Tuta absoluta

The tomato leafminer

FIELD SCREENING AID

Resting pose

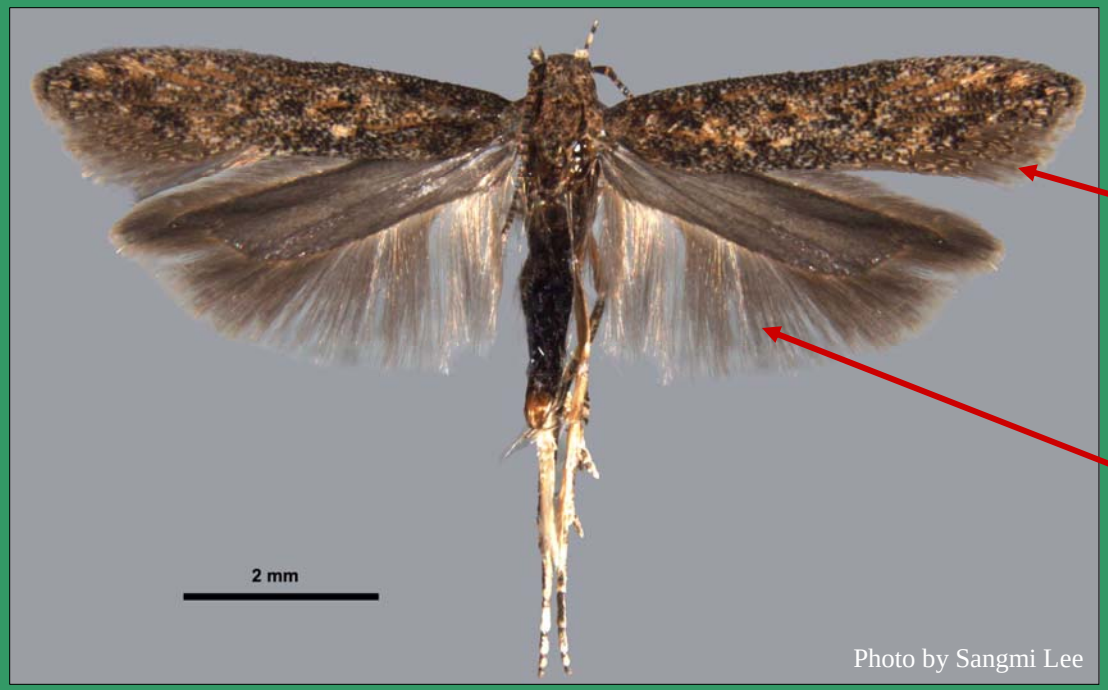


Photo by Sangmi Lee

Wing span ~7/16 to 1/2 inch (10 to 14 mm) and body ~3/16 in (4.5 mm)

Forewing:

- narrow, with apex fringed
- brown with silvery-gray spots and black patches
- ~3/16 of inch in length (~4.5 to 4.7 mm)

Hindwing:

- narrow, with entire margin fringed with long hairs
- silvery gray

The tomato leafminer (also known as *Phthorimaea absoluta* and the South American tomato leafminer) is very similar to many species in the same family, Gelechiidae, including other tomato pests. The color of this species is not distinctive. Therefore, for final identification it is necessary to carefully examine adult male genitalic structures.

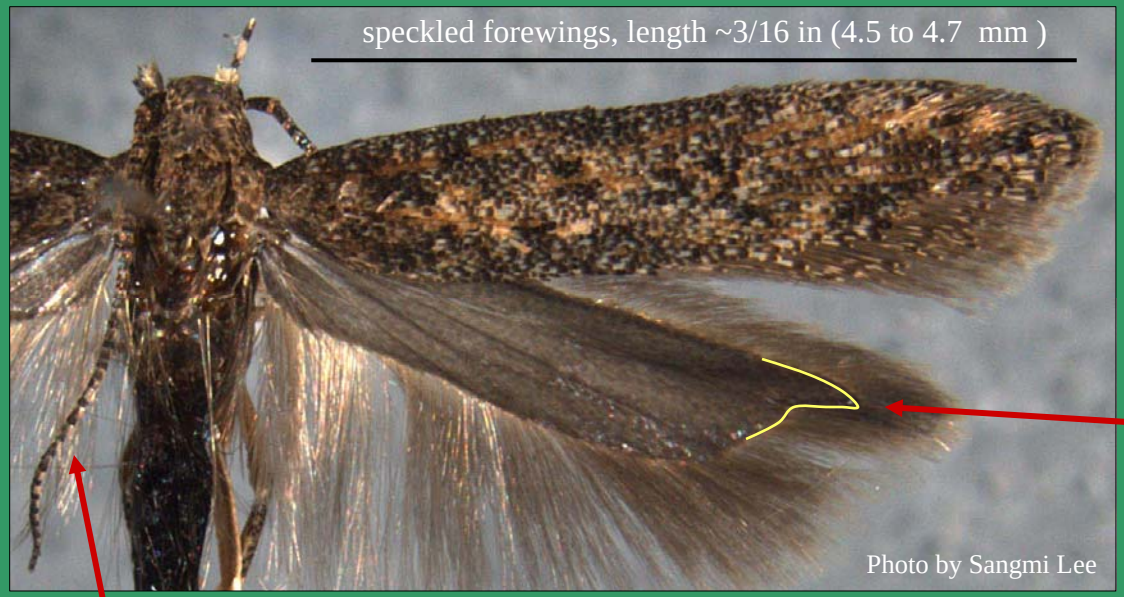
This field screening aid was produced by Julieta Brambila (USDA/APHIS/PPQ), Dr. Sangmi Lee (Mississippi Entomological Museum, Mississippi State University), and Dr. Steve Passoa (USDA/APHIS/PPQ) for CAPS (Cooperative Agriculture Pest Survey program). Above specimen was provided by Marja van der Straten (Plant Protection Service, Netherlands); the specimen was spread and photographed by Sangmi Lee.

February 2010

Tuta absoluta

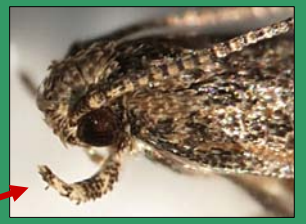
The tomato leafminer

DIAGNOSTIC AID



long, thin antennae, banded with alternate rings of gray and dark brown

hindwing with margin concave below the apex



labial palpi long and up-curved

Photo by J. Brambila

The tomato leafminer (also known as the South American tomato leafminer) can be distinguished by the following characteristics:

-antennae long, thin, and banded

-labial palpi long, up-curved, and banded

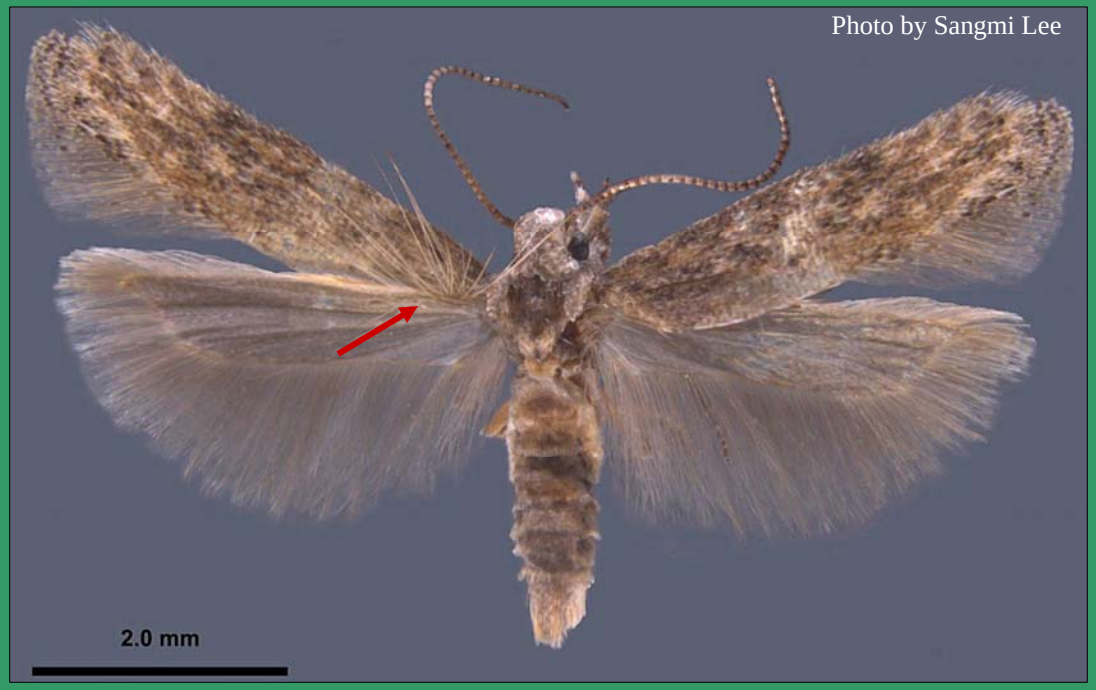
-forewings narrow, fringed, and speckled with brown, silvery gray and black patches

-hindwings narrow, fringed with long hairs, margin concave below the apex, and without hair pencils on the anterior margin

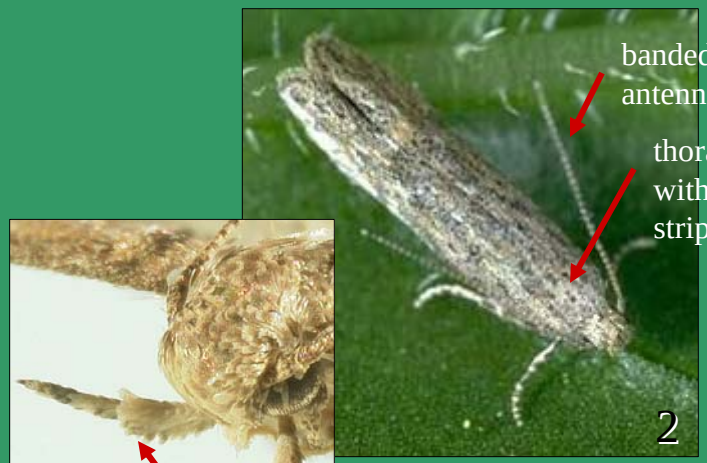
For final identification it is necessary to carefully examine adult male genitalic structures.

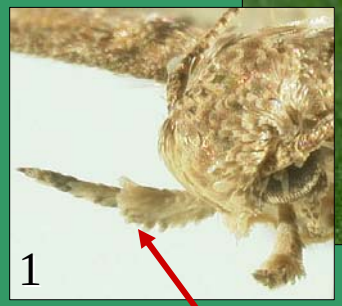
Keiferia lycopersicella

The tomato pinworm



Wing span ~3/8 to 7/16 in (9 to 12 mm) and body length ~1/4 inch (6 mm)





labial palpi long, up-curved, and banded

Resting pose

Two other species that may be found as pests in tomato fields are the potato tuber moth and the tomato pinworm. The three species belong in the same family (Gelechiidae) and are similar in appearance. They could be caught in pheromone traps set in tomato fields during surveys for *Tuta absoluta* whether they are attracted to the lure or not.

Tuta (*=Phthorimaea*) *absoluta* seems most similar to the tomato pinworm primarily because both have light-and-dark banded antennae and labial palpi and because of the color of the forewings. However, the forewings of the tomato leafminer have somewhat more defined dark patches while the forewings of the tomato pinworm are light brown to gray with brownish streaks. The hindwings of the tomato pinworm have hair pencils on the anterior margin (see arrow). Genitalic dissection is required for accurate of identification of either species.

Photo credits for images above:

1. Photo by J. Brambila; specimen provided by Dr. J. B. Heppner.
2. Cropped from http://www.ipm.ucdavis.edu/PMG/r783300411.html. Photo taken by Jack Kelly Clark, UC Davis, 2000, University of California.

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Phthorimaea operculella

The potato tuber moth

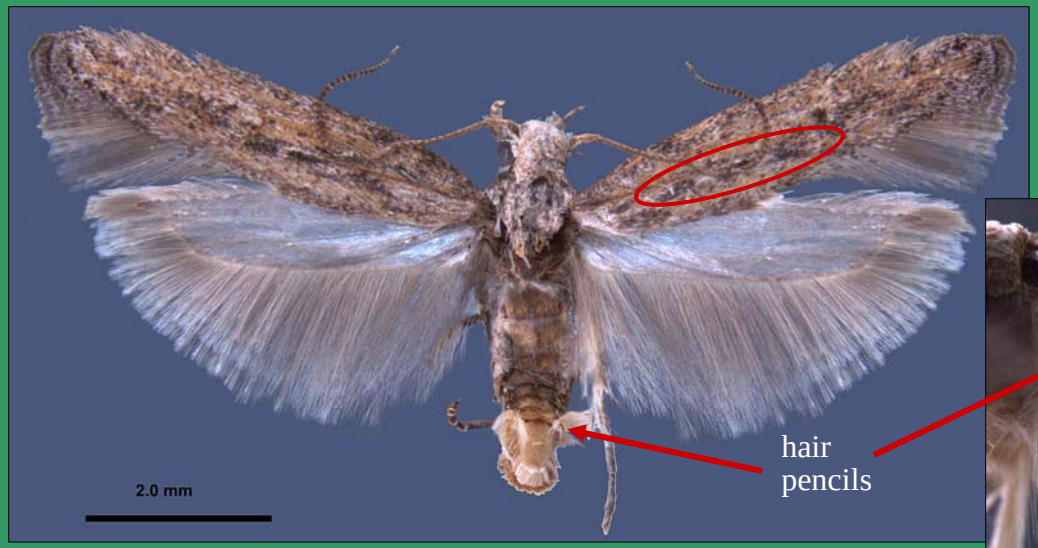
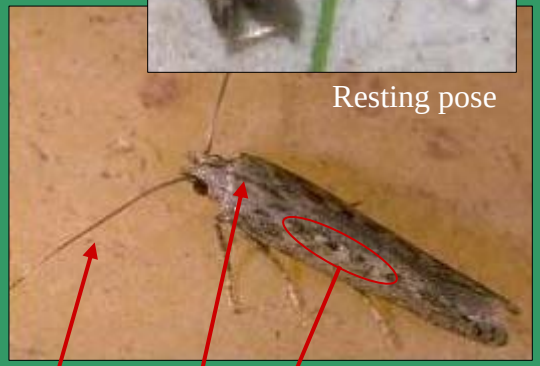


Photo by Sangmi Lee

Wing span ~3/8 to ½ in (10 to 13 mm) and body length ~1/4 inch (6 mm)



The following are some distinguishing characteristics of the potato tuber moth that can be seen even if specimens are on sticky boards:

-antennae appear brown; they are banded, but not as boldly banded in contrasting pale and dark colors as in the tomato pinworm or the tomato leafminer

-thorax with three long dark stripes

-forewings yellowish-brown with a row of three dark brown spots near the inner margin

-hindwings pale-cream and with hair pencils on the anterior margin

-abdomen with hair pencils near the apex, a structure not present in the other two species

Above two images obtained with permission from a presentation by Dr. Silvia Rondon titled " How to id the potato tuberworm", found at http://oregonstate.edu/potatoes/ipm/insects/emerging.htm.

This diagnostic aid was produced by Julieta Brambila (USDA/APHIS/PPQ), Dr. Sangmi Lee (Mississippi Entomological Museum, Mississippi State University), and Dr. Steve Passoa (USDA/APHIS/PPQ) for CAPS (Cooperative Agriculture Pest Survey program). Special appreciation is directed to Marja van der Straten (Plant Protection Service, Netherlands) for background information, specimens and photographs; Dr. John B. Heppner (FDACS, Florida Department of Agriculture and Consumer Services) for specimens; and Beverly Pope (FDACS) for library services support. Other photographs as indicated in the text.