

**NOTES ON THE LIFE HISTORIES OF ONE BUTTERFLY AND THREE  
MOTHS FROM VANCOUVER ISLAND (LEPIDOPTERA: LYCAENIDAE,  
PHALAENIDAE AND GEOMETRIDAE)**

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***Strymon sylvinus* Bdv.**

Five species of *Strymon* are recorded for British Columbia, but only 2 of these on Vancouver Island. They are all small butterflies with a wingspan averaging 25 mm. The wings of *S. sylvinus* are dark brown above with orange spots in the anal angle of the secondaries; below, they are characteristically brownish-ash dotted with black.

Two females taken in the Malahat district on August 5, 1960 were confined over twigs of *Salix mackenziana*. By August 7 several ova were laid in the axils of the leaf scars close against the stem, in a row of two to six. Here they remained for the following winter.

**Ovum**

Size 0.8 mm. by 0.5 mm., turban shaped, coarsely reticulate, adjoining angles projected into blunt hyaline spines; light fuscous brown with an olive tinge, becoming whitish towards maturity. Hatched April 2, 1961.

**Larva—1st Instar**

Length 1 mm. Head small, retracted into T. 1, dark brown. Body tapering from the head, pale brown, with 2 paler lines on the dorsum, and 4 rows of short, stiff, curved hairs directed forward on the T. segments, but backwards on the rest. It fed on the under side of the willow leaves, eating small holes in the epidermis.

**2nd Instar**

April 26. Length 3 mm. Head black. Body onisciform, pale green, with 4 whitish stripes along the dorsum, their margins blending into the ground colour; hairs short and distributed over the body.

**3rd Instar**

May 20. Length 11 mm. Head nearly quadrate, narrow above, dark brown. Body onisciform, tapering dorsally and laterally from the T. segments; pale green sides, having a dark green dorsal stripe with yellow margins, broad on the T. segments, tapering to a point on A. 8; 10 double, oblique, faint, whitish lines on each side; spiracular line yellow; underside dark green; short pubescence chiefly in 4 rows; small white mushroom-shaped bodies thickly sprinkled over the whole body.

May 25. Length 17 mm. Full grown. Turned to dark purplish just before pupation, which took place on the underside of a piece of bark. The larva spun a silken mat and put a strand of silk round the thorax. Pupated June 1.

**Pupa**

Size 12 mm. by 5 mm. Dull, with an irregular band of short brown setae along the juncture of the upper and lower surfaces, and a few thinly scattered hairs on the upper side of the A. segments. Dark mahogany brown. No cremaster noticeable.

**Imago**

Emerging June 20, 1961.

***Euxoa vetusta* Wik.**

A female taken at rest in Saanich, laid about 300 ova in a loose pile on the bottom of the box, by September 14, 1960.

**Ovum**

Size 0.75 mm. by 0.50 mm. Hemispheric, smooth, faintly close-ribbed and cross-ribbed; white, turning in a day or so to pale cream with a pink dot in the centre and a broken ring of the same colour round the shoulder. Hatched September 26.

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### Larva—1st Instar

Length 2.5 mm. Head smooth, dark brown. Body dull grey, soon showing signs of green from ingested food; cervical plate dark brown. Fed on *Plantago lanceolata*, *Trifolium alba*, and later *Hypochaeris radicata*. They showed a marked preference for the latter.

By October 2 they were sluggish, tending to congregate in a heap beneath the herbage. General colour brown with fine whitish broken subdorsal lines.

### 2nd Instar

October 12. Length 6 mm. Head medium brown. Body olive grey with a pair of dark marks like parentheses on the dorsum of each segment, and a dark fuscous line just above the black spiracles; tubercles shiny, black; the underside dark olive-green. They dropped from the leaves at the slightest disturbance, and fed at night.

### 3rd Instar

October 24. Length 8 mm. Appearance similar to the second instar. They grew slowly and showed some tendency to hibernate.

### 4th Instar

November 22. Length 14 mm. Head shiny, dark brown with darker patches on the sides. Body with a dark grey dorsal band edged with fuscous and a faint, double, fuscous dorsal line; the sides with a lightly banded effect of grey, beige, and fuscous; spiracular line light grey, the edges blending into the ground colour; tubercles shiny, black and conspicuous; underside, legs and claspers dull grey; cervical plate dark brown with 3 white longitudinal lines.

### 5th Instar

December 20. Length 35 mm. Head, pale brown with broad oblique dark brown bar on each side, the rest faintly reticulated with the same colour. Body ground colour pale

clouded grey, with a faint double dorsal line, subdorsal lines thin, pale fuscous; spiracular line indicated by a suffused fuscous line along the row of black spiracles; tubercles shiny black, prominent, larger along the subdorsal lines; underside and claspers pale grey; the legs pale brown. The larvae were geotropic, and moved up to feed at night.

### 6th Instar

April 19, 1961. Length 35 mm. Head as described. Body integument grey, tough and leathery; the subdorsal lines faint, broken, and light grey; the sides with a wavy darker grey band just above the indistinctly light grey spiracular line; tubercles black and conspicuous. They pupated in earthen cavities beneath the moss about the end of May.

### Pupa

Size 18 mm. by 5 mm. Smooth and shiny, the anterior border of the A. segments finely punctate; dark piceous brown; cremaster 2 short, straight, slightly divergent spines at the tip of the last segment.

### Imago

Emerged from July 14 to July 20, 1961.

### Remarks

The data above were obtained from 2 groups of larvae from the same batch of ova. On October 24, 1960, about half were put with earth, moss and a food supply into a 10-inch flower pot, which was placed outdoors under the eaves of the south wall of a house. The remainder were kept indoors. Those kept outdoors hibernated on cold days, feeding infrequently in mild weather; those kept indoors continued to feed and grow slowly. On January 21, 1961, the outdoor group averaged 10-15 mm., while the indoor group averaged 30-35 mm. in length. Under normal conditions the larvae go into hibernation after about the second moult, resuming activity in the following spring.

Most of the outdoor group successfully completed the metamorphosis, but the indoor group died before pupating, apparently from inability to feed rather than from disease.

### ***Xylomiges simplex* Wlk.**

Eight of the 10 species of *Xylomiges* recorded in British Columbia are from Vancouver Island. They form a compact group in size, general appearance, and time of flight, which is usually early in the season.

*X. simplex* has a wing expanse averaging 40 mm. It is light ash grey marked with an intricate pattern of black bars, lines and dots. It is on the wing from March to May.

A female taken at Royal Oak on March 24, 1961 had laid 300 ova by March 27. They were in a single compact layer on the side of the container. In another case the ova were disposed in several groups, but always in a single layer.

### **Ovum**

Size 0.9 mm. by 0.5 mm. A depressed hemisphere with about 50 close-set ribs; pale cream with a greenish tinge, turning pink by March 31, and lead grey by April 18. Hatched on April 21.

### **Larva—1st Instar**

Length 2 mm. Head smooth, shiny, jet black. Body translucent, whitish soon becoming green with ingested food; cervical plate black; tubercles black and conspicuous. After trying many plants the larvae finally ate *Alnus rubra*. They concealed themselves in folded leaves or between 2 leaves held together by a few strands of silk.

### **2nd Instar**

May 5. Length 6 mm. Head as described. Body fuscous green; cervical plate black with lines coinciding with the dorsal and subdorsal lines, which were thin and whitish; tubercles prominent, black-ringed with white

at their bases; spiracular line thin and white, with black spiracles; underside fuscous; legs and claspers black.

### **3rd Instar**

May 16. Length 15 mm. Head as described. Body dark fuscous olive-green; cervical plate as described; dorsal and subdorsal lines thin and milk-white; spiracular line broad, yellow, threaded with a suffused rusty tinge along the centre; tubercles black, each bearing a short white hair; underside dark olive green; legs and claspers black. Each larva rested in a half curled position between 2 leaves or in a fold of a single leaf.

### **4th Instar**

May 23. Length 20 mm. Appearance as described. The body with a tinge of yellowish grey; spiracular line orange.

### **5th Instar**

May 30. Length 30 mm. Head round, large in proportion to the body, smooth, shiny, reddish brown. Body suffused with light pink over a yellowish background; dorsal and subdorsal lines very indistinct, pale cream; spiracles black on a pale yellow spiracular line; tubercles hardly discernible; underside concolorous with the upper.

At this stage all the larvae died from some cause unknown. These notes were completed from mature larvae collected in the field in 1960.

### **Pupa**

Size 16 mm. by 5 mm. Smooth, shiny and brown; anterior part of the A. segments finely and closely punctate; cremaster 2 very short, closely set setae with recurved tips and 4 smaller ones at their base, set upon the smooth rounded end of the last segment. The pupae were in cells among the debris at the bottom of the container.

***Pero morrisonarius* Hy. Edw.**

Four species of the genus *Pero* are recorded for British Columbia. All are similar in shape and colour, the wings with mottled shades of brown or grey and a broad central band of darker brown.

From a specimen of *morrisonarius* taken at Royal Oak, ova were obtained on June 6 and 7, 1960. They were laid in small irregular clusters or singly, mostly on raised fibres of the wooden box, affixed by the small end which gave them stalked appearance.

**Ovum**

Size 1 mm. by 0.75 mm. Broadly oval, smooth, shiny, translucent; pale green becoming dark olive at maturity. Hatched on June 17.

**Larva—1st Instar**

Length 5 mm. Head light honey-brown. Body very slender; olive green with darker intersegmental rings. They were very active and readily suspended themselves by a thread at the least disturbance. After various trials they ate *Cornus occidentalis*. The food plants listed in the literature are all conifers.

**2nd Instar**

June 23. Length 10 mm. Head light brown dotted with dark brown on the sides. Body brownish-green; dorsal line faint, dark green, broader on the T. segments and on A. 7 to 9; subdorsal lines lighter green. They spent considerable time suspended by a thread from the cover of the container, especially prior to moulting.

**3rd Instar**

June 30. Length 18 mm. Head dark brown on the vertex and sides, with a white patch on the front. Body pale olive-brown with several fine, alternately dark and light lines along the dorsum; tubercles noticeably black, 2 on the dorsum of each segment; a short fuscous line on the dorsum of the T. segments and segments A. 7 to 9; A. 6 with an arrow-shaped dark

brown spot on the centre of the dorsum; underside pale brown with alternate light and dark dashes along the median line. Some larvae had an additional small dark brown spot on A. 7, while others had a larger area of dark brown on the sides of A. 6.

**4th Instar**

July 6. Length 25 mm. Head notched, dark brown above but whitish below. Body cylindrical, with a slight hump on A. 9, light olive-brown with several faint, thin, pale lines on the dorsum; A. 1 with 2 small irregular brown spots on the dorsum, A. 6 with 2 oblique dark brown dashes on the dorsum followed by a horseshoe spot of the same colour, A. 7 with 2 parallel brown dashes, A. 9 with a dark transverse bar, and a brown patch on each side of the T. segments; tubercles black and conspicuous. The intensity of these markings varied with individuals.

**5th Instar**

July 20. Length 45 mm. Appearance as described but the general colour more yellowish brown. In one or two specimens the body was uniformly pale brown lightly and evenly freckled with dark brown; underside of A. 3 with a pair of dark brown fleshy tubercles on each side.

Pupated in the moss at the bottom of the container on August 1.

**Pupa**

Size 14 mm. by 5 mm. Wing-cases dull, roughened by minute etchings and piceous brown, the rest of the pupa smooth, shiny, mahogany-brown; anterior part of the A. segments closely punctate; cremaster 2 parallel, closely set spines with the tips slightly excurved, and 1 or 2 very short, fine hairs with recurved tips, set on a smooth, shiny, sub-conical boss at the end of the last segment.

**Imago**

Emerged May 31, 1961. Other specimens continued to emerge up to June 18.

## Reference

- Jones, J. R. J. L. 1951. An annotated check list of the Macrolepidoptera of British Columbia. Entomol. Soc. Brit. Columbia, Occasional Paper 1.

APHIDS OF STRAWBERRIES IN BRITISH COLUMBIA<sup>1</sup>

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Considerable interest is being taken in the aphids found on strawberries because of their importance in transmitting viruses. Since 1956 special attention has been given to collecting aphids from strawberries in British Columbia in connection with a major project on strawberry viruses. This paper reports data from the collections.

## Methods

From 1956 to 1961, about 75 collections of aphids were made from strawberry fields on the lower mainland and Vancouver Island, which are major strawberry growing areas of British Columbia. Commercial varieties sampled included British Sovereign, Marshall, Siletz, and Puget Beauty. Several collections were also made from strawberries in greenhouses. Some rearing was done in the insectary at Vancouver.

The aphids were preserved in 80 per cent ethyl alcohol and mounted by the method of Hille Ris Lambers (Hille Ris Lambers, 1950; Spencer, 1959). Identifications were made by the author and by Dr. W. R. Richards, Taxonomy Section, Entomology Research Institute, Ottawa.

Only aphids that were actually reproducing on strawberries are discussed in this paper. The alate strays which were frequently found on the plants are not included.

## Species Found

Nine species of aphids were found colonizing on strawberry: *Pentatrachopus fragaefolii* (Cockerell), *Pentatrachopus thomasi* H.R.L., *Macrosiphum euphorbiae* (Thomas), *Myzus ascalonicus* Doncaster, *Aulacorthum solani* (Kalt.), *Fimbriaphis fimbriata* Richards, *Myzus ornatus* Laing, *Aphis forbesi* Weed, and *Acyrtosiphon malvae* subsp. *rogersii* (Theobald). These are listed in their approximate order of abundance.

## Discussion

*P. fragaefolii* and *P. thomasi* are the commonest aphids on strawberry in the area, one or both being present in large numbers in every field examined. Until 1953 both were identified as *P. fragaefolii*. Hille Ris Lambers then recognized two morphotypes: one with 6 marginal capitate setae on abdominal tergites II-IV and one with the 6 marginal plus 6 submarginal setae. Cockerell's type lacked the submarginal setae and so the name *fragaefolii* applied to this species. Hille Ris Lambers named the other *thomasi* (Hille Ris Lambers, 1953 pp. 72-73). *P. thomasi* was identified from British Columbia in 1957 (Forbes, 1959).

The chaetotaxy on which this separation is based is subject to variation however and Hille Ris Lambers recognized this in his description when he said: "In exceptional specimens the inner pair of marginal hairs [sub-

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