

## ANNOTATED LIST OF FOREST INSECTS OF BRITISH COLUMBIA PART XIV, ENNOMINAE (GEOMETRIDAE)

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### ABSTRACT

The mature larvae of 57 species of forest geometrids are described briefly and their distribution and hosts, as determined from samples collected by personnel of the Forest Insect and Disease Survey, are given.

The larvae of Ennominae are often tuberculate, with colors and patterns resembling the leaf-stems and twigs of the host trees. Pupation may occur in foliage or bark crevices of trees and shrubs or in the litter on the forest floor. Ennominae overwinter as eggs or pupae and occasionally as partly grown larvae.

Frequent outbreaks of several species of Ennominae have caused damage of economic importance to mature, polesized and reproduction forest trees.

Brief larval descriptions of *Semiothisa* and *Caripeta* spp. with notes on their hosts and distributions were published earlier in the Proceedings of the Entomological Society of British Columbia (Ross and Evans 1958 and 1959).

### ENNOMINAE

**Bapta semiclarata** Wlk.—*Prunus* spp., *Amelanchier* spp., *Crataegus* sp. (2 records), *Alnus* sp. (1), *Pseudotsuga menziesii* (Mirb.) Franco (2). Southern to central British Columbia and Vancouver Island, common. LARVA: 1 inch; head small, pale green, reddish-brown markings on sides extending to vertex; body robust, smooth; two color phases: (a) immaculate pale green, anal shield marked with reddish-brown; (b) pale green with broken, reddish-brown ad-dorsal lines extending from TII to A8; anal shield and anal prolegs marked with reddish-brown; venter immaculate.

**Deilinia variolaria** Gn.—*Salix* spp. Central and southern interior British

Columbia, rare.<sup>2</sup> LARVA: 1½ inches; head horizontal, pale green marked with pinkish-violet; body slim, pinkish-orange with medium brown mid-dorsal spots flanked by pale mauve patches on A1-8; subspiracular area of TI-III suffused with violet extending into upper part of legs; anterior of abdominal prolegs violet, anterior of anal prolegs marked with a violet line; venter pinkish-orange A1-6, remainder yellowish-green, pale yellowish-green midventral line bordered by deep pink adventral lines A1-6.

**Deilinia erythemaria** Gn.—*Salix* spp. Throughout British Columbia, common. LARVA: 1 inch; head horizontal, pale green, lower sides with reddish-brown line; body slim, pale green, diffused white subdorsal stripes, dark reddish-brown middorsal spots flanked by paler reddish-brown patches on posterior of TIII and A1-4, less distinct on A5-7; subspiracular stripe formed by a powdering of reddish-brown spots extending onto upper legs of TI-III, becoming gradually fainter posteriorly; sides of ventral and anal prolegs marked with purplish-brown; venter pale green with yellowish-white midventral line.

**Deilinia exanthemata bryantaria** Tayl.—*Salix* spp. Throughout interior British Columbia, extending to the Coast in the Prince Rupert District, apparently more numerous in central and west central portions, uncommon. LARVA: 1½ inches; head pale green, thin reddish line on lower sides; body slim, pale green, A1-6 with reddish middorsal spots, faint on A1 and 6; sides of abdominal prolegs marked with pale reddish-brown; venter immaculate.

**Itame anataria** Swett—*Alnus* spp.,

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<sup>2</sup> i.e. rare in Forest Insect and Disease Survey random beating collections which are taken only from trees and a few species of the larger shrubs.

*Betula* spp., *Salix* spp. Central to southern interior and southern coastal regions of British Columbia. LARVA: 1 inch; two color phases with intermediates (a) head buff, profusely marked with dark brown; body, dark mauve with small dark brown mid-dorsal patches, bordered laterally with pale buff on A1-4; indistinct pale purple addorsal lines; irregular brown subdorsal lines, outer line darkest; narrow pale buff supraspiracular line bordered by dark brown; broad pale cream subspiracular stripe; dark brown spots caudad of spiracles on A2-5; dark brown subventral patches on A1-5; venter similar to dorsum but paler: (b) head pale cream profusely marked with dull orange; body pale yellowish-buff, irregular middorsal, addorsal and subdorsal lines pale reddish-brown; narrow pale yellowish supraspiracular stripe bordered above by dark brown and below by light brown lines; broad pale yellow subspiracular strip; prominent dark brown subventral patches on A1-5; thoracic legs marked with dark brown and prolegs with pale reddish-brown; venter similar to dorsum, A1-4 with small oval, pale brown midventral spots.

***Itame exauspicata* Wlk.**—*Betula* spp., *Alnus* spp., *Salix* spp. (2 records), *Prunus pensylvanica* L. f. (1), *Corylus cornuta* Marsh. var. *californica* (A.DC) Sharp (1), interior British Columbia north to 56° latitude; common. LARVA: 1 inch; head tan profusely marked with dark brown; dorsum of TI-III medium brown with indistinct bands of dark brown flecked with pale reddish-brown; abdomen medium brown, irregular pale reddish-brown dorsal stripe bordered by dark brown, anal shield pale buff with dark brown setal bases; lateral area reddish-brown banded with dark brown extending to venter, spiracles pale yellow; venter pale reddish-brown marked with dark brown, A2-5 with large pale reddish-brown midventral spots bordered by dark brown.

***Itame plumosata* B. & McD.**—*Acer glabrum* Torr. var. *douglasii* (Hook.)

Dipp. Southern central British Columbia, rare. LARVA: 1½ inches; head green; body pale yellowish-green, spiracles pale yellow.

***Itame bitactata* Wlk.**—*Alnus* spp. Southern interior British Columbia, uncommon. LARVA: 1 inch; three color phases: (a) head dull orange with pale tan markings, front marked with pale yellow inverted V; body smooth, pale orange with prominent dark brown setal bases, irregular pale yellow addorsal lines bisecting indistinct pale yellow diamond-shaped pattern on A1-5, pale yellow subdorsal lines; broad yellow subspiracular stripe banded anteriorly with dark brown on T1 and A1-8; venter with midventral spots on A1-4, T1 and A1-5 banded with pale brown; (b) dark phase similar; head blackish with pale inverted V, greenish-grey body and dull black markings; (c) head green with pale yellow inverted V on front; body green with pale yellow dorsal lines; pale yellow subspiracular stripe; pale greyish-green oval midventral spots on A1-4, greyish-green crochets on prolegs.

***Protitame matilda* Dyar**—*Populus tremuloides* Michx., *P. trichocarpa* Torr. & Gray, *Salix* spp., *Alnus sinuata* (Regel) Rydb. (1 record). Throughout interior British Columbia north to 54° latitude and on Vancouver Island, common. LARVA: ⅞ inch; head medium green marked with pale reddish-brown; body smooth, robust, pale green; dorsum with a reddish tinge extending to lateral, pale reddish-brown addorsal and pale greenish-yellow subdorsal lines; indistinct pale yellowish-green supraspiracular stripe; venter pale green with a yellowish tinge, immaculate.

***Protitame hulstiaris* Tayl.**—*Populus tremuloides*, *Salix* spp. Interior British Columbia north to 56° latitude, uncommon. LARVA: ⅞ inch; head reddish-brown sides extending to vertex, front green; body smooth, robust, apple-green, broad reddish-brown dorsal stripe extending to A8; sides and venter immaculate.

***Itame loritaria julia* Hlst.**—*Popu-*

*lus tremuloides*, *P. trichocarpa* (2 records), *Salix* spp. (2). Throughout British Columbia and on Vancouver Island, but most common in the central and northern Interior. LARVA:  $1\frac{1}{8}$  inches; two color phases with intermediates: (a) head purplish-brown with tan markings; body smooth, purplish-brown, pale tan addorsal lines, banded with dull black except on TI and III and A1, 8 and 9; dull black lateral bands on TII, III and A2-6; spiracles pale yellow encompassed by irregular dull black patches; irregular subspiracular stripe on A1-5; venter pale purplish-brown banded with dull black A2-5; (b) head green; body green, pale yellowish-white middorsal and addorsal lines; spiracles pale yellowish-green, pale yellow subdorsal line; small, midventral spots on A1-4, reddish-brown crochets.

**Elpiste lorquinaria** Gn.—*Alnus* spp., *Salix* spp., *Betula* spp. (2 records). Southern British Columbia and Vancouver Island, uncommon. LARVA:  $1\frac{1}{8}$  inches; similar to *I. l. julia*.

**Stenoporpi excelsaria** Stkr.—*Pseudotsuga menziesii*, *Pinus contorta* Dougl., *P. ponderosa* Laws. Southern interior and coastal regions of British Columbia, uncommon. LARVA:  $1\frac{3}{8}$  inches; head slightly bilobed, golden buff marked with dark grey herringbone pattern on vertex; body robust, medium grey shading to golden buff on lighter areas, indistinct pale dorsal line bordered by thin dark grey addorsal lines, irregular diamond pattern bordered by dark grey on A1-7, dark grey bands extending to venter on A1-8, darkest on A2 and narrowed on TI-III, prominent subspiracular fringe of white, palmate setae, 2 to 5, on A1 and 3; venter pale yellowish-buff, indistinct pink ventral line, setal bases outlined with pink.

**Stenoporpi albescens** Hlst.—*Pseudotsuga menziesii*, *Abies amabilis* (Dougl.) Forbes, *A. grandis* (Dougl.) Lindl., *Picea sitchensis* (Bong.) Carr., *Tsuga heterophylla* (Raf.) Sarg., *T. mertensiana* (Bong.) Carr., *Pinus*

*contorta*, *P. monticola* Dougl., *Thuja plicata* Donn. Western British Columbia, Vancouver and Queen Charlotte Islands, common on Vancouver Island, uncommon elsewhere. LARVA:  $1\frac{1}{2}$  inches; head slightly bilobed, tan marked with grey; body smooth, greyish shading to brown in lighter areas, pale broken addorsal line bordered by blackish addorsal lines, indistinct diamond pattern irregularly outlined in black on TII-III and A1-8, on A2 black markings coalesced to create a band; lateral with diagonal line posterior of spiracles on TI and A1-8, prominent subspiracular fringe of white, palmate setae, 3 to 5 on A1-3; venter pale yellowish-buff.

**Stenoporpi separataria** Grt.—*Pseudotsuga menziesii*. Southern and central interior British Columbia, rare. LARVA:  $1\frac{3}{8}$  inches; similar to *S. excelsaria*. Larval period for *S. satisfacta* May-June; larvae of *S. excelsaria* occur August-September.

**Stenoporpi satisfacta** B. & McD.—*Pseudotsuga menziesii*, *Tsuga heterophylla*, *Pinus ponderosa*, *P. monticola*, *Abies lasiocarpa*. Southern and central interior British Columbia, uncommon. LARVA:  $1\frac{3}{8}$  inches; similar to *S. excelsaria*. Larval period for *S. satisfacta* May-June; larvae of *S. excelsaria* occur August-September.

**Coniodes plumogeraria** Hlst.—*Quercus garryana* Dougl., *Salix* sp. (1 record), *Acer glabrum* var. *douglasii* (1). Southern British Columbia and Vancouver Island; Victoria, Gold-bridge, Summit Lake and an adult caught in flight at Vernon, rare. LARVA:  $1\frac{1}{2}$  inches; head moderately bilobed, pale grey heavily patterned with black; body slim, sparsely pilose, pale greyish-buff, pale dorsal line bordered with black on TI-II and A7-8, black tuberculate setal bases, addorsal tubercles on A1-3 and 8, most prominent on A2 and 3; brownish-orange patch around spiracle and tubercle on A1, prominent spiracular tubercle on A1, prominent spiracular tubercles on A2-3 and less prominent on A7-8; venter pale buff, TI-III and A1 suffused with pink, A2-5 broadly

banded with black, tubercular black setal bases.

**Erannis vancouverensis** Hlst.—*Betula* spp., *Salix* spp., *Alnus* spp., *Acer* spp. Central and southern British Columbia, common; occasionally localized infestations of short duration. LARVA:  $1\frac{5}{8}$  inches; head granulate, pale tan to dull orange; body minutely spiniferous, pale greenish-yellow to pale yellowish-orange with narrow blackish lines extending to anal plate and coalesced on supra-spiracular of A1-8, spicules more pronounced on A8 and anal plate; spiracles yellow with black margins; venter immaculate, paler than dorsum.

**Lycia ursaria** Wlk.—*Betula* spp., *Alnus* spp., *Salix* spp., *Populus tremuloides*. Interior British Columbia south of  $55^{\circ}$  latitude, rare. LARVA:  $2\frac{3}{8}$  inches; head rounded, pale mauve spotted with black; body robust, dull purple with small flattened tubercles on A1-5, reddish-purple addorsal, subdorsal, suprespiracular, spiracular, subventral and adventral stripes finely edged with black; venter of TI-III and A7-9 pale yellow, TI-III marked with large midventral spots.

**Lycia rachelae** Hlst.—*Alnus* spp. (3 records), *Salix* spp. (2), *Amelanchier alnifolia* Nutt. (1). Interior British Columbia, rare. LARVA:  $1\frac{5}{8}$  inches, head whitish mottled with dark brown; mauve to pinkish-mauve with fine brown maculation, dorsal lines obscure; irregular pinkish-mauve spiracular stripe flecked with yellowish-white, prominent black spiracles; venter like dorsum but paler.

**Biston cognataria** (Gn.) —*Salix* spp., *Betula* spp., *Populus tremuloides*, *Alnus* spp., *Prunus* spp., *Larix occidentalis*, Nutt. (1 record). Throughout British Columbia and Vancouver Island, common. LARVA: 3 inches; head granulate, deeply bilobed, buff or grey marked with darker shades of grey, brown or orange; body sparsely granulate, variable grey, brown, orange or green, prominent tubercles on addorsal TI and supraspiracular A5 less prominent on addorsal A8; in-

distinct pattern on TI-III and A6-8; midventral tubercles on A2-4, largest on A3; subventral fringe of short pale setae between prolegs extending onto posterior of ventral prolegs.

**Phaeoura mexicanaria** Grt.—*Pinus ponderosa*. Southern interior British Columbia, rare. LARVA:  $2\frac{3}{4}$  inches; head granulate, deeply bilobed, brownish with black and buff markings; body robust, with minute spines, pale grey marked with black, medium brown and buff, dorsum of A1-4 with pale V markings outlined with black, darker on A5-7, setal bases pale, tuberculate, subdorsal tubercles on A1-3, largest on A2, small addorsal tubercles on A8; lateral flecked with minute whitish tubercles; venter paler than dorsum marked with black, TII-III broadly banded with black.

**Gabriola dyari** Tayl.—*Tsuga heterophylla*, *Pseudotsuga menziesii*, *Abies amabilis*, *A. grandis*, *A. lasiocarpa*, *Thuja plicata*, *Picea sitchensis*, *P. engelmanni*, *P. glauca*, *Pinus monticola*, *P. contorta*, *P. ponderosa*, *Larix occidentalis*. South of  $56^{\circ}$  latitude in British Columbia and on Vancouver and Queen Charlotte Islands, common. LARVA:  $1\frac{1}{4}$  inches; two color phases: (a) head medium brown, slightly bilobed, vertex sparsely granulate; body stout, rugose, creamy-buff marked with brown and black, TI-III with indistinct pale middorsal line, A1, 2, 4, 8 and 9 pale flecked with brown, A3, 5-7 darker with + shaped pale middorsal marks and black diagonal subdorsal flecks; small tuberculate setal bases, partly fused middorsal tubercles on TII and A8, small subdorsal tubercles A1-8, prominent bilobed spiracular tubercles TII and A2-8; broad, irregular creamy-buff spiracular stripe on TI, A1-5, 7-9 and onto anal plate; venter pale brown with indistinct midventral lines; (b) similar to (a) but lacking black markings and will dull orange replacing brown

**Euchlaena johnsonaria** Fitch — *Alnus sinuata*. Interior British Columbia south of  $54^{\circ}$  latitude, rare. LARVA:  $1\frac{7}{8}$  inches; head somewhat

quadrate, horizontal, dull bluish-grey sparsely marked with creamy-buff; body twig-like, pale buff marked with grey, purplish-grey, medium-brown and black; dark dorsal lines TI-III and A1 indistinct on remainder of dorsum, A1-3 with pale diamond pattern, pale chevrons on A6-8, flattened transverse ridge on A1 bordered with black lines, small tubercles on A5, 6 and 8; lateral with pale grey or pale buff blotches, paler than dorsum; venter pale with pale grey ventral lines outlined by fine irregular black lines; A1 with large pale spot, small tubercles on A1-5.

**Euchlaena marginata albertanensis** Swett—*Salix* sp. Southern interior British Columbia, rare. LARVA: 1¼ inches; head somewhat quadrate,

horizontal, pale grey with herring-bone pattern on sides and vertex composed of tiny purplish dots; body slim twig-like, pale grey marked with medium brown, pink, yellow, white and black; indistinct black dorsal lines; small prominent addorsal tubercles on A2-8; black except on A2, yellow bordered with black; setal bases tuberculate; indistinct black and dull white lateral lines; venter with irregular black lines, posterior of thoracic legs heavily marked with black.

**Euchlaena tigrinaria sirenaria**

Stkr.—*Betula* spp. Interior British Columbia south of 54 latitude, rare. LARVA: 1¼ inches; head pale grey with pale pinkish-buff markings and whitish transverse band on lower front bordered above with black; body slim, twig-like, wider anteriorly, pale whitish-buff mottled with grey, pinkish-brown and black, middorsal and addorsal lines on TI-III and A3-5, indistinct on A1 and 2, pale chevrons on A6 and 7, pale anal plate, pale transverse ridge bordered with black on A1, prominent addorsal tubercles on A5 and 8; broad but indistinct brownish supraspiracular band on TI-III and A1-5, A6-8 mottled with dark brown and pinkish-brown, short black spiracular tubercles on A7-8; small ventral tubercles on A1-5; tho-

racic legs marked with black.

**Epirrhanthis substrictaria danbyi**

Hlst.—*Salix* spp., *Pseudotsuga menziesii* (1 record), *Larix occidentalis* (1), *Populus tremuloides* (1). Southern British Columbia and Vancouver Island, uncommon. LARVA: 1½ inches; head whitish to pale buff marked with brown, herring-bone pattern on sides; body pale buff, maculation medium brown, TI-III with dark brown middorsal line, paler and indistinct on remainder of dorsum, TII, III and A1-7 with indistinct chevrons, transverse ridge, with small tubercles, bordered posteriorly with a narrow dark brown line on A8; lateral paler than dorsum; venter pale, marked with irregular, pale pinkish lines.

**Campaea perlata** Gn.—*Salix* spp.,

*Betula* spp., *Populus tremuloides*, *Alnus* spp., *Pseudotsuga menziesii*, *Tsuga heterophylla*, *Thuja plicata*, *Pinus contorta*, *Picea* spp., common. Throughout British Columbia and Vancouver Island. LARVA: 1¾ inches; head pale mauve with black spots; body twig-like pale yellow, occasionally greenish, with medium grey, brownish-orange and black markings, indistinct pale subdorsal lines, black dorsal band on A2, brown cervical shield, pale areas around spiracles on A1-3; venter pale, subventral fringe of hair-like tubercles, abdominal prolegs on A5 and 6, posterior pair larger.

**Anthelia taylorata** Hlst.—*Tsuga heterophylla*. Southwestern British Columbia and Vancouver Island, rare. LARVA: 1¾ inches; similar to the following species: *A. hyperborea* Hlst. (Personal communication, D. Evans, Department of Forestry and Rural Development, Victoria, B.C.)

**Anthelia hyperborea** Hlst.—*Tsuga heterophylla*, *T. mertensiana*, *Pseudotsuga menziesii*, *Thuja plicata*, *Abies amabilis*, *A. lasiocarpa*, *A. grandis*, *Picea engelmanni*, *P. glauca*, *P. sitchensis*, *Pinus monticola*, *Salix* spp., *Alnus* spp. South of 56 latitude in British Columbia, on Vancouver and Queen Charlotte Islands, com-

mon. LARVA:  $1\frac{3}{8}$  inches; head yellowish-buff marked with medium brown, yellowish-buff stripes from vertex to labrum; body smooth tapering anteriorly, yellowish-buff marked with medium and light brown, mid-dorsal, addorsal and subdorsal lines pale yellowish, irregular subdorsal stripes extending onto head and anal shield; narrow pale yellow supra-spiracular line bordered with medium brown, setal bases black, spiracles outlined with black; venter paler than dorsum, marked with alternate lines of pale yellow and pale pinkish-brown, midventral spots of pale brown.

**Plagodis phlogosaria** Gn.—*Betula* spp., *Alnus* spp., *Salix* spp. Throughout British Columbia and Vancouver Island, uncommon. LARVA:  $1\frac{1}{4}$  inches; head retractile, pale grey liberally marked with black; body pale grey heavily suffused with purplish and reddish-brown, transverse blackish bands on TI-II, TII with lateral swellings, prominent blackish transverse ridge on A5 extending to lateral; prominent tubercles on posterior of anal prolegs just below anal shield, venter paler than dorsum, adventral spots, dark grey on A3-5, fused and velvety black on A1-2; TI-II and A7-9 pale buff.

**Anagoga occiduarica** Wlk.—*Alnus* spp., *Betula* spp., *Salix* spp. South of 55° latitude in British Columbia and on Vancouver Island, uncommon. LARVA:  $1\frac{1}{8}$  inches; two color phases: (a) head small, bilobed, pale grey heavily suffused with purple, indistinct blackish markings; body pale grey suffused with purple, pale subdorsal stripe on TI-III and A1, one pair of small subdorsal spots A2-9, blackish transverse ridge extending to lateral on A5; small tubercles on lateral, TI-III pale flecked with pinkish mauve; venter with small tubercles, black V markings on A1-2; (b) similar but with brown, dull orange and yellow replacing purple, mauve and pale grey.

**Hyperetis amicaria** H.-S.—*Alnus* spp., *Betula* spp., *Salix* spp. (2 rec-

ords), *Populus tremuloides* (1). South 56° latitude in British Columbia, on Vancouver and Queen Charlotte Islands, uncommon. LARVA:  $1\frac{1}{4}$  inches; two color phases: (a) head small, pale yellow, sides marked with minute brown spots; body smooth, pale yellow, A1-9 suffused with dull orange, TII-III wider than other body segments, TI with medium brown subdorsal spots, TII with medium brown transverse band from addorsal extending to subspiracular, transverse band on TII from subdorsal to subspiracular, transverse ridge on A5 medium brown marked anteriorly with yellow; lateral paler than dorsum, spiracular spots on A2-5; venter paler than dorsum, wide irregular midventral line on A1-6; (b) head green, sparse pale pink maculation; body green, dorsum faintly suffused with pale pink, medium brown transverse ridge on A5, brown extending onto lateral, spiracles outlined with black, setal bases brown; ventral setal bases brown.

**Nematocampa filamentaria** Gn.—*Pseudotsuga menziesii*, *Tsuga heterophylla*, *Picea engelmanni*, *P. glauca*, *Thuja plicata*, *Abies lasiocarpa*, *A. grandis*, *Larix occidentalis*, *Pinus monticola*, *P. contorta*, *Salix* spp., *Alnus* spp., *Betula* spp. Throughout British Columbia and on Vancouver Island, most common in Columbia Forest Region, rare on coast. LARVA:  $1\frac{1}{4}$  inches; tone of markings variable; head small pale yellow, dark brown maculation on sides and front; body slim, dull white to pale yellow, middorsal line TI to A1, indistinct on TI, pale addorsal and subdorsal lines TI-III extending onto apex, two prominent, cone-like addorsal tubercles on A1, four long filaments on A2 and 3, two small tubercles fused to form a transverse ridge on A8, A1 marked with dull orange, A2-3 suffused with pink; pale subspiracular line TI-III extending onto head TI-II and A1-5 indistinctly banded, A5 with oblique marking, A6-9 pale; venter banded, dark irregular midventral line with pale margins A1-8.

**Metarranthis duaria septentrionaria** B. & McD.—*Betula* sp. (1 record), *Populus tremuloides* (1), *Salix* sp. (1). Southern interior British Columbia and Vancouver Island, rare. LARVA:  $1\frac{3}{8}$  inches; head slightly bilobed, pale yellow sparsely flecked with pink, front narrowly outlined with dark brown; body robust, pale yellow, medium brown markings with bluish overtone, indistinct, irregular dorsal lines, pale inverted U-shaped marking on A2, one pair of small whitish addorsal spots outlined with black A1-8, black addorsal tubercles on A8, black line extending from tubercles to spiracles on A8; irregular yellow lateral lines; pale yellow ventral lines, setal bases velvety black forming band on A1-3.

**Metanema inatomaria** Gn.—*Populus tremuloides*, *P. trichorcarpa*. South of 57° latitude, interior British Columbia, rare. LARVA:  $1\frac{1}{4}$  inches; head small, pale buff marked with dark brown, herring-bone pattern on sides; body pale buff marked with shades of brown and black, pale inverted V pattern on A1-3 and 5, pattern coalesced on A3-4 extending obliquely on A4 to subspiracular line, pale middorsal line bordered irregularly with black TI-III, pale indistinct subdorsal lines extending onto vertex; lateral with narrow black line obliquely through spiracles A1-6, dark brown subspiracular stripe bordered irregularly above with a yellow line extending onto head; venter pale yellow flecked with pink.

**Metanema determinata** Wlk.—*Salix* spp. Interior British Columbia: Summit Lake, Mile 53 Alaska Highway and also recorded from Creston (J. R. J. Llewellyn-Jones), rare. LARVA:  $1\frac{1}{8}$  inches; head small, flattened, pale buff profusely marked with brown; body, twig-like, pale buff mottled with brown, pale diamond markings on A1, 2, 4 and 5 on A3 extending obliquely to lateral, one pair of small, flattened dark brown addorsal tubercles on A1 to 5; dark brown subspiracular line extending on underside of head, darkest on TI-

III and A5-9; venter pale, fine, pinkish maculation.

**Selenia alciphearia** Wlk.—*Populus tremuloides*, *Alnus* spp., *Salix* sp. (1 record). Throughout British Columbia, including Vancouver Island, rare. LARVA:  $1\frac{1}{2}$  inches; head horizontal and flattened, pale yellow, lower front and sides marked with dark brown; body slender to A3 remainder thicker, pale brown, A6-9 greyish, all marked with darker shades of brown, pale addorsal lines extending onto head on TI-III and A6-9; dark brown transverse ridges with one pair of small addorsal tubercles on A4 and 5, ridges with fine white markings; lateral of TI-III suffused with reddish-brown, wide dark brown oblique bands on A4 and 5 extending to, and bisecting venter, venter of A2 and 3 with narrower brown bands, pale yellow midventral stripe A1-3 broadly bordered with pale brown.

**Selenia kentaria** G. & R.—*Alnus* sp. Interior British Columbia at Annis and Mile 53 Alaska Highway, rare. LARVA:  $1\frac{1}{2}$  inches; similar to *S. alciphearia* but with one pair of addorsal tubercles on A1-3, smallest on A3, dark brown frosted with grey, transverse ridges rusty dark grey marked with white, venter dark grey with small tubercles on A1-2.

**Pero behrensarius** Pack.—*Pseudotsuga menziesii*, *Tsuga heterophylla*, *Thuja plicata*, *Abies grandis*, *A. lasiocarpa*, *A. amabilis*, *Picea engelmanni*, *P. glauca*, *P. sitchensis*, *Pinus contorta*, *P. ponderosa*, *P. monticola*, *Larix occidentalis*. South of 55° latitude in British Columbia and on Vancouver Island, common. LARVA: 2 inches; head moderately bilobed, yellowish-buff marked with brown on sides and front; body smooth, slender, tapering anteriorly, pale grey; dorsum greyish-brown V markings darkest on TI-III and extending obliquely to venter on A1-7; venter with pale irregular midventral stripe.

**Pero morrisonarius** Hy. Edw.—*Tsuga heterophylla*, *Pseudotsuga menziesii*, *Thuja plicata*, *Picea sitchensis*, *P. glauca*, *Abies grandis*, *A.*

*lasiocarpa*, *Salix* spp., *Alnus* spp. South of 56° latitude in British Columbia and on Vancouver Island, uncommon. LARVA: 2 inches; similar to *P. behrensarius* but head more strongly bilobed, pale fawn marked with medium brown, lower half of front pale; body slim with transverse ridge on A8, one pair of prominent subventral tubercles on A2; body brownish with paler longitudinal shades, rarely with broad alternating bands of pale grey and rich brown.

**Pero mizon** Rindge—*Pseudotsuga menziesii*, *Thuja plicata*, *Tsuga heterophylla*. South of 56° latitude in British Columbia and on Vancouver Island, rare. LARVA: 2 inches; similar to *P. morrisonarius* but lacks prominent subventral tubercles on A2; dorsum of A1 and 4 marked with black.

**Phengommataea edwardsata** Hlst.—*Pseudotsuga menziesii*, *Pinus contorta*, *P. ponderosa*, *P. monticola*, *Picea sitchensis*, *Tsuga heterophylla*. Central to southern British Columbia, including Vancouver Island, uncommon. LARVA: 1 $\frac{3}{8}$  inches; head pale green marked on the sides and front with reddish-brown; body smooth, robust, medium green, prominent yellowish-white subdorsal lines extending onto head; yellowish-white spiracular lines wider posteriorly, spiracles pale yellowish outlined with reddish-brown; venter paler than dorsum with yellowish-white subventral lines.

**Enypia venata** Grt.—*Tsuga heterophylla*, *T. mertensiana*, *Pseudotsuga menziesii*, *Abies amabilis*, *A. grandis*, *A. lasiocarpa*, *Thuja plicata*, *Picea sitchensis*, *P. engelmanni*, *P. glauca*, *Pinus monticola*, *P. contorta*. Central to southern British Columbia, Vancouver and Queen Charlotte Islands, more common in western portions of the province. LARVA: 1 $\frac{1}{4}$  inches; head small, pale, marked with dark brown lines, herringbone pattern on sides; body smooth, robust, pale yellowish-buff with longitudinal pattern of medium buff, discontinuous blackish middorsal,

addorsal and subdorsal lines; broken, irregular, blackish lateral and ventral lines.

**Enypia griseata** Grossb.—*Pseudotsuga menziesii*, *Abies lasiocarpa* (2 records), *Picea engelmanni* (1), *P. glauca* (1). Central to southern interior British Columbia, uncommon. LARVA: 1 $\frac{1}{4}$  inches; head small, pale green, dark brown markings on upper front bordering cleavage line, sides of head suffused with pale reddish-brown; body smooth, pale green, dark green middorsal line, white addorsal lines extending onto head; white spiracular line marked with reddish-brown on TI-III; venter with white midventral and subventral lines.

**Enypia packardata** Tayl.—*Tsuga heterophylla*, *T. mertensiana*, *Pseudotsuga menziesii*, *Abies amabilis*, *A. grandis*, *A. lasiocarpa*, *Thuja plicata*, *Pinus monticola*, *P. contorta*. South of 56° latitude in western British Columbia, Vancouver and Queen Charlotte Islands, common. LARVA:  $\frac{7}{8}$  inch; head reddish-brown with pale verticles; body smooth, light green with dark dorsal, subdorsal and supraspiracular lines, yellowish spiracular line. (Personal communication, D. Evans, Dept. of Forestry and Rural Development, Victoria, B.C.)

**Nepytia umbrosaria nigrovenaria** Pack.—*Pseudotsuga menziesii*, *Tsuga heterophylla*, *Abies grandis*, *Pinus contorta*, *P. monticola*, *Thuja plicata*, *Picea sitchensis*. Southern British Columbia including Vancouver Island, uncommon in coastal regions and rare in the Interior. LARVA: 1 $\frac{3}{8}$  inches; head pale brown; body distinctively striped; dorsum cream-colored with broken orange dorsal and subdorsal lines; dark brown-red laterally, indistinctly light-lined and edged black; ventral surface pale brown-green. (Personal communication, D. Evans, Dept. of Forestry and Rural Development, Victoria, B.C.)

**Nepytia freemani** Munro—*Pseudotsuga menziesii*, *Tsuga heterophylla*, *Picea engelmanni*. Interior British Columbia south of 54° latitude, common. Localized outbreaks, of short



duration, have occurred in reproduction and polesized stands of *P. menziesii*. LARVA: 1¼ inches; head square, vertex and sides tan, front pale yellow, immaculate except for dark setal bases and ocelli; body slim, broad rich tan dorsal stripe with black margins bordered by narrower yellow subdorsal stripes; rich tan supraspiracular stripe marked irregularly with black and finely outlined with black; broad yellow spiracular stripe, narrower than subspiracular stripe, finely outlined in black extending onto thoracic legs; broad yellow ventral stripe, pale tan adventral stripe finely bordered with black, pale pinkish subventral stripe.

**Nepytia phantasmaria** Stkr.—*Tsuga heterophylla*, *Pseudotsuga menziesii*, *Thuja plicata*, *Picea sitchensis*, *Abies amabilis*, *A. lasiocarpa*, *A. grandis*, *Pinus monticola*, *P. contorta*. South of 54° latitude in western British Columbia and Vancouver Island, common. Localized but severe outbreaks have occurred resulting in mortality of mature *T. heterophylla* and *P. menziesii* located in municipal and city parks. LARVA: 1½ inches; head green with black dots; body smooth, lime green with dark edged, yellowish subdorsal and spiracular lines. (Personal communication, D. Evans, Dept. of Forestry and Rural Development, Victoria, B.C.)

**Lambdina fiscellaria lugubrosa** Hlst.—*Tsuga heterophylla*, *Pseudotsuga menziesii*, *Thuja plicata*, *Abies lasiocarpa*, *A. amabilis*, *A. grandis*, *Picea engelmanni*, *P. sitchensis*, *P. glauca*, *Larix occidentalis*, *Pinus contorta*, *P. monticola*, *Alnus* spp., *Salix* spp., *Betula* spp., *Acer* spp. South of 57° latitude in British Columbia, Vancouver and Queen Charlotte Islands, common; frequent outbreaks have occurred causing damage of economic importance to mature western hemlock forests. LARVA: 1½ inches; head pale yellowish-buff minutely spotted with brown and black, sparsely marked with larger black spots; body smooth, transverse ridge on A8, pale yellowish-buff marked longitu-

dinally with fine, irregular, pale greyish and brownish lines; irregular black addorsal lines, TI-III with addorsal spots, A1-7 each with four addorsal spots, A8 with six addorsal spots; pale yellow addorsal stripe marked intermittently with pale brownish-orange; lateral suffused with pale grey, darker than dorsum, marked with fine longitudinal grey lines; dark grey, broken supraspiracular stripe; spiracular stripe brownish grey; venter pale marked longitudinally with fine irregular pale grey lines.

**Lambdina somnaria** Hlst.—*Quercus garryana*, *Salix* spp., *Acer circinatum*, *Alnus rubra*. Southern Vancouver Island where localized outbreaks occur, common. LARVA: 1½ inches; similar to *L. f. lugubrosa* but generally paler.

**Besma quercivoraria** Gn.—*Betula* spp., *Salix* spp., *Alnus rubra*. South of 56° latitude in British Columbia and on Vancouver Island, uncommon. LARVA: 1½ inches; slim and twig-like, lateral swelling on T2, transverse ridge, with addorsal tubercles, extending to lateral on A3, addorsal tubercles on A6, two color phases with intermediates: (a) head pale yellowish-green occasionally with reddish markings on sides; body immaculate pale green; (b) head reddish-brown with fine white irregular lines on vertex; body reddish-purple, prominent parts marked with black, small white markings around or near setal bases; lateral with blackish patches around spiracles; (c) head yellowish-green with reddish markings darkest on sides; body green suffused with pale red darkest on A6-9, prominent parts dark reddish-brown.

**Sicya macularia agyllaria** Wlk.—*Salix* spp., *Populus tremuloides*, *Alnus* spp., *Betula* spp. South of 55° latitude in British Columbia including Vancouver Island, rare. LARVA: 1¾ inches; head pale yellow, lower vertex and posterior portion of sides marked with reddish-brown; body slim, twig-like, lateral swelling on TII, one prominent horn-like mid-

dorsal tubercle on A3 and 5, transverse ridge and small addorsal tubercles on A8, A3 with lateral swelling and small spiracular tubercles; dorsum reddish-purple; lateral reddish-purple, paler around spiracles; occasional specimens with broad whitish spiracular stripe continuing onto anal shield; venter reddish-purple with whitish midventral stripe.

**Deuteronomus magnarius** Gn.—*Betula* spp., *Populus tremuloides*, *Salix* spp., *Alnus* spp. South of 55° latitude in British Columbia, including Vancouver Island, uncommon. LARVA: 1½ inches; head rounded, horizontal, pale greyish-white marked with brown; body slim, twig-like, brownish, slightly raised ridges on A2 and 5, two tubercles on A8, venter paler than dorsum.

**Synaxis jubararia** Hlst.—*Tsuga heterophylla*, *Pseudotsuga menziesii*, *Abies amabilis*, *A. lasiocarpa*, *A. grandis*, *Thuja plicata*, *Picea engelmanni*, *P. sitchensis*, *P. glauca*, *Larix occidentalis*, *Pinus contorta*, *Salix* spp., *Alnus* spp., *Populus* spp., *Betula* spp. South of 56° latitude in British Columbia, including Vancouver Island, common. LARVA: 1⅝ inches; head small, buff patterned with minute dark brown spots coalesced to form lines; body slim and twig-like, wider from A6-9, TII with lateral swelling; pale buff marked with shades of grey and brown; pale indistinct middorsal line margined with black TII and III, diamond markings on A1-2, chevrons on A3-8, smallest on A6-9, TI and II of lateral pale, TIII and A1-9 greyish brown, darker posteriorly, lateral of abdominal prolegs with white vertical stripe; venter paler than dorsum.

**Tetracis cachexiata** Gn.—*Acer glabrum*, *Salix* spp., *Betula* spp. Cen-

tral to southern interior British Columbia, uncommon. LARVA: 1⅞ inches; head small, horizontal, dull yellowish-white marked with medium brown on vertex, two short black lines extending from vertex to mid-front; body slim wider from A6-9, TII with lateral swelling and small addorsal tubercles, subspiracular tubercles on A1 and 2; subdorsal tubercles on A4 and 5, brown transverse ridge extending to venter on A8; prominent parts blackish, black middorsal line on A5-8; pale lateral patches on TI and II extending onto head, subspiracular tubercles on A1-2 dark brown surrounded by brown outlined with black creating short oblique markings; venter paler posteriorly, setal bases dark.

**Prochoerodes forficaria combinata** McD.—*Acer glabrum*. Southern interior of British Columbia, rare. LARVA: 1⅞ inches; head rounded, small, pale grey or buff marked with dark brown, narrow brown band below vertex extending onto and partly bisecting front, two prominent whitish spots on front; body slim, pale grey, marked medium brown densely spotted with black, indistinct mid and subdorsal lines, indistinct diamond pattern A1-7, setal bases whitish and slightly tuberculate, prominent addorsal tubercles inclined anteriorly on A8, broken pale spiracular line, setal bases pale and slightly tuberculate, venter pale whitish-grey with pale medium brown longitudinal lines, dark grey middorsal spots and setal bases.

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