

LepIntercept

An identification resource for intercepted Lepidoptera larvae



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PYRALIDAE - *Apomyelois ceratoniae* (Zeller) *Non-Rep*

Taxonomy

Pyraloidea: Pyralidae: Phycitinae: *Apomyelois ceratoniae* (Zeller)

Common names: carob moth, locust bean moth

Synonyms: *Ectomyelois ceratoniae*, *Myelois durandi*, *Euzophera zellerella*, *Heterographis rivulalis*, *Hypsipyla psarella*, *Myelois oporedestella*, *Myelois phoenicis*, *Myelois tuerckheimella*, *Phycis ceratoniella*, *Phycita dentilinella*, *Trachonitis pryerella*

Apomyelois ceratoniae is referred to as *Ectomyelois ceratoniae* in most USDA documents and databases. Leraut (2002) synonymized *Ectomyelois* with *Apomyelois*, thus the current generic name is *Apomyelois*.

Larval diagnosis (Summary)

- Adfrontal area reaches the epicranial notch (the epicranial suture is absent)
- Sclerotized rings around SD1 of A1-7 are in an arc or crescent shape and well separated from their setal base
- The sclerotized ring around SD1 of A8 is usually complete
- SD2 is separated from the spiracle of A8 by at least two times the spiracle's diameter
- Anal shield with SD1 closer to D1 than L1

Host/origin information

Nearly 40% of all interception records are from Mexico on pomegranate. This species is also routinely intercepted from locations in the Middle East on a variety of hosts.

Origin	Host(s)
Mexico	<i>Punica granatum</i>
Middle East	various

Recorded distribution

Apomyelois ceratoniae occurs in Mediterranean Europe, North Africa, parts of Asia, and tropical regions of the New World, including south Florida.

Identification authority (Summary)

Origin and host can be helpful for identification. *Apomyelois ceratoniae* tends to prefer carob and tamarind pods, although it has a wide host range. The SD1 pinacula rings around A1-7 may be hard to see in pale specimens; therefore, the presence or absence of the epicranial suture can be helpful in deciding if *A. ceratoniae* is a possibility. Many common phycitine larvae have an epicranial suture.

Pest characterization

(based on Cavey 2001, Neunzig 1990)

- Taxonomy: **High**. Identification to species is normal in late instars.
- Distribution: **High**. *Apomyelois ceratoniae* occurs in the United States only in south Florida.
- Potential Impact: **Low**. *Apomyelois ceratoniae* is a pest of some tropical fruits of minor importance.

This ranking characterizes *A. ceratoniae* as not quarantine significant for the U.S.

Larval diagnosis (Detailed)

The larva of the carob moth, *Apomyelois ceratoniae*, was described in detail by Aitken (1963) and

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Fig. 1: Late instar, lateral view



Fig. 2: Early instar, dorsolateral view



Fig. 3: Head and thorax, lateral view



Fig. 4: SD2 on A8



Fig. 5: Anal shield



Fig. 6: Crochets



Fig. 7: Head



Fig. 8: Hypo. complex

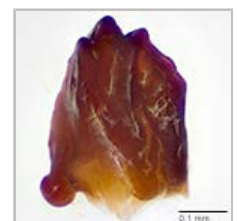


Fig. 9: Mandible

partially illustrated by Weisman (1986), Neunzig (1979, 1990), Carter (1984), Passoa (2004), Gonzalez and Cepeda (1999), Solis (1999, 2011), and Schnitzler et al. (2011). Gonzalez and Cepeda (1999) illustrated the larva in color. Black and white photographs of the last instar larva or damage were given by Balachowsky (1972), Neunzig (1979), and Passoa (1985).

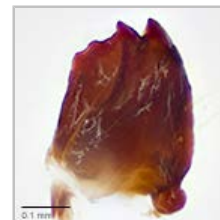


Fig. 10: Mandible

Typically, most authors (Weisman 1986, Neunzig 1979, Passoa 2004, Solis 1999, 2011) have diagnosed *A. ceratoniae* with the following characters: adfrontal area reaches the epicranial notch (the epicranial suture is absent); the sclerotized rings around SD1 of A1-7 are in an arc or crescent shape and well separated from their setal base; the sclerotized ring around SD1 of A8 is usually complete; SD2 is separated from the spiracle of A8 by at least two times the spiracle's diameter; and anal shield with SD1 closer to D1 than L1.

Apomyelois ceratoniae is most likely to be confused with *Amyelois transitella* (navel orangeworm) because both species have SD1 rings or ring fragments (see Neunzig 1990: fig. 19 a, b) and the sensilla styloconica of the maxillae are simple instead of being forked (Neunzig 1979). Important characters for *A. transitella* include a series of sclerotized rings around SD1 of A1-7 that touch the setal base, with a variable shape from arcs to smudges to a thin band that can be difficult to see. In addition, the sclerotized ring around SD1 of A8 is usually incomplete, SD2 is separated from the spiracle of A8 by less than two times the spiracle's diameter, and the anal shield has SD1 equidistant from D1 and L1.

Two rarer species of *Apomyelois* from the Neotropics, *A. decolor* and *A. muriscis*, were studied by Aitkin (1963). His diagnosis is summarized here. *Apomyelois muriscis* has pale rings, forcing Aitkin (1963) to warn this species is hardly recognizable as a Phycitinae. It feeds on cocoa pods and *Mammea* in the Neotropics. *Apomyelois decolor* has dark half SD1 rings on A1-7, small dark body pinacula, and a pigmented anal shield. This differs from *A. ceratoniae* that has paler SD1 rings, less obvious body pinacula, and a pale anal shield. There are also minor differences in the position of the SV setae on A3-6. The hosts of *A. decolor* are similar to those of *A. ceratoniae*.

Identification authority (Detailed)

Origin is sometimes helpful. *Apomyelois ceratoniae* occurs in Mediterranean Europe, North Africa, parts of Asia, and the tropical regions of the New World (Neunzig 1990). The distribution of *A. transitella* is restricted to the southern United States and the Neotropics (Neunzig 1990). Thus, Old World origins are not *A. transitella*. *Apomyelois ceratoniae* tends to prefer carob and tamarind pods, although it has a wide host range (Neunzig 1979). There is one record of *A. ceratoniae* associated with limacodid cocoons (Cock et al. 1987).

Neunzig (1979, 1990) warned that the SD1 pinacula rings around A1-7 may be hard to see in pale specimens of either species. The presence or absence of the epicranial suture can be helpful in deciding if *A. ceratoniae* is a possibility. Another option is to make a whole mount of the larva.

Solis (1999, 2011) noted that New World interceptions should be reported as "prob. *E. decolor*." This implies that *A. ceratoniae* is the rarer of the two species. This might be true for some countries. Another option is to use the diagnosis by Aitkin (1963) or stop at genus if the characters are ambiguous. This can be decided based on host, local pest literature, or the condition of the specimen, on a case by case basis.

Origin records

Genus species has been intercepted from the following locations:

Albania, Algeria, Armenia, Azerbaijan, Bangladesh, Bosnia and Herzegovina, Bulgaria, Cambodia, Cameroon, Canada, Cape Verde, Chile, China, Costa Rica, Cote D'Ivoire, Croatia, Cuba, Dominican Republic, Egypt, El Salvador, Finland, France, Georgia, Germany, Ghana, Greece, Guyana, Hawaii, Honduras, Hong Kong (?), India, Iran, Iraq, Italy, Jordan, Kuwait, Laos, Lebanon, Liberia, Macedonia, Mexico, Middle East (country unknown), Moldova, Montenegro, Morocco, Namibia, Nigeria, Pakistan, Peru, Philippines, Poland, Portugal, Puerto Rico, Qatar, Romania, Russia, Saudi Arabia, Sierra Leone, South Korea, Spain, Syrian Arab Republic, Thailand, Togo, Tunisia, Turkey, Ukraine, United Arab Emirates, United Kingdom of Great Britain and N. Ireland, US Virgin Islands, Uzbekistan, Viet Nam, Yemen, Yugoslavia, Zimbabwe

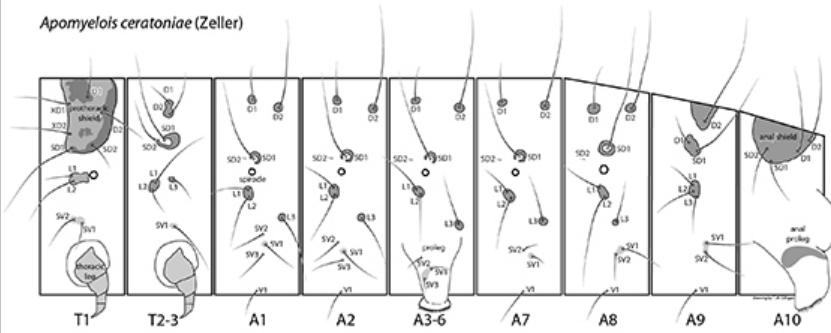
Host records

Genus species has been intercepted on the following hosts:

Adansonia digitata, *Anacardium occidentale*, *Annona cherimola*, *Annona* sp., Annonaceae, *Cajanus cajan*, *Capsicum annuum*, *Capsicum* sp., *Carya illinoensis*, *Cassia* sp., *Castanea sativa*, *Citrus paradisi*, *Citrus sinensis*, *Citrus* sp., *Corylus avellana*, *Cucurbita maxima*, *Cydonia oblonga*, *Cydonia* sp., *Dialium guineense*, *Dialium ovoideum*, *Dialium* sp., *Dioscorea hispida*, *Dioscorea* sp., *Diospyros* sp., Fabaceae, *Ficus carica*, *Ficus* sp., *Garcinia mangostana*, *Juglans regia*, *Juglans* sp., *Lawsonia* sp., *Malus domestica*, *Malus* sp., *Malus sylvestris*, *Mangifera indica*, *Mangifera* sp., *Melicoccus bijugatus*, *Moringa oleifera*, *Moringa* sp., *Musa paradisiaca*, *Oryza sativa*, *Passiflora edulis*, *Phaseolus* sp., *Phaseolus vulgaris*, *Phoenix dactylifera*, *Phoenix* sp., *Pithecellobium dulce*, *Pithecellobium* sp., *Prunus americana*, *Prunus domestica*, *Prunus persica*, *Prunus serotina*, *Prunus* sp., *Psidium guajava*, *Psidium* sp., *Punica granatum*, *Punica* sp., *Pyrus pyrifolia*, *Pyrus* sp., *Quercus* sp., *Saccharum officinarum*, *Swietenia* sp., *Tagetes lucida*, *Tamarindus indica*, *Tamarindus* sp., *Tetrapleura* sp., *Tetrapleura tetraptera*, *Vigna* sp., *Vigna unguiculata*, *Zea mays*, *Ziziphus jujuba*, *Ziziphus* sp.

Setal map

Apomyelois ceratoniae (Zeller)



Gilligan, T.M. & S.C. Passoa. 2014. *LepIntercept*, An identification resource for intercepted Lepidoptera larvae. Identification Technology Program (ITP), USDA/APHIS/PPQ/SS.T, Fort Collins, CO (accessed at www.LepIntercept.org).

Apomyelois ceratoniae setal map



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LepIntercept - An identification resource for intercepted Lepidoptera larvae by Todd M. Gilligan and Steven C. Passoa
Identification Technology Program (ITP), Fort Collins, CO. Last updated February 2014.

