

LepIntercept

An identification resource for intercepted Lepidoptera larvae



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PYRALIDAE - *Plodia interpunctella* (Hübner) *Non-Rep*

Taxonomy

Pyraloidea: Pyralidae: Phycitinae: *Plodia interpunctella* (Hübner)

Common names: Indian meal moth, Indianmeal moth, mealworm

Synonyms: *Ephestia glycinivora*, *Tinea zaeae*, *Unadilla latercula*

Larval diagnosis (Summary)

- Body pinacula not pigmented
- Front extends from 2/3 to 3/4 the distance to the epicranial notch
- D setae in horizontal line on A1-7
- L setae of A1 in a vertical line
- Cuticle not granulated

Host/origin information

Plodia interpunctella is commonly intercepted on a variety of hosts from all over the world. Nearly 300 host records are listed in PestID; those that are usually transported as living plant tissue need confirmed. The following are only a few of the most common origin/host combinations:

Origin	Host(s)
China	<i>Glycine max</i>
India	<i>Oryza</i>
Iran	<i>Cucurbita</i>
Mexico	<i>Capsicum</i> , <i>Pithecellobium</i> , <i>Prunus</i> , <i>Quercus</i>

Recorded distribution

Plodia interpunctella is distributed worldwide (Neunzig 1990).

Identification authority (Summary)

This is the only stored product phycitine pest without pigmented pinacula. Identifications are more accurate if the larva is associated with stored products from a building or at least is from dried fruits, nuts, or similar substrate. Larvae that resemble *P. interpunctella* from living plant tissue are best left at subfamily because this feeding habit is not typical.

Pest characterization

(Based on Cavey 2001, Neunzig 1990)

- Taxonomy: **High**. Identification to species is routine in late instars.
- Distribution: **Low**. *P. interpunctella* occurs in the U.S.
- Potential Impact: **High**. *P. interpunctella* is a pest.

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

Larval diagnosis (Detailed)

The larva of *P. interpunctella* has been illustrated many times, some examples are Hinton (1943), Ensminger (1958), Peterson (1962), Aitkin (1963), Carter (1984), Weisman (1986, 1987), Neunzig (1987, 1990), Solis (1999, 2011), and Schnitzler et al. (2011). Keys to selected larval structures (mandible, antenna, etc.) of stored product pests, including *P. interpunctella*, are given by Gentry et al. (1991). Passoa (1985) and Gomez de Aizpurua (2003) illustrated the larva in color.

Typically, *P. interpunctella* is recognized by being the only stored product phycitine pest without pigmented pinacula (Hinton 1943), a character used in most USDA publications (Weisman 1986,

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Fig. 1: Late instar, lateral view



Fig. 2: Late instar, lateral view



Fig. 3: Late instar, dorsal view



Fig. 4: Crochets



Fig. 5: Head



Fig. 8: Hypo. complex

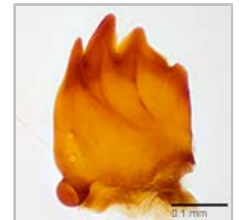


Fig. 7: Mandible

1987, Solis 1999, 2011). Other authors have added that, except for some *Anagasta*, the front of *P. interpunctella* extends from 2/3 to 3/4 the distance to the epicranial notch (Aitken, 1963, Passoa 1985). Other stored product phycitines have a front that measures only 1/2 that distance (Neunzig 1987). Weisman (1987) noted that SD2 is below the SD1 pinaculum on A1-7. Other significant characters for *P. interpunctella* include the D setae in a horizontal line on A1-7, the L setae of A1 in a vertical line, and that the cuticle is not granulated (Passoa 1985). Several species of stored product phycitines have microspines on the tarsal segments (Gentry et al. 1991: fig. 4-54c), but the utility of this character is unclear because too few other species have been surveyed.

Identification authority (Detailed)

Origins are not helpful because *P. interpunctella* is a cosmopolitan pest. Identifications are more accurate if the larva is associated with stored products from a building or at least is from dried fruits, nuts or similar substrate. Larvae that resemble *P. interpunctella* from living plant tissue are best left at subfamily because this feeding habit is not typical. A sibling species of *Plodia* is known from Central America (Neunzig 1990), but there is no evidence it occurs in USDA port interceptions; the larva is unknown.

Lightly sclerotized larvae with faint SD1 rings may be difficult to key to the correct subfamily. Consult our discussion of staining larvae in the Preserving and Studying Larvae section on the Larval Morphology tab.

Origin records

Plodia interpunctella has been intercepted from the following locations:

Afghanistan, Albania, Algeria, Argentina, Armenia, Aruba, Australia, Azerbaijan, Bahamas, Bahrain, Bangladesh, Barbados, Belgium, Benin, Bolivia, Bosnia and Herzegovina, Brazil, Bulgaria, Cambodia, Cameroon, Canada, Cape Verde, Chile, China, Colombia, Costa Rica, Cote D'Ivoire, Croatia, Cuba, Czech Republic, Denmark, Dominican Republic, Ecuador, Egypt, El Salvador, Eritrea, Estonia, France, Georgia, Germany, Ghana, Greece, Guatemala, Guyana, Haiti, Honduras, Hong Kong, India, Indonesia, Iran, Iraq, Israel, Italy, Jamaica, Japan, Jordan, Kenya, Kuwait, Laos, Lebanon, Libya, Mali, Mexico, Moldova, Montenegro, Morocco, Myanmar, Nepal, Netherlands, New Zealand, Nicaragua, Nigeria, Pakistan, Panama, Peru, Philippines, Poland, Portugal, Puerto Rico, Romania, Russia, Rwanda, Saudi Arabia, Serbia, Singapore, Slovakia, South Africa, South Korea, Spain, Sri Lanka, St. Vincent and the Grenadines, Sudan, Syrian Arab Republic, Taiwan, Tanzania, Thailand, Togo, Trinidad and Tobago, Tunisia, Turkey, Turkmenistan, Uganda, Ukraine, United Arab Emirates, United Kingdom of Great Britain and N. Ireland, US Virgin Islands, Uzbekistan, Viet Nam, Yemen, Zambia

Host records

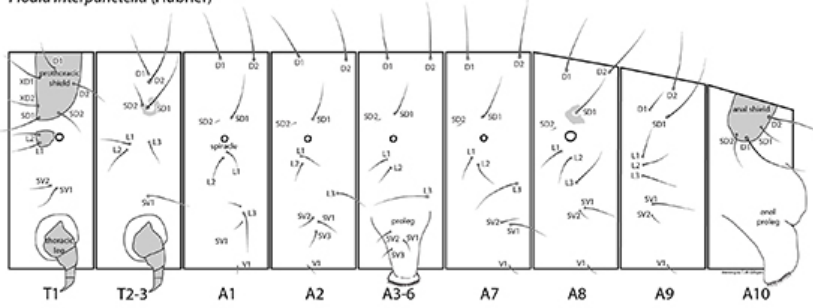
Plodia interpunctella has been intercepted on the following hosts:

Aegle sp., *Agaricus* sp., *Allium sativum*, *Allium* sp., *Amomum* sp., *Anacardium occidentale*, *Ananas comosus*, *Ananas* sp., *Annona* sp., *Apium graveolens*, *Apium* sp., *Arachis hypogaea*, *Arachis* sp., *Arctostaphylos pungens*, *Areca* sp., *Arecaceae*, *Artocarpus heterophyllus*, *Artocarpus* sp., *Asclepias* sp., *Bambusa* sp., *Berberis vulgaris*, *Bergera koenigii*, *Bertholletia excelsa*, *Bertholletia* sp., *Borago* sp., *Brassica chinensis*, *Brassica oleracea*, *Brassica oleracea* var. *capitata*, *Brassica rapa*, *Brassica* sp., *Byrsonima crassifolia*, *Cajanus cajan*, *Cannabis* sp., *Capsicum annuum*, *Capsicum baccatum*, *Capsicum pubescens*, *Capsicum* sp., *Carthamus tinctorius*, *Carya illinoensis*, *Carya* sp., *Cassia fistula*, *Castanea sativa*, *Castanea* sp., *Ceratonia siliqua*, *Ceratonia* sp., *Chamaemelum nobile*, *Chenopodium quinoa*, *Chenopodium* sp., *Chimonanthus praecox*, *Chrysanthemum* sp., *Chrysophyllum* sp., *Cicer arietinum*, *Cinnamomum* sp., *Citrullus lanatus*, *Citrus aurantiifolia*, *Citrus sinensis*, *Citrus* sp., *Cocos nucifera*, *Coffea arabica*, *Coffea canephora*, *Coffea* sp., *Cola acuminata*, *Cola* sp., *Coriandrum sativum*, *Corylus* sp., *Crataegus pinnatifida*, *Crataegus pubescens*, *Crataegus* sp., *Crotolaria* sp., *Cucumis melo*, *Cucumis sativus*, *Cucumis* sp., *Cucurbita pepo*, *Cucurbita* sp., *Cucurbitaceae*, *Cuminum cyminum*, *Cuminum* sp., *Curcubita* sp., *Cydonia oblonga*, *Cydonia* sp., *Dacryodes edulis*, *Dialium guineense*, *Dichrostachys cinerea*, *Dimocarpus longan*, *Echinacea* sp., *Eleocharis* sp., *Eucalyptus* sp., *Euphorbiaceae*, *Fabaceae*, *Fagus* sp., *Fernaldia pandurata*, *Ficus carica*, *Ficus* sp., *Garcinia* sp., *Glycine max*, *Glycine* sp., *Helianthus annuus*, *Hibiscus* sp., *Hordeum vulgare*, *Hylocereus* sp., *Hylocereus undatus*, *Inga edulis*, *Jasminum* sp., *Juglans regia*, *Juglans* sp., *Kalanchoe* sp., *Lactuca sativa*, *Lactuca* sp., *Lens culinaris*, *Leonotis leonurus*, *Lepidium* sp., *Linum usitatissimum*, *Luffa* sp., *Lycium barbarum*, *Lysiloma* sp., *Macrotyloma uniflorum*, *Magnoliophyta* sp., *Malus domestica*, *Malus* sp., *Mammea americana*, *Manihot esculenta*, *Manilkara zapota*, *Meliaceae*, *Mentha longifolia*, *Mespilus germanica*, *Morus alba*, *Morus nigra*, *Morus rubra*, *Morus* sp., *Murraya koenigii*, *Musa paradisiaca*, *Musa* sp., *Myristica* sp., *Myrtillocactus geometrizans*, *Nelumbo nucifera*, *Nelumbo* sp., *Nephelium lappaceum*, *Nicotiana tabacum*, *Opuntia* sp., *Oryza sativa*, *Oryza* sp., *Paeonia suffruticosa*, *Panax ginseng*, *Panax* sp., *Panicum coloratum*, *Panicum millaceum*, *Panicum* sp., *Pennisetum glaucum*, *Persea americana*, *Phaseolus lunatus*, *Phaseolus* sp., *Phaseolus vulgaris*, *Phoenix canariensis*, *Phoenix dactylifera*, *Phoenix* sp., *Physalis pubescens*, *Pimpinella anisum*, *Pinus* sp., *Piper* sp., *Pistacia* sp., *Pistacia terebinthus*, *Pistacia vera*, *Pisum sativum*, *Pisum* sp., *Pithecellobium dulce*, *Pithecellobium* sp., *Platycodon* sp., *Poaceae*, *Polygonaceae*, *Pouteria sapota*, *Pouteria* sp., *Prosopis* sp., *Prunus americana*, *Prunus armeniaca*, *Prunus avium*, *Prunus cerasus*, *Prunus domestica*, *Prunus dulcis*, *Prunus mahaleb*, *Prunus persica*, *Prunus* sp., *Psidium guajava*, *Psidium* sp., *Punica granatum*, *Punica* sp., *Pyrus communis*, *Pyrus* sp., *Quercus* sp., *Raphanus raphanistrum*, *Raphanus* sp., *Rheum rhaponticum*, *Ribes uva-crispa*, *Ricinus communis*, *Rosa laevigata*, *Rosa* sp., *Rosmarinus officinalis*, *Rubus* sp., *Rubus ursinus*, *Sapindus* sp., *Schinus* sp., *Secale cereale*, *Sechium edule*, *Sesamum indicum*, *Simmondsia chinensis*, *Solanum lycopersicum* var. *lycopersicum*, *Solanum melongena*, *Solanum* sp., *Solanum torvum*, *Solidago* sp., *Sorbus* sp., *Sorghum bicolor*, *Sorghum* sp., *Spinacia oleracea*, *Spondias oleracea*, *Spondias dulcis*, *Spondias mombin*, *Spondias* sp., *Tagetes* sp., *Tamarindus indica*, *Taraxacum officinale*, *Taraxacum* sp., *Telfairia occidentalis*, *Tetrapleura* sp., *Theobroma cacao*, *Trifolium repens*, *Trigonella foenum-graecum*, *Triticum aestivum*, *Triticum durum*, *Triticum* sp., *Triticum vulgare*, *Tuber* sp., *Tulipa* sp., *Vaccinium* sp., *Vicia faba*, *Vigna radiata*, *Vigna* sp., *Vigna unguiculata*, *Vitis* sp., *Vitis vinifera*, *Zea mays*, *Zea* sp.,

Zingiber officinale, *Ziziphus jujuba*, *Ziziphus mauritiana*, *Ziziphus* sp.

Setal map

Plodia interpunctella (Hübner)



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).

Plodia interpunctella setal map



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LepIntercept - An identification resource for intercepted Lepidoptera larvae
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