

It would seem that the flies lay the first quota of 624 eggs and either lay no more or remain quiescent until the second series develops. At the tips of the follicles, in the germaria, were minute embryonic eggs which probably never develop before the fly season ends.

#### References:

- (1) Hearle, Eric. 1938. Insects and allied parasites injurious to livestock and poultry in Canada. Farmers bulletin 53, Dept. of Agric., Ottawa, Canada.
- (2) Smart, John. 1943. A Handbook for the Identification of Insects of Medical Importance. British Museum, London, Oct. 1943, p. 78.

—G. J. Spencer, University of British Columbia.

#### A Food Plant of *Orthorhis crotchii* Les. (Coleoptera, curculionidae)

On September 8, 1956, I found pupae of the weevil *Orthorhis crotchii* Lec. in the seed pods of stick-leaf, *Mentzelia laevicaulis* T. and G. at Oliver, B.C. More than 100 adults were obtained in the ensuing 5 weeks from dried plants kept at room temperature. A parasite, *Bracon* possibly *nupera* Cress. was identified by Mr. C. D. F. Miller of the Systematics Unit in Ottawa.

On June 14, 1947, adult weevils were literally swarming on stick-leaf plants at Midway, B.C. In spite of its local abundance, this species is apparently rare in collections of B.C. Coleoptera.

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### OBSERVATIONS ON A PINE SHOOT MOTH, *EUCOSMA SONOMANA* KFT. (LEPIDOPTERA: OLETHREUTIDAE)<sup>1</sup>

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The shoot moth, *Eucosma sonomana* Kft., is one of a group of six members of this large genus which Heinrich (1923) lists as feeders on coniferous trees. In British Columbia it is known to occur across the southeastern part of the province from Elko to the Okanagan Valley and northward as far as Chase.

Ponderosa and lodgepole pines are the only hosts so far recorded in British Columbia; larvae have been reared on Englemann spruce in Montana.

The following observations were made in the summer of 1957 in the Grand Forks district, and refer only to attacks on ponderosa pine.

#### Life History

The pupa overwinters. It is believed that the egg is laid in early spring on the growing tips of the host tree. Young, open grown stands are most susceptible but trees up to 40 feet in height may be attacked. The larva bores into the centre of the shoot, leaving only a minute trail at

first, but in the late instars, hollowing out most of the central pith. During the feeding period there are no exudations of pitch or frass; the only symptoms are a slight dwarfing of infested terminals, and a tendency to droop. When fully grown the larva bores an exit hole through the side of the shoot and drops to the ground.

Larvae from Cascade and Midway pupated in the insectary at Vernon between mid-June and early July. Pupa were kept in the insectary until the autumn, when they were placed in cold storage at 35°F. Adults began to emerge three days after the pupae were transferred to constant temperature cabinets at 70°F.

#### Economic Importance

Although *Eucosma sonomana* may seriously disfigure young pines by killing or distorting the new growth, it is not considered to be a pest of major importance in British Columbia. Multiple stems are the most serious deformity resulting from the death of the main leader, but as many of the infested leaders survive, the form of the tree is not always affected.

Three types of injury have been observed. Dead, slightly curved leaders

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and branch terminals are the most conspicuous evidence of infestation; because mortality occurs before growth is completed, the needles of the dead shoots are not fully expanded.

The second type of injury is caused by the breakage at the larval exit hole, of shoots that would otherwise have survived; the third is the distortion of

growth of shoots surviving borer attack.

Near Cascade in a sample of 47 ponderosa pine saplings between 4 and 10 feet in height, 40 per cent were infested in 1957, 70 per cent of the infested shoots died after larval emergence, while the remainder suffered varying degrees of deformity.

#### References

- Heinrich, Carl. 1923. Revision of the North American Moths of the Subfamily Eucosminae of the Family Olethreutidae. U. S. Nat. Museum Bull. 123.

## NOTES ON THE LIFE HISTORIES OF THREE SPECIES OF LEPIDOPTERA FROM SOUTHERN VANCOUVER ISLAND, BRITISH COLUMBIA

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The following butterfly and two moths do not seem to have had their early stages described in any readily referable publication, if at all. Accordingly, they are submitted in the hope that they will be of interest to students of this group.

### *Speyeria brennerii* Edw.

A female of this large Nymphalid butterfly, caught in Saanich, was confined over a growing plant of *Viola palustris* on August 11, 1956. By August 19 it had laid between 30 and 40 ova, scattered about the stem and leaves and among the surrounding moss.

The eggs hatched August 31, and after consuming the eggshells, the larvae went into a dormant condition. They basked in the sunshine on warm days, but no further feeding or growth was noted. The 10 in. pot containing the young larvae was placed out of doors under the eave at the south side of the house, where they remained for the rest of the winter.

**Ovum.** Size 1.0 by .60 mm., conic-truncate, coarsely ribbed and cross-ribbed, shiny; dull cream.

**Larva. 1st Instar.** Length 2 mm. Head jet black, shiny. Body drab dirt

colour, with a small shiny, black, cervical plate on T.1; rest of body with long, fine, un-branched, black hairs. By March 29, 1957, the whole brood seemed to have hibernated successfully and was commencing to nibble on pansy shoots. By April 9 they were 4-5 mm. long, the colour as before. The caterpillars were gregarious, bunching up in sunny patches when not feeding on the yellow pansy leaves or the violet which was then becoming available.

**2nd Instar.** April 16. Length 5 mm. Head shiny, black. Body black with black branched spines arising from the usual tubercles. They still massed together when not feeding.

**3rd Instar.** April 22. Length 8 mm. Head as before. Body as before but thin greyish subdorsals evident.

**4th Instar.** May 10. Length 10-12 mm. Head black, sparsely short-haired. Body blue-grey due to whitish flecks on a fuscous and ochre background; a black dorsal and a dark longitudinal line connecting the tubercles; tubercles yellowish, most noticeable on the spiracular row. The caterpillars became more independent and did not mass together so much. By May 16 the length varied from