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# A New Record of Cacopsylla Species (Hemiptera: Psyllidae) from Pear Orchards in Taiwan
【Research report】

## 台灣Cacopsylla 屬木蝨 (半翅目：木蝨科) 之一新紀錄種【研究報告】

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## Abstract

The pear psyllid, Cacopsylla chinensis (Yang and Li), is a newly emerged pest in pear orchards of central Taiwan and is herein documented as a new record. Two seasonal forms with distinct coloration were found. Pictures and morphological illustrations of this species are provided.

## 摘要

本文首次記錄危害台灣梨樹之中國梨木蝨 Cacopsylla chinensis (Yang and Li)，該種木蝨為發生在台灣中部梨園之新興害蟲。文中並提供了該木蝨兩種不同季節型之外部形態描述及照片。

**Key words:** psyllid, Cacopsylla chinensis, pear orchard, seasonal forms, new record
**關鍵詞:** 中國梨木蝨、梨園、季節型、新記錄

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# A New Record of *Cacopsylla* Species (Hemiptera: Psyllidae) from Pear Orchards in Taiwan

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**ABSTRACT**

The pear psyllid, *Cacopsylla chinensis* (Yang and Li), is a newly emerged pest in pear orchards of central Taiwan and is herein documented as a new record. Two seasonal forms with distinct coloration were found. Pictures and morphological illustrations of this species are provided.

**Key words:** psyllid, *Cacopsylla chinensis*, pear orchard, seasonal forms, new record

## Introduction

Pear psyllids belong to the large genus *Cacopsylla* (Psyllidae, Psyllinae) and were formerly placed in *Psylla s.l.* More than 28 psyllid species infest cultivated pear trees in temperate and subtropical regions of the world (Yang and Li, 1981; Li and Yang, 1984; Burckhardt and Hodkinson, 1986; Burckhardt, 1994). Not until a decade ago was the first *Cacopsylla* species found in Taiwan. *Cacopsylla qianli* (Yang and Li) n. comb. (=*Psylla qianli*) was discovered in Nantou and Taichung of central Taiwan (Chou and Fang, 1994). Last year, there was an outbreak of psyllid pests in pear orchards. The psyllids produced a large amount of honeydew which caused severe sooty mold damage. The psyllids were found to differ from *C. qianli* and have been identified as a newly- recorded species *Cacopsylla chinensis* (Yang and Li). This species was formerly described only from China. Two distinct seasonal forms, summer and winter forms (Yang and Li, 1981), are described, and photographs are provided. Specimens are mainly deposited in the Department of Entomology, National Chung-Hsing University (NCHU), Taichung, Taiwan, with some in the China Agricultural University, Beijing, China (CAU).

***Cacopsylla chinensis* (Yang and Li)**

*Psylla chinensis* Yang and Li, 1981: 37-39.

*Cacopsylla chinensis* (Yang and Li): Li *et al.*, 1993: 9.

**Summer form**

General color light green, yellow, or

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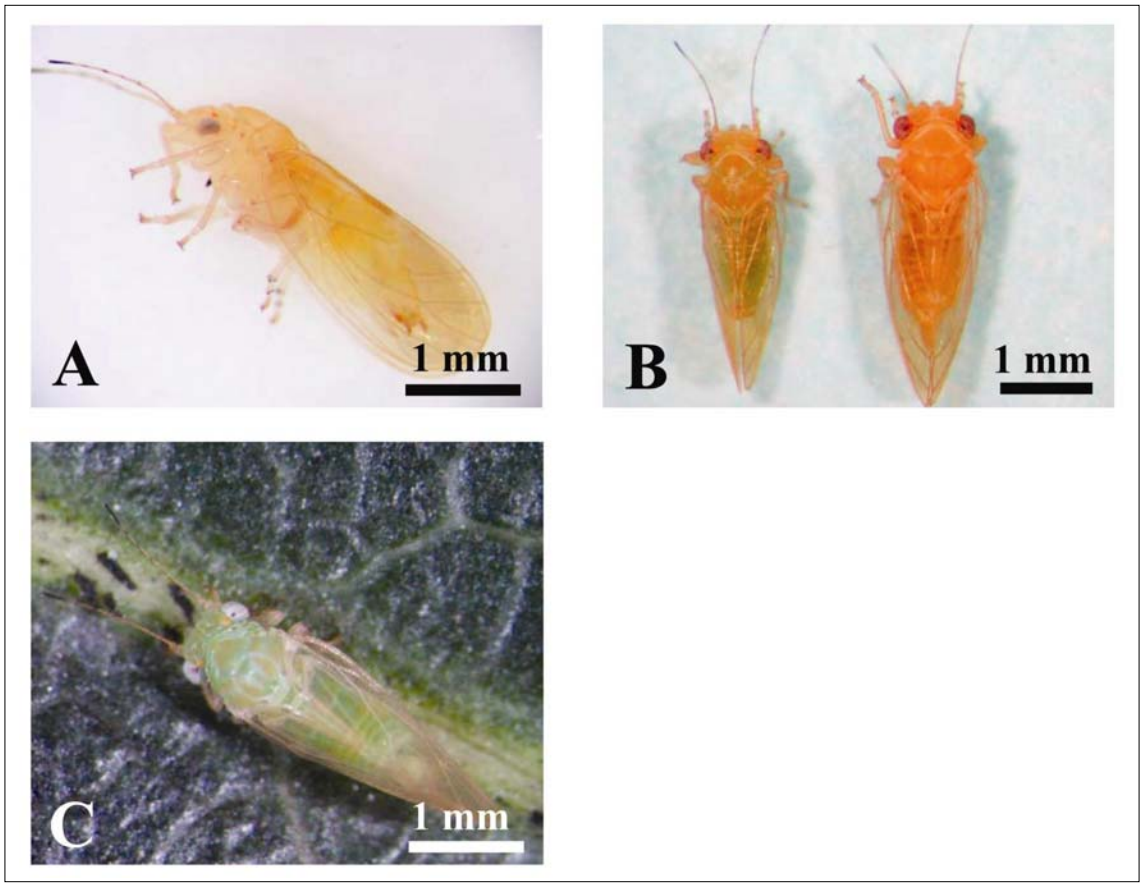


Fig. 1. Body color of summer form of *Cacopsylla chinensis* (Yang & Li). A, light yellow; B, orange; C, light green.

yellowish orange (Fig. 1). Antenna blackish at apices of 3rd to 8th segments and last 2 segments entirely black (Fig. 2). Eyes reddish brown. Forewing hyaline, somewhat yellowish (Fig. 3). Vertex, prescutum, mesoscutum, and tergites with obscure yellow marking and stripes. Legs, sternum, and sternites light yellow in general coloration.

Head slightly wider than thorax, deflexed. Vertex emarginate at posterior margin, depressed on each side of median line near posterior margin (Fig. 4A). Genal cones slightly shorter than vertex, divergent, pubescent. Antennae with 2 apical setae on 10th segment. Thorax weakly convex, smoothly arched to apex of genal cone (Fig. 1A). Forewing elongate, 2.3 times as long as wide (Fig. 4B), anterior margin with short pubescence. Relative lengths of veins M + $Cu_1$, $Cu_1$, and $Cu_{1b}$ about 1: 2.5: 1.5. Hind wing 0.8 times as long as forewing, 2.8 times as long as wide. Legs slender, hind tibia with prominent basal tooth and 5 apical spurs.

Male genitalia hairy. Proctiger slender in lateral view, about 1.3 times as long as paramere, sinuate at anterior margin, narrowed at apex. Paramere slender in lateral view, narrowed and bent cephalad apically. Aedeagus long, 1st segment about 1.8 times as long as 2nd, with moderately triangulate apex. Subgenital plate somewhat quadrilateral in lateral aspect (Fig. 4C).

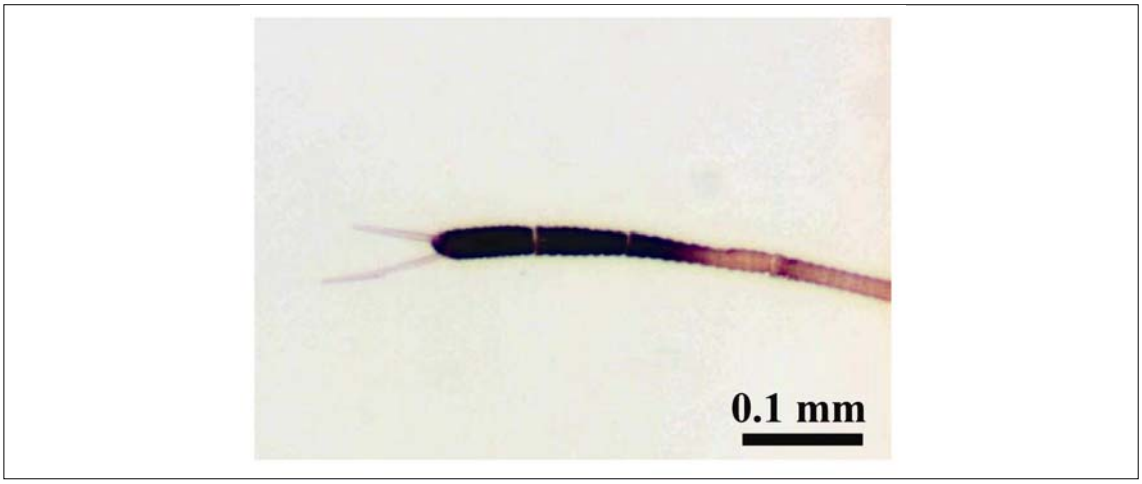


Fig. 2. The last two segments of antenna of summer form of *Cacopsylla chinensis* (Yang & Li) showing entirely black.

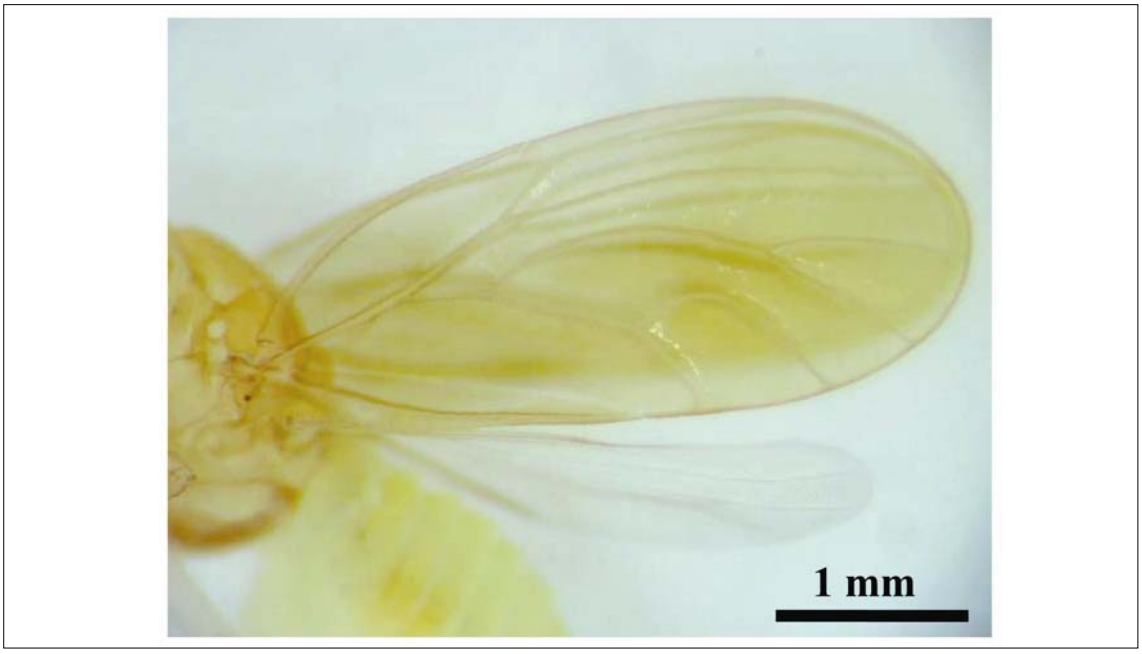


Fig. 3. Forewings of summer form of *Cacopsylla chinensis* (Yang & Li).

Female genitalia hairy. Proctiger slightly longer than subgenital plate, curved sharply on medial ventral side, narrowing straight towards apex. Subgenital plate gently swollen medially, acute at apex (Fig. 4D).

**Measurements (in mm) (20 ♂/ 20 ♀):** Body length 3.00~3.25/3.20~3.60; width of head 0.81~0.90/0.88~0.97; length of vertex 0.19~0.28/0.25~0.31; length of genal cone 0.19~0.28/0.22~0.28; length of forewing 2.41~2.57/2.63~2.97.

**Specimens examined:** 10 ♂, 10 ♀, TAICHUNG: Tungshih, 27-VIII-2002, M.

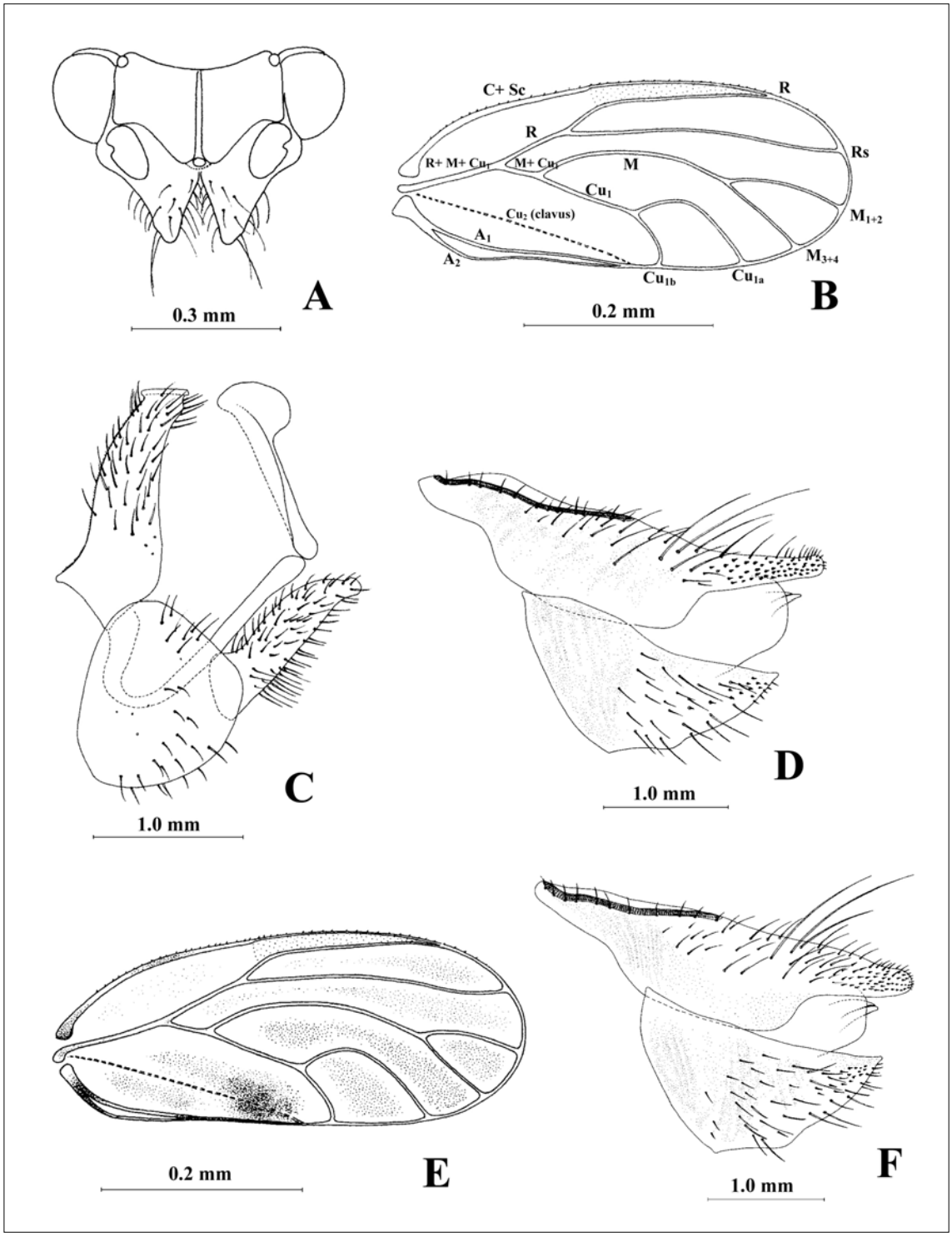


Fig. 4. *Cacopsylla chinensis* (Yang and Li). A. Head; B. Forewing of the summer form; C. Male genitalia; D. Female genitalia of the summer form; E. Forewing of the winter form; F. Female genitalia of the winter form.


Fig. 5. Various body color of winter form of *Cacopsylla chinensis* (Yang & Li).

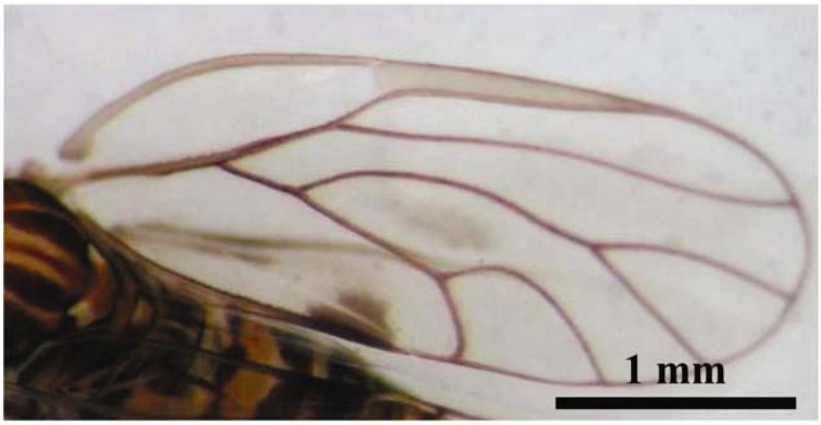


Fig. 6. Forewing of winter form of *Cacopsylla chinensis* (Yang & Li).

F. Lou (NCHU); 10 ♂, 10 ♀, TAICHUNG: Hoping, 25-VII-2003, M. F. Lou (NCHU); 4 ♂, 4 ♀, TAICHUNG, 10-I-2003, M. F. Lou (CAU).

**Winter form**

General color light brown, reddish brown or dark brown (Fig. 5). Antenna blackish at apices of 3rd to 8th segments and last 2 segments entirely black. Forewing hyaline, somewhat brownish in each cell, with brownish marking at end of

clavus (Figs. 4E, 6). Vertex, prescutum, mesoscutum, and tergites with obscure reddish-brown, light yellow, or green marking and stripes.

Thorax weakly convex, smoothly arched to apex of genal cone. Forewing elongate, 2.3 times as long as wide, anterior margin with short pubescence (Fig. 4E). Relative lengths of veins M + $Cu_1$, $Cu_1$, and $Cu_{1b}$ about 1: 2.3: 1.5. Hind wing 0.9 times as long as forewing, 2.9 times as long as wide. Legs slender, hind tibia with prominent basal tooth and 5 apical spurs.

Male genitalia hairy. Proctiger slender in lateral view, about 1.2 times as long as paramere, sinuate at anterior margin, narrowed at apex. Paramere slender in lateral view, narrowed and bent cephalad apically. Aedeagus long, 1st segment about 1.8 times as long as 2nd, with moderately triangulate apex. Subgenital plate somewhat quadrilateral in lateral aspect.

Female genitalia hairy. Proctiger slightly longer than subgenital plate, curved sharply on medial ventral side, narrowing moderate towards apex. Subgenital plate gently swollen medially, acute at apex (Fig. 4F).

**Measurements (in mm) (30 ♂/ 24 ♀):** Body length 3.45~3.90/3.80~4.40; width of head 0.91~0.97/0.85~1.10; length of vertex 0.25~0.31/0.22~0.34; length of genal cone 0.22~0.31/0.22~0.31; length of forewing 2.72~3.13/2.69~3.54.

**Specimens examined:** 10 ♂, 10 ♀, NANTOU: Renai: Meifeng, 02-I-2004, C. C. Fanjiang, J. H. Hwang, and M. F. Lou (NCHU); 10 ♂, 4 ♀, TAICHUNG: Tungshih, 19-XI-2002, M. F. Lou (NCHU); 10 ♂, 10 ♀, TAICHUNG: Hoping, 28-XI-2003, C. C. Fanjiang and M. F. Lou (NCHU); 9 ♂, 6 ♀, TAICHUNG: Hoping, 25-IX-2002, M. M. Yang and W. C. Cheng (CAU).

**Distribution and host plants:** Taiwan (first record) on pear; China (Yang and Li, 1981) on pear.

**Remarks:** *Cacopsylla chinensis* (Yang and Li) is a common pear pest of northern China (Yang and Li, 1981). In Taiwan, this species was first found in pear orchards of Tungshih, Taichung County in 2002. By the end of 2003, the pear psylla had extended its distributions to pear orchards throughout central Taiwan. According to an examination of specimens from China and Taiwan, the appearances of *C. chinensis* (Yang and Li) and *C. qianli* (Li and Yang) n. comb. are quite similar. However, these two species still can be distinguished by some distinct morphological characters, such as the markings on the forewing and tergites, and the shape of the genal cones. Nymphs of the summer form of *C. chinensis* (Yang and Li) mainly infest the undersurface of pear leaves, whereas nymphs of the winter form may infest flower buds, leaf buds, and leaves, both reducing the development of pear trees. Furthermore, the excretion of nymphs may induce pear sooty blotch. Thus the commodity value of pear fruit may indirectly be downgraded.

## Acknowledgments

We wish to express our deepest appreciation to Ms. M. F. Lou, of the Systematic Entomology Laboratory, Department of Entomology, National Chung-Hsing University (NCHU), for providing assistance with field-collection and specimen-handling work, and many thanks to the farmers of pear orchards in Hoping and Tungshih, and the Meifeng farm of National Taiwan University for their kind help with field work; we are grateful to the Taiwan Agricultural Research Institute (TARI), and Taiwan Agricultural Chemicals and Toxic Substances Research Institute (TACTRI) for technical support. Dr. S. J. Fang (TARI) and Prof. C. T. Yang (NCHU) also provided valuable assistance in the early stage of species identification. This research was financially supported in part by the

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# 台灣*Cacopsylla* 屬木蝨（半翅目：木蝨科）之一新紀錄種

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## 摘 要

本文首次記錄危害台灣梨樹之中國梨木蝨 *Cacopsylla chinensis* (Yang and Li)，該種木蝨爲發生在台灣中部梨園之新興害蟲。文中並提供了該木蝨兩種不同季節型之外部形態描述及照片。

**關鍵詞**：中國梨木蝨、梨園、季節型、新記錄