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NOTES ON THE LIFE-HISTORY OF THE GARRY OAK LOOPER, LAMBDINA FISCELLARIA SOMNIARIA Hlst.

(Lepidoptera Geometridae)

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The following notes on the life history of this notorious species which has caused such devastation to the Garry oak, *Quercus garryana* Dougl. in Victoria and vicinity during the past two years, were made from reared specimens.

Ovum. Laid September 18, 1947, in a jar in which pieces of lichen and moss-covered bark were placed together with bud-bearing twigs. Two pairs of moths each taken in coitu were put into separate jars. One female laid 115 eggs, scattered indiscriminately on the lichen, moss, twigs and sides of jar, singly or in small groups and clusters without any evident order or sequence. The other female deposited 78 eggs in like manner. The ova were kept throughout the winter in an equably cool room temperature.

The egg is elongate, oval, slightly flattened at the end by which it was fixed to the substratum by an adhesive fluid. It is quite smooth and shiny. Colour a pastel shade of blue or green matching that of the lichens or moss on which the eggs are commonly laid. Towards hatching time the egg assumes a dark leaden hue. Size 1 mm. by 0.75 mm.

1st Instar. Ova hatched May 2, 1948. Length of larva, 3 mm. Head, black or fuscous; body, alternately ringed with fuscous and light bluish bands; egg-shell not eaten. When disturbed the larva spins a light silken thread to which it clings. Stadium, 6 days.

2nd Instar. May 8. Length 6 mm. Similar in every way but size to the preceding instar, but with the bands showing a tendency to break up into a different pattern. Stadium, 10 days.

3rd Instar. May 18. Length 10 mm. General colour a pale blue-grey. The fuscous bands now resolve into a more restricted and definite pattern; head, fuscous. Most of the segments are blue-grey with four small blackish spots arranged on the dorsal surface in the form of a square; underside of each abdominal segment 2 to 6 bearing large dark central spot. Three dark parallel interrupted lateral lines give the appearance of 10 black hyphens or dashes on each side of body. Stadium, 13 days.

4th Instar. May 31. Length 25 mm. General colour and pattern as in third

instar, but with markings more decided. There is a certain amount of variation in the size and intensity of the black markings on the dorsal surface and especially the lateral hyphens which are sometimes fused to form solid black lines but slightly interrupted between segments. Head pale sea-green, with small black dots arranged in four vertical rows, two on each side. The larva ceased feeding on June 19, three days before the pupal stage was assumed and spins a very thin webbing either between two leaves, among the moss on the trunk, or on the ground at the base of the tree. Length of larva just before pupation, 40 mm. Stadium, 22 days.

Pupa. Pupation June 22. Length of pupa 28 mm., width 4 mm.; wing cases fuscous; abdominal segments beige with small black dots; anal segment black; cremaster consisting of two stout terminal hooked setae and two to six smaller ones at the base. The pupa is held in place chiefly by the entanglement of the cremaster among the fibres of the web spun by the larva. Pupal period, 24 days.

Imago. First emergence on July 16. There was considerable variation in length of instars among individuals. Under natural conditions the larvae averaged 25 mm. on July 22 or about the same stage of development which had been reached on May 31 by those under control. The larvae remain very quiet except when feeding; they rest along the midrib on the underside of the leaves or on moss and bark often with the head shielded from daylight.

Summary. Ova laid under confined conditions on September 18, 1947, were kept in an equably cool room temperature throughout the winter. The larvae emerged May 1, 1948, and were fed on Garry Oak, *Quercus garryana*, completing their life cycle in 75 days from time of emergence from the egg. The first instar was completed in 8 days; second instar, 10 days; third instar, 13 days; fourth instar, 22 days and pupa, 24 days. Each instar was progressively longer than the preceding one. The last instar, however, included three or four days devoted to spinning and lying quiescent prior to pupation.

BIOLOGY OF ANISOLABIS MARITIMA (GENE) THE SEASIDE EARWIG, ON VANCOUVER ISLAND (Dermaptera, Labiduridae)

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Introduction — *Anisolabis maritima* (Gene), a large and fearsome appearing apterous earwig, inhabiting a restricted zone at the line of highest tides, is not likely to escape notice for very long where it occurs in settled districts. E. R. Buckell has given a resumé of its known range, and an account of its discovery on Vancouver Island by Professor G. V. Spencer in 1926[1], and it will not be necessary to go over this information here. The species in 20 years or more does not seem to have become very generally distributed on the British Columbia coast. It is now very abundant on the shore of Vancouver Island from Departure Bay where it was reported first to at least as far as the cove beyond Neck Point, a distance of only six or seven miles along the tortuous shore line.

After fairly careful search at several points along the coast, I found specimens in only one other locality, a few small islets known as Dayman Id. lying close to Kuper Id. I made unsuccessful searches at Separation Point, near Cowichan Bay; Dodd Narrows, south of Nanaimo; and French Creek, near Qualicum Beach. It is interesting to note that Professor Spencer found them on a small island, possibly Snake Id., three miles from Departure Bay. It appears that these earwigs are more apt to travel by water than along the shore. There is a record in the Report of the