

pear psylla

Psylla pyricola (Foerster)

INTRODUCTION

The pear psylla, (pronounced sil-lə), is the primary pear pest in North America. It was accidentally introduced into Connecticut in about 1832 and remained an Eastern pest until it was found in the Spokane Valley of Washington State in 1939. The psylla has since spread to all the pear growing areas of the United States and Canada.

THE ADULTS

The psylla has three or four generations a year, depending on the length of the growing season for the area. Pear psylla adults (Figs. 1 and 2) resemble very small cicadas and there are two forms. The overwintering adults are dark reddish brown in color and are slightly larger (2.12 mm) than the tan to light brown colored summer adults (1.95 mm).

The overwintering adults pass the winter in litter on the ground or in cracks in the tree bark. These adults

become active at temperatures between 4.4 C and 10 C (40 F-50 F). On warm spring days, prior to the trees breaking dormancy, the overwintering adults can be found on the trunks, twigs, and branches. The psylla must mate prior to egg laying in the spring. On warm days, male psylla can be seen attempting to copulate with females. A female may lay 500 or more eggs.

THE EGGS

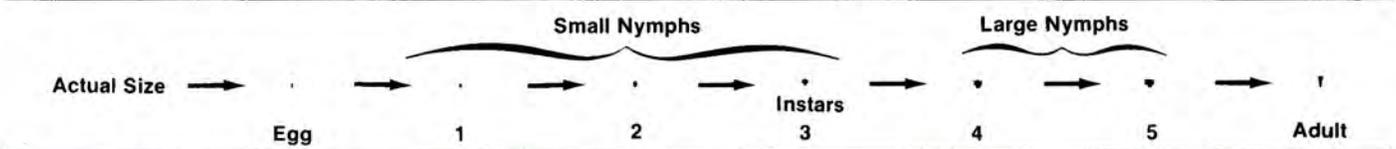
Pear psylla eggs are laid singly, often in a row or line. The eggs are whitish when first laid and then turn yellow.

The first eggs in the spring are laid prior to bud burst, at temperatures between 10 C and 15.6 C (50 F-60 F). They are laid along cracks, ridges, or scars on the terminals and spurs. As the foliage appears and for succeeding generations, the eggs are laid on the new, more tender leaves. The eggs can be laid anywhere but the majority are laid along leaf midribs (Fig. 3).

The early spring eggs may take up to 30 days to hatch, depending on the temperature. First egg hatch occurs about the time foliage appears.

THE NYMPHS

The pear psylla is a "flush feeder", meaning that the nymphs feed and develop primarily on the newer, more



tender growth. By midway through the growing season, the majority of leaves are hardened off and psylla development then may be limited primarily to the water sprouts.

Pear psylla nymphs are commonly grouped as small nymphs (instars 1, 2, and 3) and large nymphs (instars 4 and 5). The first instar nymph is yellow with red eyes and is flat and oval. Instars 2 and 3 closely resemble the first instar but are progressively larger. The first instar nymph may search for a suitable place to feed prior to settling down. Once it begins to feed, a characteristic honeydew drop forms over the nymph (Fig. 4). The psylla develops within the honeydew drop for the first four instars. Under extremely dry conditions, the honeydew can dry to become a white crystalline substance. In such situations, the nymph normally is killed.

The fourth and fifth instars are conspicuously larger and darker than the small nymphs. They have black areas interspersed with bluish green to brown areas. The wing pads in the large nymphs become larger and more noticeable. The fifth instar does not produce as much honeydew or live within the droplet. It is called a hard shell (Fig. 5).

PLANT INJURY

Honeydew injury occurs when excess honeydew drips onto and congregates on lower leaves and fruit. Under bright sunlight and dry conditions, the honeydew can kill the leaf tissue and produce a symptom

called "psylla scorch". The honeydew is a good medium for sooty mold growth. When it occurs on the fruit, it russets the skin (Fig. 6) and makes the fruit unsalable. Pear trees with past problems of excessive honeydew characteristically have black bark due to the sooty mold.

Excessive feeding and the injection of toxic saliva by large populations of psylla can cause a tree to wilt and lose its leaves prematurely. This reduces tree vigor which can take the tree several years to recover. This type of injury is called "psylla shock".

In the West, the pear psylla has been associated with the transmission of a mycoplasma which produces symptoms similar to "psylla shock". The injury from the disease is called "pear decline" and can only be alleviated by treating the infected trees with antibiotics.

CONTROL

Ladybird beetles, lacewings, syrphids, snake flies, and predatory bugs are recorded feeding on the psylla. There are two chalcid parasites of pear psylla in the United States. Pear psylla nymphs are parasitized and become mummies in the large nymph stage.

To obtain commercially acceptable fruit, pear psylla must be controlled with insecticides. The psylla has become resistant to various insecticides in different areas of North America. Consult your local recommendations for the materials to use in your area.

GUIDE TO STAGES

Stage	Timing	Where to look
Adult	Dormant to Bud Burst	On the spurs and branches on warm days
	Green cluster through Leaf Drop	On the tender new leaves
Egg	Late Dormant to Bud Burst	Placed singly or in rows on the spurs and twigs or around bud scales
	Green Cluster through Leaf Drop	On the tender new growth, along the leaf midribs, particularly the leaf under-surfaces
Small Nymphs	Green Cluster through Leaf Drop	On the tender new growth, they can be exposed or in honeydew drops
Large Nymphs	Bloom through Leaf Drop	On the leaves that are hardening off. The 4th instar can be in a honeydew drop. The hard shell stage is exposed