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TORTRICIDAE - *Amorbia*

Taxonomy

Tortricoidea: Tortricidae: Tortricinae: Sparganothini: *Amorbia*

Common names: avocado leafroller, Mexican leafroller

Synonyms: *Hendecastema*, *Ptychamorbia*

Larval diagnosis (Summary)

- Prothoracic shield with distinct dark lateral band continuing on head
- Dorsal pinacula on A1-8 usually somewhat rounded
- V setae on A9 1.25-1.80 X as far apart as those on A8
- SD1 [=L] setae on anal shield extremely long
- Head dorsally flattened
- Body spinules long, slender, and spinelike

Host/origin information

The majority of *Amoriba* interceptions originate from Mexico, Ecuador, or Guatemala. Common host associations are listed below:

Origin	Host(s)
Mexico	*Alstroemeria*, *Capsicum*, *Chenopodium*, *Coriandrum*, *Ocimum*, *Opuntia*, *Psidium*, *Punica*, *Rubus*, *Sechium*
Ecuador	*Hypericum*
Guatemala	*Rubus*

Recorded distribution

Amorbia are found from Canada to southern Brazil, although most species diversity occurs in the Neotropics. One species, *A. emigratella*, has been introduced to Hawaii (Zimmerman 1978).

Identification authority (Summary)

Positive identifications should originate from North, Central, or South America, the Caribbean, or Hawaii. The dark lateral line on the prothoracic shield and head is distinctive for this genus. However, some individuals lack the line on the prothorax (especially early instars) and these may appear similar to other genera such as *Platynota*. See the Detailed Information tab for other diagnostic characters.

Pest characterization

(Based on Cavey 2001, Brown 2011)

- Taxonomy: **High.** Species identification is often possible.
- Distribution: **Low.** *Amorbia* occur in the U.S.
- Potential Impact: **High.** Some *Amorbia* are considered pests.

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

Larval diagnosis (Detailed)

Brown (2011) divided intercepted tortricid larvae into four "types." Larvae of *Amorbia* fall under the "Tortricinae type" with D1 and SD1 on A9 located on separate pinacula, and an anal comb present. He used the following characters to identify larvae of *Amorbia*: L1 setae of anal shield extremely long (tribal-level character); prothoracic shield pale with distinct narrow band along ventral edge, continuing anterad on head (genal band) towards stemmatal region; L and SV pinacula on T1 brownish, somewhat sclerotized; dorsal pinacula on A1-8 usually somewhat rounded; V setae on A9 1.25-1.80 times as far apart as those on A8; frequently on *Rubus*,


Fig. 1: Late instar, lateral view


Fig. 2: Head and thorax


Fig. 3: Head and thorax


Fig. 4: Head and shield

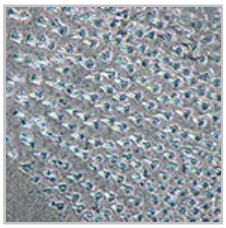


Fig. 5: Body spinules


Fig. 6: Anal comb


Fig. 7: Crochets


Fig. 8: Head


Fig. 9: Hypo. complex


Fig. 10: Mandible

Crataegus, *Limonium*, cut flowers (mostly Central America).

MacKay (1962) defined lavae of *Amorbia* as "distinct" with the following characters: V1s on A9 about twice as far apart as those on A8; dorsal and subdorsal pinacula on the meso- and, to a lesser extent, on the meta-thorax elongated posteriorly and all pinacula large; spinules long and slender; anal shield strongly tapered; anal seta unusually long, L1s being more than twice as long as anal segment; D1s on anal shield closer to corresponding SD1s than to each other [MacKay's terminology for setae on the anal shield is outdated - in this case, L1 = SD1 and SD1 = SD2 in Stehr (1987)]. She listed several other characters, including: P1 on the head closer to P2 than to Adf2 and at the apex of a right or obtuse angle formed with P2 and Adf2; spinneret about four or five times as long as wide; D1 on meso- and meta-thorax dorsocaudal to D2, and SD2 anterodorsal to SD1; spiracle on abdomen moderately large and SD1 less than twice its (spiracle) diameter from it; SD2 on segments 1-8 on the SD1 pinaculum; L1 and L2 anterior to a vertical line through spiracle on segments 2-8; SV group on segments 1,2,7,8,9 usually 3:3:3:2:2; D2s on segment 8 usually slightly closer together than D1s; D1 on segment 9 always on its own pinaculum; crochets triordinal; anal fork [comb] present and well developed.

The lateral dark line on the prothoracic shield and head appears to be the best distinguishing character for *Amorbia* larvae. Typical Sparganothini larvae have an anal comb, more than 25 crochets on the abdominal prolegs, the SD2 pinaculum on A1-7 is tiny and fused with the larger SD1 pinaculum, and the SD1 [= L1 in MacKay (1959)] setae of the anal shield are extremely long (Brown 2011). Larvae from the New World with a combination of these characters and the lateral lines on both the head and prothoracic shield can be safely identified as *Amorbia*. Interestingly, MacKay (1962) did not mention the lateral line on the head and shield in her diagnosis of the genus, likely because it is absent in some individuals, especially early instars. Larvae with typical Sparagnothini characters that lack lateral lines on both the head and shield are best left to tribe or subfamily.

Problems arise when the larva is a typical New World Sparganothini with a distinct lateral line on the head (genal band), but the lateral line on the prothoracic shield is faint or missing. Molecular diagnostics have shown that these larvae are usually *Amorbia*, *Platynota*, or sometimes *Argyrotaenia montezumae*. Brown (2011) diagnosed *Platynota* with the following characters: prothoracic shield usually uniform dark in color; L and SV pinacula on T1 dark brown or black, strongly sclerotized; dorsal pinacula on A1-8 usually somewhat elongate-oval; V setae on A9 usually about 2 times as far apart as those on A8; on various hosts (Neotropics). Passoa and Hodges (1985) attempted to separate *Platynota* from *Amorbia* using the shape of the head capsule, which is rounded in *Platynota* and dorsally flattened in *Amorbia*, and body spinules, which appear as either rounded or pointed granules in *Platynota*, and are long, slender, and spinelike in *Amorbia*. They also listed the spacing of the D1 and SD1 setae on the anal shield, but this character appears to vary enough to not be useful in separating the two genera. A combination of Brown's (2011) characters along with the head shape and form of the body spinules should be sufficient to distinguish larvae of the two genera in most instances. Phillips and Powell (2007) illustrated several *Amorphia* larvae showing variation in the head markings.

Identification authority (Detailed)

Origin, and, to a lesser extent, host are useful for identification of *Amorbia* larvae. *Amorbia* is a New World genus, thus any positive interceptions should originate from North, Central, or South America, the Caribbean, or Hawaii. Both *Amorbia* and *Platynota* may be found on the same hosts; however, larvae of *Platynota* are slightly more polyphagous and may be found on a wider variety of plants.

Key to larval Tortricidae intercepted, or potentially encountered, at U.S. ports of entry

Origin records

Amorbia have been intercepted from the following locations:

Brazil, Canada, Colombia, Costa Rica, Cuba, Ecuador, El Salvador, Guatemala, Hawaii, Mexico, Peru, Trinidad and Tobago, Venezuela

Origins from outside of the New World are likely misidentifications and are not included here. *Platynota stultana* larvae have been found on peppers (*Capsicum annum*) originating from Spain - it is possible that these interceptions could be mistaken for *Amorbia*.

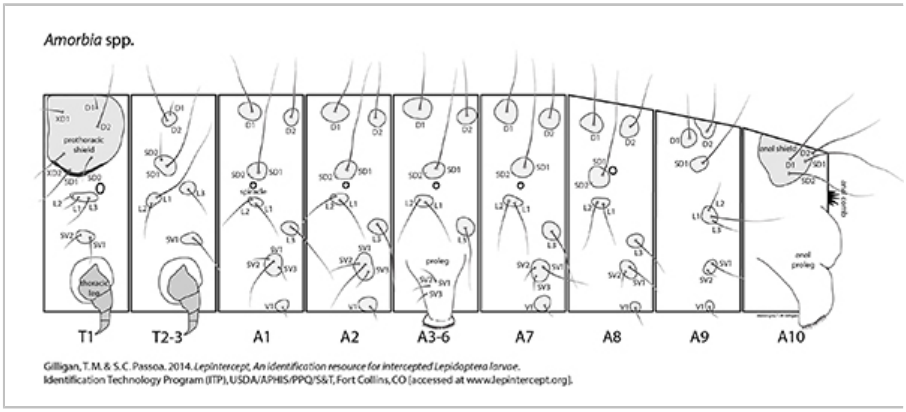
Host records

Amorbia have been intercepted on the following hosts:

Agapanthus sp., *Allium porrum*, *Allium* sp., *Aloe vera*, *Alstroemeria* sp., *Amaranthus* sp., *Ammi majus*, *Ananas comosus*, *Anigozanthos* sp., *Anigozanthus* sp., *Annona cherimola*, *Antirrhinum majus*, *Apium graveolens*, *Artemisia dracunculus*, *Artemisia* sp., *Asparagus plumosus*, *Asparagus* sp., *Aster ericoides*, *Aster* sp., *Astilbe* sp., Balsaminceae, *Borago officinalis*, *Brassica pekinensis*, *Brassica rapa*, *Buxus* sp., *Capsicum annuum*, *Capsicum pubescens*, *Capsicum* sp., *Carica papaya*, *Carthamus* sp., *Casimiroa edulis*, *Chamaedorea* sp., *Chenopodium album*, *Chenopodium ambrosioides*, *Chenopodium berlandieri* ssp. *nuttalliae*, *Chenopodium* sp., *Chrysanthemum* sp., *Cicer arietinum*, *Citrus limetta*, *Citrus limettioides*, *Citrus maxima*, *Citrus reticulata*, *Citrus sinensis*, *Citrus* sp., *Coriandrum sativum*, *Crataegus pubescens*, *Crataegus* sp., *Crotolaria* sp., *Cucumis melo*, *Cucumis* sp., *Cucurbita pepo*, *Cucurbita* sp., *Cydonia oblonga*, *Cydonia* sp., *Cymbopogon* sp., *Delphinium* sp., *Dendranthema* sp., *Dianthus* sp., *Diospyros digyna*, *Diospyros* sp., *Diospyros texana*, *Eriobotrya japonica*, *Eryngium* sp., *Erythrina* sp., *Eucalyptus* sp., *Fernaldia*

pandurata, *Fragaria ananassa*, *Fragaria* sp., *Gypsophila* sp., *Helianthus annuus*, *Helianthus* sp., *Hemerocallis* sp., *Hydrangea* sp., *Hypericum* sp., *Iris* sp., *Lactuca sativa*, *Laurus nobilis*, *Leucadendron* sp., *Liatris* sp., *Lilium* sp., *Limonium* sp., *Lippia graveolens*, *Malus domestica*, *Malus* sp., *Malus sylvestris*, Malvaceae, *Mentha* sp., *Momordica charantia*, *Moringa oleifera*, *Myrtus communis*, *Myrtus* sp., *Nephelium lappaceum*, *Ocimum basilicum*, *Ocimum* sp., *Opuntia* sp., *Origanum majorana*, *Origanum* sp., *Origanum vulgare*, *Pelargonium* sp., *Persea americana*, *Persea* sp., *Phaseolus lunatus*, *Phaseolus* sp., *Physalis pubescens*, *Physalis* sp., *Piper sanctum*, *Piper* sp., *Pisum sativum*, *Pisum* sp., *Pithecellobium dulce*, *Porophyllum ruderale*, *Porophyllum* sp., *Portulaca oleracea*, *Prunus persica*, *Psidium guajava*, *Psidium* sp., *Punica granatum*, *Punica* sp., *Pyrus communis*, *Rosa* sp., *Rosmarinus officinalis*, *Rosmarinus* sp., *Rubus fruticosus*, *Rubus idaeus*, *Rubus* sp., *Rubus ulmifolius*, *Rubus ursinus*, *Ruta graveolens*, *Salvia officinalis*, *Salvia* sp., *Sechium edule*, *Sechium* sp., *Solanum lycopersicum* var *lycopersicum*, *Solidago canadensis*, *Solidago* sp., *Solidaster* sp., *Strelitzia* sp., *Thymus* sp., *Thymus vulgaris*, *Vaccinium angustifolium*, *Vaccinium corymbosum*, *Vaccinium ovalifolium*, *Vaccinium* sp., *Zea mays*

Setal map



Amorbia setal map

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