A revision of Chinese pear psyllids (Hemiptera: Psylloidea) associated with Pyrus ussuriensis

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Abstract

The Chinese pear psyllids, Cacopsylla spp., associated with Pyrus ussuriensis are reviewed. Three new species, C. accincta sp. n., C. burckhardti sp. n., and C. cinereosignata sp. n., are described. Cacopsylla liaoli (Yang & Li), C. qiuzili Li, C. maculatili Li and C. chinensis (Yang & Li) are redescribed. A key to the adults of the seven species and a key to nymphs of three species are given.

Key words: Jumping plant lice, taxonomy, China, Palaeartic region, Cacopsylla

Introduction

Pear psyllids are pest insects injurious to cultivated and wild pear trees, species of Pyrus, and are currently all assigned to the genus Cacopsylla s. l. Some species, such as Cacopsylla pyricola, have been recorded and studied as major pests on cultivated pears in the Palaeartic and, as introductions, in the Nearctic Region. Pear psyllids of the western Palaeartic were revised by Burckhardt & Hodkinson (1986), who recognized eight species, assigning Psylla pyrisuga Foerster to subgenus Cacopsylla (Thamnopsylla), and the other seven species to Cacopsylla (Hepatopsylla). The Thamnopsylla pear psyllids are univoltine and overwinter as adults on conifers, while those of Hepatopsylla are polyvoltine, overwinter as adults on the host plant and often display seasonal dimorphism. This term ‘seasonal dimorphism’ refers to summer and winter forms of a species that differ in size, coloration and even shape and structure of fore wing. This led to a lot of taxonomic confusion. From China, 22 species of pear psyllids have been recorded since Yang & Li (1981) launched their study on Chinese psyllids. The known Chinese species appear to differ from those of the western Palaeartic Region, and are all assigned to Cacopsylla s. l. (Burckhardt & Hodkinson 1986; Li 2011). The detailed phylogenetic relationships among the pear psyllids remain unknown.

Pear trees have a long history of cultivation, and modern cultivated varieties are usually hybrids of several wild species. Pears in China are mainly cultivated from homebred Pyrus species that display a very different germplasm resource system from that of Europe. In China, there are 14 species of pear trees (Yü 1979), among which only Pyrus communis was introduced from Europe. The four most popular series of cultivated pear varieties are respectively bred from P. bretschneideri, P. ussuriensis, P. pyrifolia and P. communis, while other species are usually cultivated locally. P. ussuriensis is a wild species that is widely distributed in northern China, and often used as stock for the cultivated pear trees. Strains bred from P. ussuriensis are cultivated mainly in northeastern China. A diagnosis of this species was given by Yü (1979).

Four species of psyllids on P. ussuriensis (including cultivated strains) have been reported from China prior to this study: Cacopsylla chinensis, C. liaoli, C. qiuzili and C. maculatili. The purpose of this paper is to describe three new species of the genus found on P. ussuriensis from Linxia, Gansu Province, and to revise the Cacopsylla species known on P. ussuriensis in China.