 mm.

Type (♂) and five paratypes (3♂, 2♀) reared from cases on *Populus balsamifera*, rarely on aspen, Sparrow Lake, Ont.

The case is of the type of *C. pruniella*, and very closely resembles the case of that species when it occurs on apple. At pupation, the case of *C. innotabilis* is always attached to the upper side of the leaf. Larvae and pupae collected from July 4 to July 15; imagoes July 11 to July 22; type July 20.

The moth is very close to *C. pruniella*, but somewhat paler with wings more coarsely scaled, hence more strongly irrorate, and with more white scales on the face and basal segment of the antenna.

***Elachista inaudita* n. sp.**

Palpi pale brassy fuscous; antennae, head and thorax brassy brown. Fore wing in basal third brassy brown and faintly greenish, shading outwardly into dark blackish brown in the apical half, with a faint purple luster replacing the brassy luster of the base of the wing; an elongate creamy white spot in the fold before the middle; a large white spot on dorsum at the beginning of the cilia

reaching half way across the wing; a triangular somewhat curved white spot beyond this on costa. Cilia purplish black. Hind wings and cilia dark brown. Legs dark brassy fuscous, tips of tarsi paler. Abdomen brassy brown, posterior margins of segments beneath whitish. Expanse: 10 mm.

Type (♀) reared from a miner of leaves of *Scirpus* sp., Sparrow Lake, Ont.; larva July 16, imago August 6.

The larva makes a rather broad brownish mine, gradually widening and extending straight toward the tip of the leaf; probably earlier and narrower mines, not observed, are made by the younger larvae. Pupation in a slight cocoon. The pupa is of the slender elongate type, but has the median dorsal ridge very prominent, much elevated and extending forward onto the head; lateral ridges less prominent, whitish. The general color of the pupa is brownish; between the lateral ridges and dorsal ridge, but nearer to the former, is a dark brown stripe broadest on the middle abdominal segments.

A very distinct species not close to any of the described American species.

Graciliaria umbratella n. sp.

Maxillary and labial palpi golden yellow, apex of second segment of labial palpi, and entire lower side and outer half of third segment except extreme tip dark brown. Antennae dark purplish fuscous, with paler annulations. Face golden, shading to brownish purple on the head. Fore wings dark crimson purple, with some golden brown reflection; two golden costal triangles, the first large, reaching to the fold, but not beyond, and truncated on the fold, usually concave or indented on its outer side, and marked on the costa with one or two black dots; its outer edge on costa does not quite reach the middle of the costa. The second costal triangle is separated from the first by about half its width, thus lying but little beyond the middle of the wing; it is extremely small. Beyond the second triangle are three indistinct yellowish brown spots; the first small, the second nearly crossing the wing, the third at the extreme tip of the wing, partly in the cilia. Cilia brownish purple, marked with three dark lines around apex and on termen; gray on dorsum. Hind wings dark brownish gray. First and second pair of legs brownish purple, tarsi white, with dark tips; hind legs, except for the dark brown outer halves of the femora, yellow with brownish shading toward tips of segments. Underside of abdomen golden yellow. Expanse: 11 mm.

Type (♂) and three paratypes (2♂, 1♀) reared from mines and cones on sugar maple, *Acer saccharum*, Sparrow Lake, Ont. Larvae collected July 14; imagoes, July 31 (type) and August 2-5, 1926.

The short linear mine terminates in a small flat blotch, in which the parenchyma is consumed; on leaving the mine the larva makes a small cone at the tip of one of the lobes, and later a large cone by rolling under one of the lobes. In the breeding jar in every case the cocoon was spun on the outer surface of the cone in a slight fold in that part of the rolled leaf which in nature faces downward. Cocoon reddish tinged.

This species is distinguished from all the other *Acer*-feeding species with uniform ground color and sharply defined costal triangle by the dark labial palpi.

Graciliaria cornusella Ely.

Five specimens reared on *Cornus canadensis* at Sparrow Lake, Ont., differ markedly from specimens from the type material reared by Dr. Chas. R.

Ely on *Cornus stolonifera*, but are connected with the typical form by a series of intermediate forms which I have had the opportunity of examining through the kindness of Dr. Ely. In addition to two specimens of the type series, I have examined specimens reared by Dr. Ely from rolls on *Cornus alternifolia* and *Cornus candidissima* (*C. paniculata*), East River, Conn.

There is a regular progression from forms in which the first costal spot is definitely triangular (typical *cornusella*) to forms in which this mark becomes a broad parallel-sided fascia reaching the dorsum. The latter condition is shown in three of the five Ontario specimens. The *Cornus candidissima* specimens approach the Ontario series most closely in this respect. In two of the Ontario specimens there is in addition a very small golden spot at the tornus opposite the second costal triangle.

On *Cornus canadensis*, the leaves are not always rolled from side to side, but are often rolled diagonally, or even almost from the tip; the rolls are not always perfectly cylindrical, but sometimes tend toward a cornucopia form.

Gracilaria anthobaphes Meyrick.

Larva forming tentiform mine on underside of leaf of *Vaccinium*; cone formed of entire leaf; imago July 25, 1926, Sparrow Lake, Ont.

Gracilaria invariabilis n. sp.

Palpi yellow, shaded with deep brownish orange, especially on the apical segment. Face yellow, the color deepening to reddish saffron on the vertex. Basal segment of antenna and first few segments of the stalk saffron, these basal segments ringed with dark brown, remaining segments whitish, and conspicuously ringed with dark fuscous. Fore wings deep saffron with strong and brilliant crimson reflections, so that in some lights this color predominates; the wing also shows pale blue reflections. Costal edge from basal third almost to apical cilia pale yellow, without blue and crimson reflections; in some specimens just within the costal edge there is a row of very minute brown specks. Cilia saffron and crimson opposite the apex, saffron below shading to gray on dorsum. Hind wings gray, cilia brownish toward bases. Fore and middle legs rusty orange and brownish, tarsi almost pure silvery white, with minute white tips; hind legs except the femora an almost uniform pale brownish or dirty yellowish white color. Abdomen gray above, pale yellowish beneath. Expanse: 14-16 mm.

Type (♂) and eleven paratypes (2♂, 9♀) reared from larvae on *Prunus pennsylvanica*, Sparrow Lake, Ont.

Larvae collected July 4 and July 11; imagoes July 22 to August 8, the date of emergence of the type being August 8. A very indistinct whitish linear mine ends in a small underside blotch, with parenchyma consumed and epidermis somewhat wrinkled. When the mine is at the margin of the leaf, the edge is folded under. On leaving the mine, the larva forms the usual typical *Gracilaria* cone, rolling the leaf from the tip, with underside in. Cocoon outside the cone.

There is no variation in color or markings in the entire series. It is however almost indistinguishable from similarly colored forms of *G. alnivorella*, and only differs in the paler and more strongly iridescent blue and crimson luster of the fore wing, and the purer white fore and middle tarsi. It differs in larval habits from *G. alnivorella* in that it makes but a single and typical *Gracilaria* cone.

Gracilaria scutellariella Braun.

A large series of specimens reared at Sparrow Lake, Ont., on *Scutellaria galericulata* differs from the type series (reared on *S. versicolor*) in larval habits. In the Ontario series, the larva, on leaving the mine, instead of pupating at once, either forms a typical *Gracilaria* cone by folding the outer part of the leaf onto the upper side, then bending the extreme tip to close the cone, or folds the entire leaf edge to edge, with the upper side in. The cocoon is spun in a fold of a leaf, preferably of the food plant.

Many of these specimens also show a greater admixture of the straw color along the costal and dorsal margins, where in some instances this color predominates.

Scythris scintillifera n. sp.

Palpi deep purple, base of second segment whitish. Head and antennae deep purple bronze. Thorax and fore wings dark golden metallic, with reddish bronze reflections, and groups of dark reddish bronze scales which form ill-defined markings as follows: a streak in basal third of fold narrowly separated from a more distinct elongate spot just beyond the middle of the fold, a transverse band across the wing at seven-eighths, a spot at extreme tip. Scales along termen reddish brown. Cilia dark purplish bronze. Hind wings dark brown, with faint golden reflections, thinly scaled toward base; cilia dark purplish brown. Venation: fore wing, vein 3 obsolescent; hind wing, 4 and 5 separate. Legs dark purplish brown, basal segments of legs and underside of thorax and abdomen paler, yellowish gray. Upper side of abdomen purplish, with golden scales intermingled. Expanse: 12 mm.

Type (♂), Sparrow Lake, Ont., July 13, 1926.

Nepticula procrastinella n. sp.

Tuft reddish ochreous, antennal eye-caps pale straw colored, stalk fuscous, collar pale straw colored. Thorax and basal fifth of fore wings dark blue-gray, ground color of remainder of wing dark blackish brown, with faint golden reflections and bases of scales golden brown. Beyond the middle of the wing a brilliant silvery fascia, widest on the margins and more or less constricted in the middle of the wing, especially by an indentation on its outer side. Where the dark blue base of the wing joins the outer blackish brown color, there is usually a more or less distinct irregular patch of straw-colored scales on dorsum; this patch may extend entirely across the wing, forming a rather broad irregular and somewhat dusted pale fascia, in which case the base of the wing is also minutely dusted with straw color; sometimes there is no indication whatever of pale scales in this position. Cilia gray on costa and dorsum, white around the apex. Hind wings dark gray. Legs silvery gray, shaded more or less with dark gray, tips of tarsi paler. Abdomen dark bluish fuscous above, yellowish silvery beneath. Expanse: 5-7 mm.

Type (♂) and twelve paratypes (♂ and ♀), July 12, 1926; one paratype (♀) July 16, 1926, Sparrow Lake, Ont., all taken resting on leaves of hop hornbeam, *Ostrya virginiana*, which is no doubt the food plant.

The variation in markings in this species is in general independent of sex, but the one specimen of the series showing a complete broad fascia at basal fourth is a female.

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APHILANTHOPS QUADRINOTATUS ASHMEAD, A WASP WHICH CARRIES HER PREY ON HER STING.

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The Peckhams in "Wasps Social and Solitary" state that (p. 76) "Ashmead quotes from Fabre the remarkable statement that *Oxybelus* carries her flies home impaled on her sting, an idea that probably arose from the fact that nearly the whole of the fly is visible." The species they studied, *O. quadrinotatus*, carried its flies one at a time, upside down head tightly clasped with its third pair of legs, and all of the abdomen projecting beyond the abdomen of the wasp.

Another instance of a wasp, this time *Aphilanthops quadrinotatus* Ashmead¹, carrying its prey on its sting was observed on September 9, 1926 and very many times on following days, near Owen's Lake some 6 miles east of Boulder. While observing *Odynerus dorsalis* Fabr.² nesting, a wasp which appeared to be carrying something alighted on the sand near. The first impression was that it was carrying something extending behind or beyond the abdomen. During the next few minutes I had an opportunity of witnessing the general method and place of holding the object many times as the wasp alighted on the ground and searched for her nest. The object was an ant, a worker of *Pogonomyrmex occidentalis* Cresson,³ held upside down, head towards head of wasp, abdomen extending beyond abdomen of wasp and held by the sting of the wasp attached to some part of the thorax of the ant. It was thought that the last abdominal plates might have assisted in holding it, but on examination at the laboratory they did not appear modified for the purpose. Further study will be made in an attempt to learn just how this is accomplished. The legs were assisting in no part for all six were observed on the ground, far from contact with the ant, both when the wasp was resting or walking. The ant was a rather small load and the wasp flew or walked with it readily. It was held until taken in the net, at which time the wasp released it.

Further observations were made on succeeding days when this peculiar habit was observed a great number of times. The following extract is from field notes taken near the same locality:

On September 13, 1926, *A. quadrinotatus* was seen to enter a hole in the sand carrying in an ant. She stayed in but a few seconds after which on leaving, I pushed the sand into the hole so that the entrance was closed. The wasp returned, in about a minute, with another ant on her sting. She came to the place where the hole had been, but not finding it walked about, hunting for it. She entered a hole near, after first inspecting it from the outside for a few seconds. She stayed within for a short time, came out, then went in a second time for two seconds. She soon came out and began digging into her own nest. The fore

1.—Compared with determined specimen in collection of University of Colorado.

2.—Compared with specimen determined by Mr. S. A. Rohwer.

3.—Determined by Professor T. D. A. Cockerell.