

II. Pome Fruits  
c. Biological Control  
1. Pear psylla, pear

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OCCURENCE OF ARTHROPOD GENERALIST PREDATORS ON UNSPRAYED PEAR

To describe the abundance, composition, and seasonal development of potential natural enemies of the pear psylla in the Hood River Valley, three mini-orchards of thirty young 'Bartlett' trees were planted near commercial pear orchards differing in surrounding vegetation, chemical regime, and elevation. Mini-orchards were shielded from pesticide drift and maintained according to standard horticultural techniques. Mini-orchard tree growth and foliar development were also measured. The seasonal development of the arthropod community on these mini-orchards and in a block of mature unsprayed 'D'Anjou' trees at the Mid-Columbia Experiment Station was monitored as well.

In all mini-orchards, predator complexes of low diversity appeared by mid-May. Early season predators included lacewings, snakeflies, and the predacious mirid *Deraeocoris brevis*. *D. brevis* successfully established at two mini-orchards. A mid-season decline in mini-orchard tree vigor slowed psylla growth and hampered measurement of predator effectiveness. But as psylla densities increased during late summer, *Trechnites insidiosus* parasitoids, second generation *D. brevis* adults, and other incidental generalist predators were observed.

A more diverse and stable predator fauna developed in the large block of mature unsprayed pears. In particular, large nymphal populations of the predacious mirids *Deraeocoris brevis* and *Campyloneura virgula* were present by mid-June. Later immigration of mirids (e.g., *Pilophorus perplexus*, *Phytocoris* spp., *Diaphnocoris provancheri*), anthocorids (*Orius* spp, *Anthocoris antevolens*), and other natural enemies supplemented the predator complex. Six species of spiders were monitored and collected. Psylla nymphal populations reached two nymphs/leaf in early June, but declined rapidly as predators immigrated and established. A mildew infection during late-season confounded interpretations of predator effectiveness, but the rapid development of a rich and diverse arthropod predator complex at this site demonstrates that arthropod generalist predators will respond early in the season if psylla densities are sufficiently high.