

Thaumatotibia leucotreta

False Codling Moth, “FCM”

IDENTIFICATION AID



This identification aid illustrates *Thaumatotibia leucotreta* (Meyrick) (Tortricidae: Olethreutinae), also known as the false codling moth (FCM), as well as the most common non-target species caught in traps with the pheromone for *Thaumatotibia leucotreta* in the Eastern U.S. states.

This resource was produced by Julieta Brambila (USDA/APHIS/PPQ) for CAPS (Cooperative Agriculture Pest Survey program). Special appreciation is directed to Marja van der Straten (Plant Protection Service, the Netherlands) for providing reference specimens of *T. leucotreta*. Background on the diagnosis of the false codling moth is based primarily on the work by Todd Gilligan (USDA-APHIS-PPQ National Policy Manager) and Steve Passoa (USDA/APHIS/PPQ). The images by T. Gilligan and M. Dreiling are used with permission. Richard Brown (Mississippi State University, retired) provided guidance for the identification of *Gymnandrosoma punctidiscanum* and reviewed this aid; Jim Vargo provided the photograph of *G. punctidiscanum*; James E. Hayden (Division of Plant Industry, Florida Department of Agriculture and Consumer Services) identified specimens of *Grapholita*; and Eric LaGasa and Chris Looney (Plant Protection Division, Washington State Department of Agriculture) identified specimens, provided the image of *Grapholita molesta* and improved this aid.

Primary references:

Adamski, D. and J. W. Brown. 2001. Systematic revision of the *Ecdytolopha* group of genera (Lepidoptera: Tortricidae: Grapholitini) in the New World. *Entomologica Scandinavica*, Supplement 58.

Gilligan, T. M., M. E. Epstein, and K. V. Hoffman. 2011 Discovery of the false codling moth, *Thaumatotibia leucotreta* (Meyrick), in California (Lepidoptera: Tortricidae). *Proc. Entomol. Soc. Washington* 113 (4): 426-435.

Komai, F. 1999. A taxonomic review of the genus *Grapholita* and allied genera (Lepidoptera: Tortricidae) in the Palearctic region. *Entomologica Scandinavica*, Supplement 55.

Thaumatotibia leucotreta



Photo by J. Brambila

Wingspan: 15 to 20 mm (5/8 to 3/4 inch)

Males of *Thaumatotibia leucotreta* (Meyrick) (Lepidoptera: Tortricidae) have variable overall wing color and color patterns and are very similar to other tortricids, a few of which are attracted to the false codling moth pheromone. The pocket of scales on the hind wing margin distinguishes this species from all other North American tortricids. Close examination of the hind wings and hind tibiae are required for authoritative identifications. Illustrations of male and female genitalia, wings and male hind tibiae can be found in T. M. Gilligan, M. E. Epstein, and K. M. Hoffman (2011), *Proc. Entomol. Soc. Wash.* 113 (4), pp. 426-435.

Thaumatotibia leucotreta

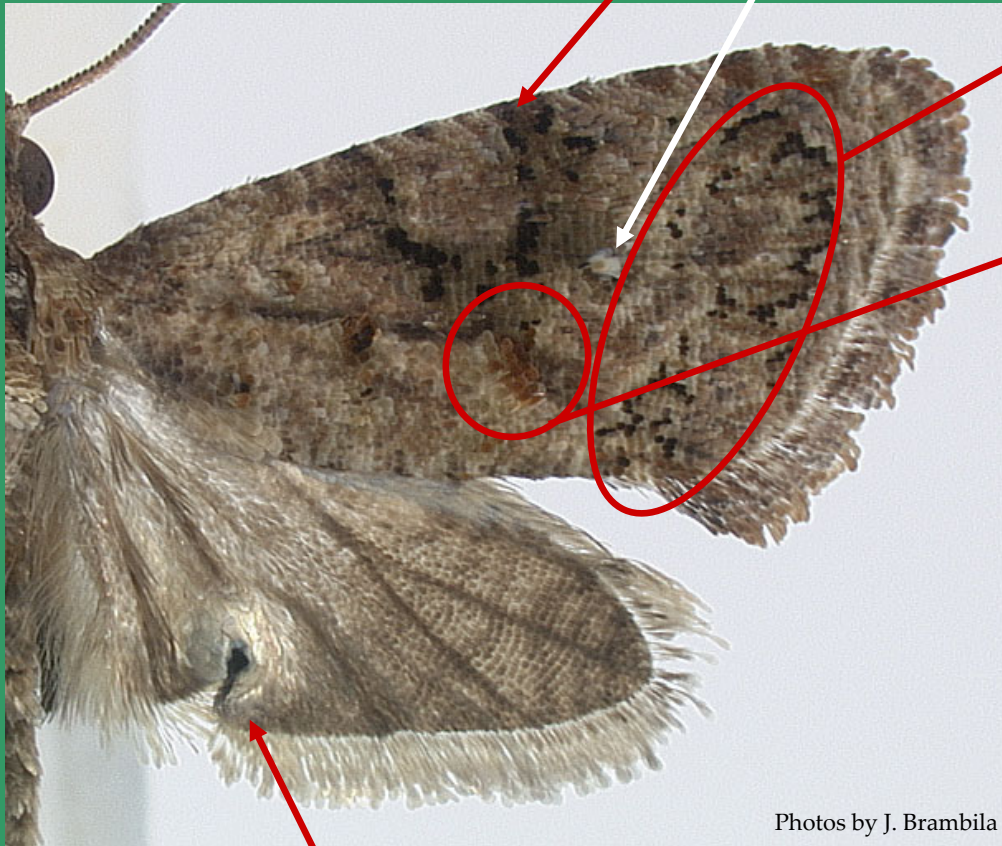
Wings are grayish brown to dark brown. The forewing is 7 to 8 mm long in males and 9 to 10 mm in females. The forewing has various markings, including four listed here.

A short band of black and brown scales in the middle of the costa.

A minute whitish spot off-center.

A marking of brown and black scales in the general shape of a question mark along the wing termen.

A patch of raised reddish brown scales below the center of the wing.



Photos by J. Brambila

The hindwing of the male has a nearly-circular pocket with black scales, surrounded by whitish opalescent scales.



The forewing of the female has the same color pattern, but more contrasting. The hindwing lacks the pocket on the margin.

Thaumatotibia leucotreta



The nearly-circular pocket of black scales on the hind wing margin, surrounded by whitish opalescent scales, distinguishes the male false codling moth from non-targets and from all other tortricid moths in North America (Gilligan, Epstein and Hoffman 2011).



The male genitalia of *T. leucotreta* are characterized by a rounded tegumen, absent uncus, rounded valvae, and tapered aedeagus.



Male *T. leucotreta* have black and yellowish white tufts of modified scales on the inner surface of the hind tibia.

Gymnandrosoma punctidiscanum

Dotted Gymnandrosoma Moth



Photo by Jim Vargo

Wingspan: 16 to 25 mm (5/8 to 1 inch)



Lower surface of hindwing. The arrow indicates a broad pocket.



Photo by J. Brambila

Male *Gymnandrosoma punctidiscanum* Dyar are the most commonly caught moths in traps for the false codling moth in the eastern United States. They are slightly larger than the FCM males, with forewing 8 to 10.4 mm in length. The forewing of *G. punctidiscanum* has several similarities with the forewing of *Thaumatotibia leucotreta*, primarily the general gray brown background color, the white spot off-center, and the band of dark scales in the middle of the costa. The background color and color patterns of the forewing are variable and are not useful for species identification. However, the hindwing is dark or black-brown instead of grayish brown and lacks the circular pocket of black and white scales which is diagnostic of FCM. Instead, the hindwing has a broad and shallow pocket on the inner margin.

Gymnandrosoma punctidiscanum



Lateral view of abdomen

The character most diagnostic of *G. punctidiscanum* is a pair of tufts or tassles, called hair pencils, of pale yellow long scales. The tufts are located on the dorsum of the abdomen, above three patches of flattened grayish brown glandular scales.



Dorsal view of abdomen

The hind tibia of male *Gymnandrosoma punctidiscanum* is modified with two tufts of gray or brown scales on the dorsal surface.



Gymnandrosoma punctidiscanum



Photo by T. Gilligan

Male genitalia

This image is available at the following site:

http://idtools.org/id/leps/tortai/Gymnandrosoma_punctidiscanum.htm

From "Tortricids of Agricultural Importance", by Todd M. Gilligan and Marc E. Epstein, 2014. <http://idtools.org/id/leps/tortai/index.html>

Aspila spp.

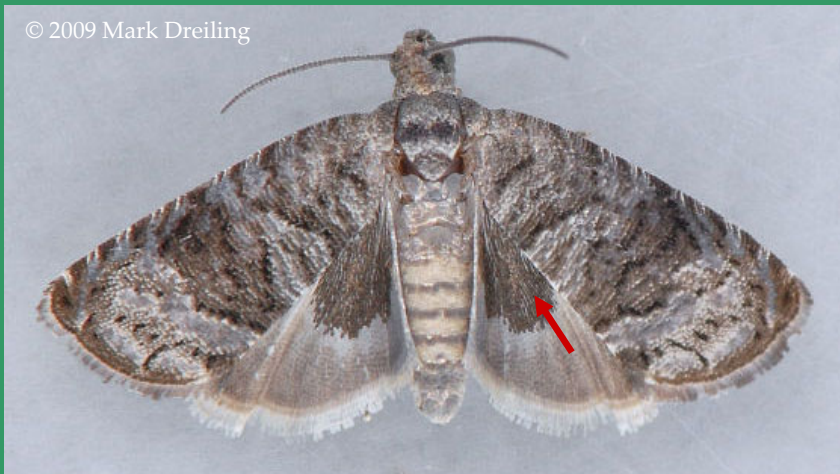


Wingspan: approx. 13 mm (1/2 inch)

Aspila molesta, the Oriental fruit moth

Some *Aspila* species appear to be attracted to the lure for *Thaumatotibia leucotreta* in North America. They appear similar primarily because of the generally brown wing color and also because the forewings of some species have a dark band of scales in the middle of the costa and a white spot off-center. However, they are smaller than the false codling moth.

Aspila molesta (Busck), the Oriental fruit moth, is a species native to Asia that was introduced into North America nearly 100 years ago. If traps for the false codling moth are placed in peach or apple orchards, some Oriental fruit moths may enter the traps.



Wingspan: 8 to 11 mm (1/4 to 3/8 inch)

Aspila packardi, the cherry fruit worm moth

Grapholita packardi (Zeller), the cherry fruit worm, is a species native to North America. It has been found in some areas in large numbers in false codling moth traps. Males can be distinguished by the large patch of grey black scales at the base of the hind wings (see arrow).