

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, cruculionidae)

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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