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The yellow peach moth, *Conogethes punctiferalis* (Guenée), belongs to a complex of species native to India, Southeast Asia, and Australia. Larvae are highly polyphagous and feed on fruits in a wide variety of families. Intense feeding on fruits can render them unfit for commercial sale leading to economic losses. Recorded major hosts include, but are not limited to, peach (*Prunus persica*), cacao (*Theobroma cacao*), guava (*Psidium guajava*), durian (*Durio zibethinus*), pomegranate (*Punica granatum*), maize (*Zea mays*), apple (*Malus ssp.*), onion (*Allium cepa*), castor (*Ricinus communis*), and cardamom (*Elettaria cardamomum*). Boring by larvae can cause extensive damage and frass accumulation, but may also predispose fruits to secondary pathogens, adding to crop loss. Although not present in the continental U.S., there are records of this complex from Hawaii.



Fig. 1: *Conogethes punctiferalis* male (Photo by Christi Jaeger, MEM).

*Conogethes punctiferalis* is a member of the Crambidae (Spilominae), a large group of moths formally placed in the Pyralidae that contains many pests. This species belongs to a complex that contains an unknown number of species that are very similar morphologically and have larvae that cause significant economic damage to a number of hosts. Adults have a forewing length of 9-15 mm with both fore- and hindwings colored pale straw yellow and marked with numerous black spots. Rows of black spots are present on the first four abdominal segments and males have black scales on abdominal segment 8. The yellow peach moth is somewhat similar in appearance to other yellow-colored moths within the subfamily Spilomelinae. Final identification requires dissection of adult male genitalic structures.



Fig. 2: Larval damage in peach (Photo by Masataka Qingdao).

This aid is designed to assist in the sorting and screening *C. punctiferalis* suspect adults collected from CAPS pheromone traps in the continental United States. It covers basic sorting of traps and first, and second level screening, all based on morphological characters. Basic knowledge of Lepidoptera morphology is necessary to screen for *C. punctiferalis* suspects.

# Sorting

## Yellow Peach Moth *Conogethes punctiferalis* (Guenée)

*Conogethes punctiferalis* pheromone traps should be sorted initially for the presence of moths of the appropriate size, color, and shape. Traps that contain moths meeting all of the following requirements should be moved to Level 1 Screening (Page 3):

- 1) Moths have a forewing length of 9-15 mm (0.3-0.6 in) (Fig. 3).
- 2) Moths have an overall shape that is similar to the outline depicted in Fig. 3. Note that moths caught on their side or back may have a different outline.
- 3) Wings are a pale yellow with numerous dark brown to black spots (Fig. 4).

Note that the appearance of moths caught in sticky traps can vary substantially depending on the amount of sticky glue on the moth (most individuals usually appear darker when covered in glue). For this reason, any small, crambid-like moth meeting the above criteria should be sent forward to Level 1 Screening.

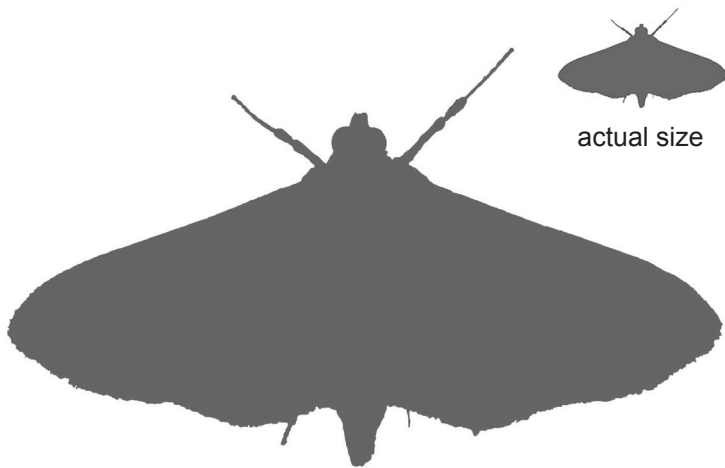


Fig. 3: Outline and size of a resting *C. punctiferalis*. Crambids have a variety of resting postures, resting with wings spread to the sides or folded back.



Fig. 4: Wing pattern and coloration of *C. punctiferalis* male (top) and female (bottom). Males have black scales on the 8th abdominal segment (Top photo by Christi Jaeger, MEM).

# Level 1 Screening

## Yellow Peach Moth *Conogethes punctiferalis* (Guenée)

Moths that meet the sorting requirements should be screened for suspect crambids. Level 1 Screening is difficult for small moths (like crambids) and may need to be performed by a trained Lepidopterist. When in doubt distinguishing or evaluating first-level screening characters, forward traps that have passed the sorting requirements to a trained taxonomist. Suspect crambids in traps should not be manipulated or removed for screening unless expertise is available.

Crambid moths can be identified by the following combination of characters (note that some characters may be difficult to see on specimens coated in sticky trap glue):

- 1) Tympanum present at base of abdomen and widely open anteriorly (Fig. 5). Noctuoidea have a tympanum on the thorax near the junction with the abdomen. Tympanal organs may be difficult to see without manipulating the specimen.
- 2) Labial palpi pointed and upturned (Fig. 6). Some species have very long labial palpi.
- 3) Proboscis (tongue) is scaled (Fig. 6). Members of the Tortricidae have an unscaled proboscis.
- 4) Chaetosema (patch of bristle-like setae) absent in the Spilomelinae (not shown). Note that the presence or absence of chaetosemata may be difficult to see without a high-quality microscope.



Fig. 5: Tympanum present at abdominal base of all Pyraloidea. (Photo by Hanna Royals)



Fig. 6: Head of *Conogethes punctiferalis* showing scaled proboscis and upturned labial palpi. (Photo by Hanna Royals)

Moths meeting the above criteria should be moved to Level 2 Screening (Page 4). Traps to be forwarded to another facility for Level 2 Screening should be carefully packed following the steps outlined in Fig. 7. Traps should be folded, with glue on the inside, making sure the two halves are not touching, secured loosely with a rubber band, and placed in a plastic bag for shipment. Insert 2-3 styrofoam packing peanuts on trap surfaces without moths to cushion and prevent the two sticky surfaces from sticking during shipment to taxonomists. DO NOT simply fold traps flat or cover traps with transparent plastic wrap (or other material), as this will guarantee specimens will be seriously damaged or pulled apart – making identification difficult or impossible.

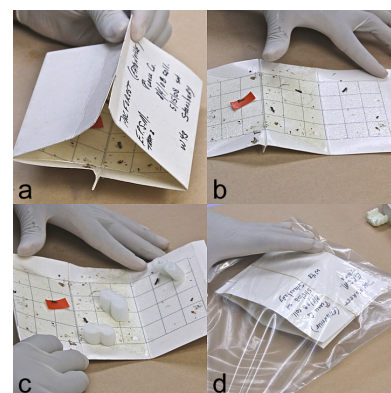


Fig. 7: Recommended packing method for shipment of sticky traps: a & b) open and unfold trap; c) place 2-3 packing peanuts in areas of trap with no moths; d) fold trap, secure with rubber band, and place in plastic bag.

Suspect crambids should be cleaned to identify suspect *C. punctiferalis* individuals. Instructions on cleaning specimens caught in sticky traps are found here: <http://idtools.org/id/leps/tortai/dissections.html>.

Level 2 Screening is based mainly on wing color and pattern. Genitalic dissection by a specialist is required for species-level identification.

## Wing Pattern

North American non-targets that are most likely to be confused with *C. punctiferalis* (Fig. 8) are other yellow-colored moths within the subfamily Spilomelinae. These include several species in the genus *Polygrammodes* and *Phaedropsis stictigrama*. Two species, *Polygrammodes flavidalis* and *P. oxydalis* (both eastern U.S.), are similar in color but have indistinct dashes rather than dark wing spots as in *C. punctiferalis* (Figs. 9-10). *Polygrammodes elevata* (southern Florida) has wing spots similar to that of *C. punctiferalis*, but these are generally smaller and purple in color (Fig. 11). *Phaedropsis stictigrama* (central to southern Florida) lacks black spotting on the abdominal segments although white bands are present on some segments; males have dark scales on abdominal segment 8, similar to *C. punctiferalis*. However, wings of *P. stictigrama* are deeper yellow, more sparsely spotted, and have a black outer margin that is not present in *C. punctiferalis* (Fig. 12).



Fig. 8: *C. punctiferalis*



Fig. 9: *Polygrammodes flavidalis*



Fig. 10: *Polygrammodes oxydalis*



Fig. 11: *Polygrammodes elevata*



Fig. 12: *Phaedropsis stictigrama*

### Key to Sort and Screen *Conogethes punctiferalis* Suspects in the United States

1. Moth forewing length 9-15 mm; overall shape is typical for a crambid (Fig. 3); and wings and abdomen a pale yellow with dark spots (Fig. 4) ..... 2
- 1'. Moth forewing length larger or smaller than 9-15 mm; overall shape not typically crambid; or wings and abdomen not yellow with dark spots..... Not *C. punctiferalis*
  
2. Abdominal tympana present; labial palpi upcurved; and proboscis scaled ..... ***C. punctiferalis* suspect**
- 2'. Abdominal tympana absent; labial palpi projecting forwards; or proboscis not scaled..... Not *C. punctiferalis*

### Citation

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### References for more information on *C. punctiferalis* and non-targets

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