<< Previous fact sheet Next fact sheet >>

CRAMBIDAE - *Maruca vitrata* (Fabricius)

Taxonomy

Pyraloidea: Crambidae: Spilomelinae: *Maruca vitrata* (Fabricius)

Common names: bean pod borer, soybean pod borer, legume pod borer, mung moth

Synonyms: *Maruca* (*Crochiphora*) *testulalis*, *Botys bifenestralis*, *Hydrocampe aquitilis*, *Siriocauta simialalis*

Larval diagnosis (Summary)

- Pair of pinacula without setae present on T2-3 posterior to the D pinacula
- L group unisetose on A9
- Mandible with two inner teeth and an outer tooth
- Prespiracular pinaculum on T1 crescent shaped and extending below the spiracle
- SD1 pinacula of A2 and A7 not reduced
- No extra pinacula without setae on the abdomen

Host/origin information

More than half of the interceptions of *M. vitrata* at U.S. ports of entry originate from Hawaii on *Canavalia*. Other common origins are listed below:

Origin	Host(s)
Hawaii	*Canavalia*, *Sesbania*
Bangladesh	various
Dominican Republic	various
India	various

Recorded distribution

Maruca vitrata is a cosmopolitan pest that occurs in tropical and subtropical regions worldwide. It is absent from North Africa and the temperate regions of Europe and North America (Taylor 1978).

Identification authority (Summary)

Origins are generally not helpful because *M. vitrata* is a cosmopolitan pest. Non-legumes hosts are doubtful, but *M. vitrata* can be expected in the flowers or pods of any cultivated legume. Larvae are most likely confused with those of tortricid pests that also feed in legume pods. Unlike pyraloids, legume feeding pest tortricid larvae have a trisetose prespiracular group, among other differences.

Pest characterization

(Based on Cavey 2001, Taylor 1978)

- Taxonomy: **High.** Identification to species is normal in late instars.
- Distribution: **High.** *Maruca vitrata* is not established in the U.S. but captures in several southern states have occurred.
- Potential Impact: **High.** *Maruca vitrata* is a serious pest.

This ranking characterizes *M. vitrata* as a quarantine significant species for the U.S.

Note that this ranking assumes *M. vitrata* is not established in the Gulf States or California. Captures have occurred in Texas (Williamson 1943), Florida (Dickel 1981), and Louisiana (Brou 1993). Klima (1939) reported *M. vitrata* from California. The introduction of *M. vitrata* into Hawaii (Zimmerman 1958) shows that this species has the ability to colonize new habitats.


Fig. 1: Late instar, lateral view


Fig. 2: Late instar, lateral view


Fig. 3: Late instar, lateral view


Fig. 4: Late instar, dorsal view


Fig. 5: Pinacula without setae on T2-3


Fig. 6: A9 L unisetose


Fig. 7: Crochets


Fig. 8: Head


Fig. 9: Hypo. complex


Fig. 10: Mandible

Larval diagnosis (Detailed)

Usua (1977) described the larva of *M. vitrata*, the bean pod borer, in detail. Important taxonomic characters were illustrated by Matuura (1952), Passoa (1985), Weisman (1986), Lin (1995), Sri et al. (2010), Solis (1999, 2011), and Schnitzler et al. (2011). Larval photographs of *M. vitrata* can be found in Ferguson and BATS [1983], King and Saunders (1984), Passoa (1985), Schmutterer et al. (1990), and Passoa and Bean (2001).

Typically, in Latin America, the larva of *M. vitrata* is easily recognized by having one L seta on A9 and a pair of pinacula without setae present on the mesothorax and metathorax posterior to the D pinacula (Passoa 1985). Other New World legume pod feeding pyralids (*Etiella*, *Fundella*) have three L setae on A9. Solis (1999) mentioned two L setae on A9 in *Etiella*, but this is likely atypical. Carter and Kristensen (1998) warned that setal aberrations are common in lepidopteran larvae. Neunzig (1987) and Passoa (1985) both found that three L setae on A9 is a more common condition for *Etiella*.

Other significant characters of *M. vitrata* include: mandible with two inner teeth and an outer tooth (Passoa 1985); a front not reaching the epicranial notch; the SD1 pinacula of A2 and A7 not reduced (Lin 1995); no small pinacula anterior to the D pinacula on the mesothorax and metathorax, and no extra pinacula without setae on the abdomen (Weisman 1986); and the prespiracular pinaculum on T1 crescent shaped and extending below the spiracle (Weisman 1986).

Identification authority (Detailed)

Except for being absent from North Africa and the temperate regions of Europe and North America (Ferguson and BASS [1983]), origins are not helpful because *M. vitrata* is a cosmopolitan pest. Non-legumes hosts are doubtful, but *M. vitrata* can be expected in the flowers or pods of any cultivated legume (Ferguson and BASS [1983], Passoa and Bean 2001). More caution is required on weedy or ornamental species. Some legume feeding crambids have pigmented pinacula that present a similar appearance to M. vitrata as preserved larvae, for example, *Terastia* and *Agathodes* on *Erythrina* (SPIC). But *M. vitrata* is most likely to be confused with tortricid pests that also feed in legume pods (see list in Singh et al. 1978). These species often have a similar body color, feeding habit and pinacula pigmentation to *M. vitrata*. Unlike pyraloids, legume feeding pest tortricid larvae have a trisetose prespiracular group, among other differences.

The larvae of *Maruca ambonialis* is undescribed; early records associating it with legumes need confirmation (Taylor 1978). It occurs in southeastern Asia (Robinson et al. 1994).

Origin records

Maruca vitrata has been intercepted from the following locations:

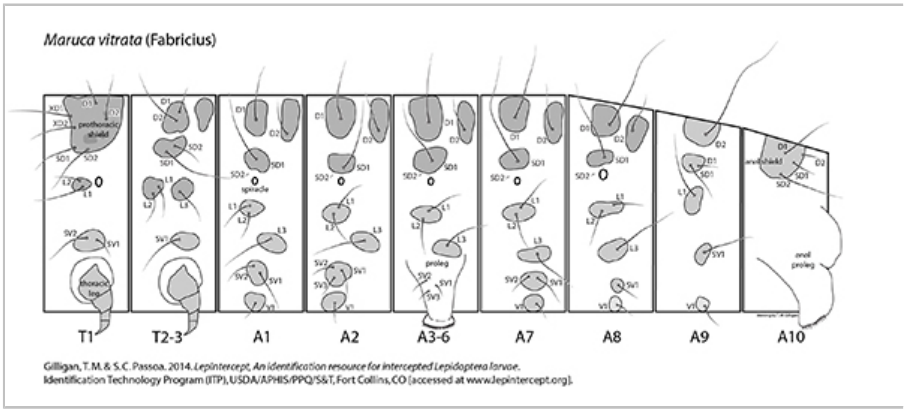
Bangladesh, Bolivia, Brazil, China, Colombia, Dominican Republic, Ecuador, El Salvador, Gabon, Guatemala, Guyana, Haiti, Hawaii, Honduras, India, Indonesia, Iran, Italy, Jamaica, Laos, Malawi, Mexico, Morocco, Nicaragua, Nigeria, Palestinian Territory, Panama, Peru, Philippines, Puerto Rico, Singapore, South Korea, Suriname, Trinidad and Tobago, Turkey, Viet Nam

Host records

Maruca vitrata has been intercepted on the following hosts:

Abelmoschus esculentus, *Aeschynomene fluitans*, *Annona* sp., *Asparagus officinalis*, *Cajanus cajan*, *Canavalia cathartica*, *Canavalia* sp., *Capsicum annuum*, *Coccinea grandis*, *Coccinia grandis*, *Cucurbita* sp., *Cynara* sp., *Dillenia indica*, *Erythrina* sp., Fabaceae, *Gardenia* sp., *Glycine max*, *Lablab purpureus*, *Lablab* sp., *Lagenaria siceraria*, *Lathyrus* sp., *Leguminosae* sp., *Limonium sinuatum*, *Luffa* sp., *Magnoliophyta* sp., *Momordica charantia*, *Mucuna* sp., *Murraya* sp., *Nelumbo nucifera*, *Nephelium lappaceum*, *Ocimum basilicum*, *Ocimum* sp., *Parkia speciosa*, *Petiveria alliacea*, *Phaseolus lunatus*, *Phaseolus* sp., *Phaseolus vulgaris*, *Pisum sativum*, *Pisum* sp., *Pithecellobium* sp., *Psidium guajava*, *Psidium* sp., *Psophocarpus tetragonolobus*, *Punica granatum*, *Sebastiania* sp., *Sechium edule*, *Sesbania grandiflora*, *Sesbania* sp., *Solanum aethiopicum*, *Solanum melongena*, *Solanum* sp., *Solanum torvum*, *Strongylodon lucidus*, *Strongylodon macrobotrys*, *Strongylodon* sp., *Tagetes erecta*, *Thymelaea hirsuta*, *Vicia faba*, *Vicia* sp., *Vigna sesquipedalis*, *Vigna* sp., *Vigna unguiculata*, *Vigna unguiculata* ssp. *sesquipedalis*, *Zea mays*

Setal map



Maruca vitrata setal map

Click here to download a full-size printable PDF of this larval setal map