



Non-target Lepidoptera from targeted early-detection surveys in Florida

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Early-detection surveys for potentially invasive Lepidoptera species are taking place in Florida, U.S.A., under the direction of the CAPS (Cooperative Agriculture Pest Survey) Program. In these targeted surveys for non-native moths various traps are used with pheromones specific for each 'target' species. However, these pheromones usually attract some native species, sometimes in large numbers, complicating early detection efforts. Surprisingly, some of the native species are not closely related to the intended targets. In some cases, the catch includes rarely collected species or species not yet described.

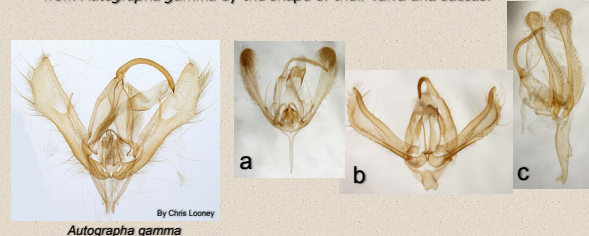
This work presents the native species most often caught in Florida in several of these surveys, in part aiming to facilitate the processing and screening of future samples.

Autographa gamma (L.)

The three most common male noctuid species caught in Florida in bucket traps with the pheromone for the silver-Y moth are the following:

Chrysodeixis includens (Walker), the soybean looper moth (a)
Rachiplusia ou (Guenée), the grey looper moth (b)
Ctenoplia oxygramma (Geyer), the sharp-stigma looper moth (c)

Wings are often too damaged for color pattern characters to be useful for screening or identification. These three species are most easily distinguished from *Autographa gamma* by the shape of their valva and saccus.



Duponchelia fovealis Zeller

Trapping for the European pepper moth produces mostly the target, which simplifies the surveys. *Duponchelia fovealis* has already been found in several U.S. states. In Florida it has been caught with various types of delta traps as well as with dry-catching traps.



Occasional bycatch includes the following species:

Samea multiplicalis (Guenée), the Salvinia stem-borer moth
Hymenia perspectalis (Hübner), the spotted beet webworm moth
Hahncappia neomarculeta (Capps)



This is a type of dry-catching trap.



Sticky traps are never easy to work with.



Inside view of a delta trap with a sticky insert. The arrow points to a pheromone plug.

Epiphyas postvittana Walker

The CAPS survey for the light brown apple moth, or "LBAM", is carried with Jackson traps, a type of cardboard sticky trap. The species most often encountered in Florida is the tortricid *Platynota exasperatana* (Zeller), the "exasperating platynota moth."



Other species captured during this survey are the tortricids *Clepsis peritana* (Clemens), known as the garden tortrix moth, and *Platynota nigrocervina* Walsingham. *Garella nilotica* (Rogenhofer) (Noctuidae), the black-olive caterpillar moth, has also been captured but mostly likely due to the location of the traps. Several species of *Acrolophus* (Acrolophidae), including *A. mycetophagus* Davis and *A. piger* Dyar, the pigger grass tubeworm moth, have also been caught.

Lobesia botrana (Denis & Schifferrmüller)

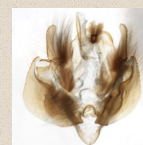
The European grapevine moth survey in Florida consistently and surprisingly attracts a single and color variable geometrid species, *Idaea demissaria* (Hübner), the red-bordered wave moth.

A few other moths are attracted as well, mostly tortricids that do not resemble the target in the wing color pattern. They have not been identified.



Helicoverpa armigera (Hübner)

The Old World bollworm survey utilizes bucket traps. The most commonly collected moth is *Helicoverpa zea*, extremely similar to *H. armigera*, which complicates this survey. Other noctuids seen are *Leucania adjuta* (Grote) (and possibly other species of *Leucania*) and *Bellura densa* (Walker), as well as other species in this genus, either *B. gortynoides* (Walker) or *B. vulnifica* (Grote). One of the most common captures, though, are female *Spodoptera frugiperda* (J.E. Smith), the fall armyworm, which was unexpected.



Spodoptera litura (F.)

The Florida CAPS survey for the rice armyworm produces primarily the native species *Spodoptera dolichos* (F.), the sweetpotato armyworm, as well as, unfortunately, large numbers of *Spodoptera pulchella* (Herrich-Schäffer), the Caribbean armyworm, in the southernmost counties. Occasionally *Spodoptera eridania*, *frugiperda* and *latifascia* are also caught.



Spodoptera littoralis (Boisduval)

The Egyptian cotton armyworm is surveyed with bucket traps, a dry catching method used by CAPS for the larger moths. In Florida the most usual captures in this survey are a few *Spodoptera frugiperda* (J. E. Smith), both males and females, as well as occasionally *Spodoptera eridania* males and *Spodoptera ornithogalli* (Guenée), females.

Thaumatotibia leucotreta (Meyrick)

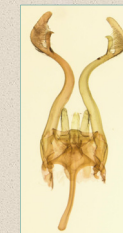
The most common catch in wing traps, another form of sticky trap, with pheromone for false codling moth males is the tortricid *Gymnandrosoma punctidiscanum* (Dyar), the dotted ecdytolopha moth, which can be distinguished, after much cleaning of the specimens, from the target by the tufts of hair pencils on the dorsum of the abdomen.



Tuta absoluta Povolny

The pheromone for the Southamerican tomato leafminer seems particularly attractive to species of *Sinoc* sp. (Gelechiidae). Various species of *Sinoc* have been trapped in Florida, the Caribbean and Central America in *T. absoluta* surveys. The other species consistently attracted to this pheromone is the tomato pinworm, *Keiferia lycopersicella* (Walsingham), which complicates screenings. Another species that is regularly seen in Florida traps is *Pyroderces badia* (Hodges) (Cosmopterigidae), among other less commonly trapped cosmopterigids that include *Cosmopterix* and *Stegasta*. A few consistent tineid and acrolophid species (now in Tineidae) in occasionally large numbers are regularly caught in the traps in addition to other gelechiids (including *Aristoteleia* spp.), plutellids, tortricids (including *Aethes* spp.), blastobasids, coleophorids, pyralids, pterophorids, noctuids, arctiids, and skippers (Hesperiidae). In addition, many other insects are caught in the delta trap inserts such as flies, beetles, termites, heteropterans, hoppers, damselflies, neuropterans and spiders.

Keiferia lycopersicella
By Sangmi Lee



Acknowledgments

The author deeply appreciates the efforts by James Hayden, Sangmi Lee, Richard Brown, John W. Brown, John Heppner, and John Rawlins in the identification of nontarget species.