

INCIDENCE OF LEAFHOPPERS INHABITING SWEET CHERRY ORCHARDS IN THE KOOTENAY VALLEY OF BRITISH COLUMBIA¹

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Introduction

This report on the composition of leafhopper populations in two cherry orchards in the Kootenay Valley, British Columbia, is a part of the long-term search for vectors of little cherry virus of sweet cherry, *Prunus avium* L. At least three species of leafhoppers of the subfamily Deltocephalinae, included in this study, have transmitted little cherry virus experimentally from Lambert to Star or Sam varieties of sweet cherry under field and laboratory conditions (10).

The value of leafhopper surveys in an area where plant virus problems exist and the importance of determining if known leafhopper vectors are present in that area is discussed by Turner (8).

Methods and Materials

The method of sampling leafhopper populations, arrangement of plots, and leafhopper nomenclature used in this investigation are described in a previous paper (11) by the author.

Results

The following table lists identities (1) and totals of leafhoppers trapped on sticky boards (2) during a period of 20 weeks in 1957 in test plots in sweet cherry orchards of the Kootenay Valley, B.C.

Discussion

The most numerous leafhopper was *Edwardsiana rosae* (L.); 4,393 adults were trapped out of a total of 5,849 adult leafhoppers. *E. rosae* is a meso-

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TABLE 1.—Species and Numbers of Leafhoppers Trapped on Sticky Boards in Sweet Cherry Orchards, Kootenay Valley, B.C., May 1 to September 18, 1957.

Species	Total
<i>Edwardsiana rosae</i> (L.)	4,393
<i>Neokolla hieroglyphica</i> (Say)	265
<i>Psammotettix lividellus</i> (Zett.) = <i>affinis</i> Gill. & Bak.	262
<i>Macrostelus fascifrons</i> (Stal)	182
<i>Dicraneura absenta</i> DeL. & Cald.	168
<i>Erythroneura</i> spp. (<i>aspera</i> B. & G. and <i>plena</i> Beam.)	110
<i>Empoa gillettei</i> Van. D.	65*
<i>Osbornellus borealis</i> DeL. & M.	60
<i>Scaphytopius acutus</i> (Say)	57
<i>Empoasca maligna</i> (Walsh)	44
<i>Idiocerus populi</i> L.	24
<i>Stenocoelidia lineata</i> (Bak.)	23*
<i>Euscelidius schenki</i> (Kirsch.)	22
<i>Aphrodes</i> sp.	22
<i>Colladonus geminatus</i> (Van D. & C. <i>montanus</i> Van D.)	17
<i>Sorhoanus orientalis</i> (DeL. & Dav.)	14
<i>Chlorotettix unicolor</i> (Fitch)	7*
<i>Exitianus exitiosus</i> (Uhl.)	5
<i>Macropsis ferruginoides</i> group	4*
<i>Gyponana angulata</i> (Spang.)	2
<i>Oncopsis</i> sp.	2
<i>Balclutha punctata</i> (Thumb.)	1

* Species not recorded previously from Kootenay Valley cherry orchards.

phyll feeder and therefore is unlikely to be a virus vector. The first generation bred mostly on native shrubs, but succeeding and overlapping generations bred on the cherry trees.

Neokolla hieroglyphica (Say) is a vector of alfalfa dwarf virus. After the second week of June the numbers dropped sharply, then tapered off. Only a single specimen was trapped after July 17. It has a wide range of woody and herbaceous hosts.

Psammotettix lividellus (Zett.), a grass-living species, was noted as a migratory flight during mid-May. *P. lividellus* has been responsible for one experimental transmission of little cherry (10).

Species of *Macrosteles* are likely to include virus vectors. Most of those taken were *M. fascifrons* (Stal), a species long known to transmit aster yellows and more recently found by the author (10) to transmit little cherry virus.

Dicraneura (probably *absenta* DeL. & Cald.) was almost as numerous as *M. fascifrons*. This is a common grass-living form and, in the Kootenays, is often found in association with *M. fascifrons* and *P. lividellus*.

Erythroneura spp. (probably *aspera* B. & G. and *plena* Beam.) were numerous during the week of May 1 to 7. These progeny of the overwintered adults became well dispersed, since *Erythroneura* were trapped only occasionally after May 29. The host range is wide.

Both *Empoa gillettei* Van D. and *Osbornellus borealis* DeL. & M. have been caught on a wide range of hosts, but there is little specific information on their feeding preferences. *O. borealis* was collected only after the end of July, a pattern of distribution observed also in the Cariboo (4) and in Utah (3). Known hosts include alfalfa and potatoes.

Scaphytopius acutus is a vector of peach and cherry western X, and of alfalfa witches'-broom viruses. The host range of *S. acutus* includes grasses, legumes, potatoes, weeds, and woody brush plants. A few were trapped early in May, none in June, and then increasingly from early July. A similar pattern was obtained in the Cariboo (4).

The species of *Empoasca* trapped was probably *maligna* (Walsh). The genus includes three vectors of cranberry false blossom virus.

Euscelidius and seven species of *Colladonus* (5) are known vectors of aster yellows. Two species of *Colladonus*, *C. geminatus* and *C. montanus*, have transmitted Western X-disease of peach.

Chlorotettix unicolor (Fitch), never plentiful in Kootenay Valley cherry orchards, was first collected by the author in 1955. Since that time this species has shown a small increase in numbers in sweet cherry orchards of that area. *C. unicolor* is a vector of aster yellows.

Species of *Macropsis* have transmitted peach yellows and little peach viruses and a raspberry virus.

Species of *Empoa*, *Stenocoelidia*, *Chlorotettix*, and *Macropsis* are new records for sweet cherry orchards of the Kootenay Valley; they are not represented in Waddell's list (9).

The number of leafhoppers recorded in this study were much higher than those reported recently from Delaware (6, 7) in peach and apple orchards subjected to seven sprays.

Summary

The incidence of leafhoppers in sweet cherry orchards near Creston in the Kootenay Valley of British Columbia was recorded for 20 weeks in 1957. *E. rosae* was the most common leafhopper: 4,393 were trapped out of a total of 5,849. Next in order of

abundance were *N. hieroglyphica* and *P. lividellus* whose numbers were 265 and 262 respectively. Six leafhopper species found in trace numbers were *C. unicolor*, *E. exitiosus*, *Macropsis* sp., *G. angulata*, *Oncopsis* sp. and *B. punctata*. Of the 22 species recorded, *N. hieroglyphica*, *P. lividellus*, *M. fascifrons*, *C. geminatus*, *C. montanus*,

S. acutus, *E. maligna*, *E. schenki*, *C. unicolor* and *M. ferruginoides* group are either known plant virus vectors or are closely related to species known to be vectors of plant viruses.

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Occurrence of *Anoplonyx* spp. in the Larch Forests of British Columbia and Yukon Territory

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Four species of the larch sawfly genus *Anoplonyx* occur in British Columbia, two of which extend into Yukon Territory. *Occidens* Ross and *laricivorus* Roh. and Midd. are found on western larch, *Larix occidentalis* Nutt., in southeastern British Columbia. *Canadensis* Harr. and *luteipes* (Cress.) occur on eastern larch. *L. laricina* (Du Roi) K. Koch, in central and northern British Columbia and southeastern Yukon Territory.

A. occidens has been collected throughout its host's range from June 8 to August 6. In southeastern British Columbia *A. laricivorus* larvae have been collected between June 13 and September 5.

A. canadensis larvae have been collected between August 2 and 31. In 1960, five larvae of *A. luteipes* were taken on July 23, at

Mile 579 Alaska Highway, 40 miles east of Lower Post. Some *luteipes* larvae were collected on July 20, 1961 at Mile 658, 25 miles west of Watson Lake, Y.T. Previously, this species was known to occur only east of the Rocky Mountains (Wong, 1955). The collection dates represent the times that specimens were found and do not necessarily establish the complete larval feeding period.

The above information is based on data obtained from the records of the Forest Insect Survey at Vernon, B.C.

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