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KEY TO SELECTED PYRALOIDEA (LEPIDOPTERA) LARVAE INTERCEPTED AT U. S. PORTS OF ENTRY: REVISION OF PYRALOIDEA IN "KEYS TO SOME FREQUENTLY INTERCEPTED LEPIDOPTEROUS LARVAE" BY WEISMAN 1986
(updated 2006)

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Abstract. - A key to frequently intercepted lepidopterous larvae, designed for U. S. Department of Agriculture, Animal and Plant Health Inspection Service (USDA, APHIS) identifiers at U.S. ports, was last revised in 1986. Since then many changes have occurred in the classification, nomenclature, and the nature of commodities being imported into the U.S. In this revision of the section on Pyraloidea, species recently intercepted are included, the most recent generic combinations are used, and families and subfamilies are now included in the key. Distributions are updated, stating if the species occurs in Hawaii or restricted areas of the continental United States. A "Note" section explains changes and additions, and gives references to further information. Two tables are provided, one to the classification of Pyraloidea with reference to placement in the key and another to the hosts and/or commodities.

Key Words. - continental United States, Florida, Hawaii, hosts, Pyralidae, Crambidae

The Pyraloidea is estimated to be the second largest superfamily in the Lepidoptera, with more than 16,000 described species worldwide. Pyraloid caterpillars are very diverse in what they eat: "they consume dried or decaying plant or animal matter, wax in bee and wasp nests, and living plants. Some are known to be inquilines in ant nests (some Galleriinae), predators of scale insects (some Phycitinae), and aquatic scavengers in flowing water (some Nymphulinae) (Solis 1997). The plant feeders can be leaf rollers, leaf tiers, leafminers, and stem borers, and sometimes a combination. Pyraloid caterpillars are pests that cause damage and economically affect crops such as rice, sugarcane, corn, tomato, and many more; some are worldwide pests of stored products such as grains and fruits (Solis 1996).

Because so many pyraloid caterpillars are intercepted at ports in commodities being imported into the United States, the Pyraloidea part of "Keys for the identification of some lepidopterous larvae frequently intercepted at quarantine" by Hahn W. Capps, Division of Insect Identification, Bureau of Entomology and Plant Quarantine, U. S. Department of Agriculture was first published in 1939. It was published again in Spanish (Capps 1955) by the Agriculture Department of Mexico and again in English (Capps 1956, 1963) with only nomenclatural revision. It was not significantly revised again until 1986, when D. M. Weisman published "Keys for the identification of some frequently intercepted lepidopterous larvae." He added 40 species and replaced the Heinrich (1916) system of setal nomenclature with the Hinton (1946) system. The revision presented here adds new taxa, incorporates recent new combinations, and provides keys to the family and subfamily levels of Pyraloidea. This revision also updates distributions, stating if taxa occur in restricted areas of the continental U.S. and Hawaii. A "Note" section explains changes and additions, adds relevant information, and gives references to further information. Two tables provide host and classification information.

The Pyraloidea has undergone both phylogenetic and nomenclatural changes because it is a group where taxonomists are actively pursuing questions that have both theoretical and applied ramifications. In the 1980's, Minet published a series of morphological papers on the tympanal organs in the Lepidoptera, including the Pyraloidea (1982). Based on the morphologically distinct tympanal organs and the work on larvae by Hasenfuss (1960), Minet proposed elevating two groups, known in the informal sense as Pyraliformes and Crambiformes (Munroe 1972), to Pyralidae and Crambidae. Most workers in the Pyraloidea agree with Minet (e.g., Munroe 1989; Solis & Mitter 1992, Solis & Maes 2002). Taxonomy is not a static field but a field where new morphological and biological information continually becomes available, and it is necessary to change the classification to reflect this new information. In addition, several major checklists (Munroe et al. 1995; Shaffer et al. 1996) from several major geographic areas have been published in the last ten years with many new combinations and synonymies. Table 1 gives the current classification of Pyraloidea as an alphabetical list of the taxa treated in this work in the two families by subfamily, with the number of the couplet where they are found in the key for quick retrieval.

DESCRIPTION OF THE KEY AND ITS COMPONENTS

Capps' (1939) description of the function and basis of his key is still applicable today: "The following keys are intended to assist quarantine inspectors in recognizing the lepidopterous larvae most frequently intercepted at ports of entry and are based on the differential characters noted in the literature, and on the larval collection and host catalogue in the United States National Museum." The title of this revision reflects a change from "most frequently" taxa intercepted to "selected" taxa intercepted. I retained all taxa included in Weisman's key even though the species may no longer be intercepted frequently; this in part because the species intercepted depend on the commodities being imported into the U.S. and these species may again be intercepted in the future. The addition of species to this current key is based on the actual interceptions submitted by APHIS port identifiers. Specimens are submitted for identification until the port identifier receives "port authority" for the identification of particular species; and then they no longer send specimens for verification of that species. The top twelve species sent into the SEL (Systematic Entomology Laboratory) for identification in order from more frequent to less frequent during 1998 were: Ectomyelois ceratoniae, Cadra cautella, Leucinodes orbonalis, Diatraea considerata, Spoladea recurvalis, Neoleucinodes elegantalis, Etiella zinckenella, Conogethes sp., Pyrausta sp., Phidotricha erigens, Plodia interpunctella.

Capps (1939) also wrote: "In using the keys, it should be borne in mind that their validity is dependent on three factors, viz., (1) structure, (2) origin, and (3) host." The origin referred to by Capps indicates the country where the commodity supposedly originated and does not imply evolutionary origin; for this reason Weisman (1986) probably chose to use the term "distribution" rather than "origin." The origin documented by port identifiers is the origin of the vehicle transporting the commodity prior to entering the U.S. The point of origin of the insect could be several ports removed if the vehicle made multiple stops, or entirely outside the vehicle's itinerary if infested cargo was transferred en route.

Further, Capps (1939) wrote: "Moreover, the characters used for separating the families are not completely diagnostic for the entire family but will serve to separate the species treated here." This is emphasized for two reasons: one, the percentage of lepidopterous larvae known is very small, usually only the larval morphology of the pest species in a genus is well known, and hence, the distribution of the characters across taxa are unknown; and two, the loss or reduction of characters in larvae in general is inferred to occur extensively (see also Passoa 1985).

All current taxonomic and phylogenetic information has been incorporated into the revision of this key. Distributions vary according to the information provided with the submitted material and are based specifically on the usage by port identifiers, for example, a country versus an area of a continent. It is stated if the species occurs in Hawaii or a few states in the continental U. S. Changes in distribution in this revision are based on the current literature and unpublished localities in the Pyraloidea collection of the National Museum of Natural History, Smithsonian Institution, Washington, D.C. (USNM). New records in the U.S. are taken into account if there is evidence to support that a population has been established. It is common in certain parts of the U.S. adjoining the Gulf of Mexico to catch one or more adult(s) of a species at light, but this is not evidence that the species is established in the U.S. Specifically, distribution records from Hawaii are from Nishida (1992); it uses three words to reflect residency status: endemic, indigenous, and adventive. I used only adventive when applicable: "immigrant"; used in place of "introduced" to differentiate from

those that were purposely introduced. Species that are known only from quarantine records (reported as intercepted) or those considered not established are present in the database, but do not appear in the checklist" (Nishida 1992). The "Old World" includes all land masses except the Western Hemisphere.

The plant names are based primarily on the names given to commodities being imported or brought into the U.S. for any variety of purposes; in this work the biological term "host" and the economic term "commodity" are often one and the same. The names of hosts are either a scientific name or a common name as supplied by port identifiers and checked against Brako, Rossman, and Farr (1995) for U.S. names, and Mabberley (1997) and the Missouri Botanical Garden's VAST nomenclatural database (http://mobot.mobot.org/w3t/search/) for all other localities and are listed under the "Hosts" section of each species. In the key, the 2006 host records are directly from the SELIS database (Systematic Entomology Laboratory Identification Service) as submitted by port identifiers and listed alphabetically. Pre-1998 records can be from a variety of sources and are primarily those listed in Weisman (1986), with additions from the SELIS database, the USNM larval collection, and are mainly historical records. If the scientific name of a host appeared in both the 2006 list and pre-1998 list, it was removed from the pre-1998 list. The lists of hosts at times lack detail (e.g. "stored vegetable products") because many pyraloid pest species are highly polyphagous. Table 2 gives the hosts of the pyraloid larvae. If a scientific name for the commodity is given, the table refers to the common name as given by the port identifiers also; scientific names were not generally used prior to the mid-1980's. The common name is followed by the scientific name in brackets for purposes of cross-indexing.

The "Note" sections comment on a variety of topics that may be useful to the port identifier, it is not meant to be comprehensive: on character variability, explanations of recent nomenclatural changes, nomenclatural method of reporting
based on morphological and distributional information available, and relevant literature. The amount of literature available is scattered and very large for pest species, and is less large for geographical works (e.g. Carter 1984; Mutuura et al. 1965). This work does not attempt to review the entirety of the literature, but rather to point to seminal literature that provides relevant information.

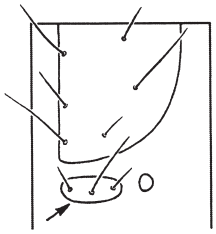
HOW TO DISTINGUISH PYRALOIDEA LARVAE

Pyraloidea larvae can be distinguished from other Lepidoptera larvae by a combination of characters. Many "micro" lepidopteran groups have 3 setae in the prespiracular group of the prothorax (Fig. 1), but some may have 2 or 1 (Stehr 1987) and they do not have typical pyraloid crochets (see below). Pyraloids, noctuids, and other "macro" lepidopteran groups have two setae in the prespiracular group of the prothorax (Fig. 2) (Stehr 1987). The Noctuoidea and Carposinidae, two groups that are intercepted frequently and are of importance to port indentifiers, can be confused with pyraloids based on the presence of two setae in the prothoracic prespiracular group. But pyraloids can be distinguished from noctuoids because noctuoids have the crochets in a mesoseries (Fig. 3), and pyraloids have the crochets in a complete circle or penellipse (Figs. 4-5).

Larvae of the Carposinidae are also confused with pyraloids because they also have two setae in the prespiracular group of the prothorax and crochets in a complete circle. Generally, pyraloids can be separated from carposinids because pyraloids have 3 subventral setae on abdominal segments 3 to 6 (Fig. 6), and carposinids usually have 4 subventral setae (Fig. 7), but the number of subventral

setae may vary from segment to segment (see Common 1990). It should be noted here that Weisman (1986) used "the spiracle on abdominal segment 8 well above level of those on preceding segments" to separate them from pyraloids, but many pyraloids have the spiracle on segment 8 above the level of those on the preceding segments.

For recent, more general information on other nearctic pyraloid larvae and lepidopteran larvae and comparisons to other families and other geographic regions see Stehr (1987) and Common (1990).



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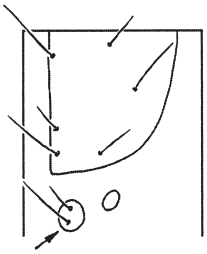

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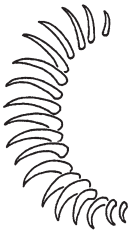

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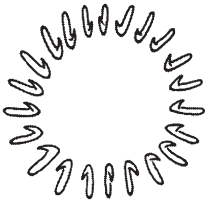

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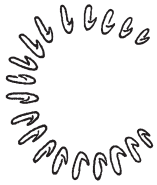

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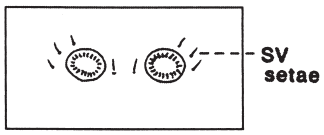

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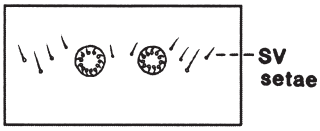

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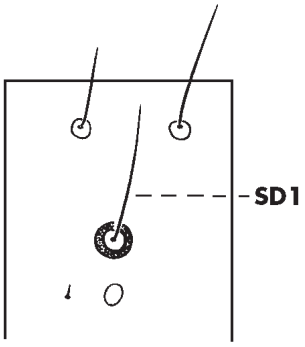
Table 1. Classification of Pyraloidea (number refers to couplet in the key).

CRAMBIDAE
- CRAMBINAE
- Chilo suppressalis (Walker) - 31
- Diatraea sp. - 31
- Eoreuma loftini (Dyar) -30
- EVERGESTINAE
- Evergestis rimosalis (Guenée) -37
- GLAPHYRIINAE
- Hellula rogatalis (Hulst) - 39
- Hellula phidilealis (Walker) - 39
- ACENTROPINAE
- Parapoynx diminutalis Snellen - 27
- PYRAUSTINAE
- Achyra rantalis (Guenée) - 41
- Ostrinia nubilalis (Hübner) - 36
- Pyrausta sp. - 33
- SPILOMELINAE
- Conogethes spp. - 34
- Diaphania nitidalis (Cramer) - 50
- Diaphania indica complex - 50
- Duponchelia fovealis Zeller - 48
- Hendecasis duplifascialis Hampson - 48
- Herpetogramma bipunctalis (Fabricius) - 43
- Leucinodes orbonalis (Guenée) -51
- Lineodes integra (Zeller) - 46
- Loxomorpha flavidissimalis Grote - 41
- Maruca vitrata (Fabricius) - 35
- Megastes sp. - 35
- Neoleucinodes elegantalis (Guenée) - 51
- Rhectocraspeda periusalis (Walker) - 43
- Spoladea recurvalis Fabricius - 45
- Udea rubigalis (Guenée) - 46
- SCHOENOBIINAE - 28

PYRALIDAE -1
- CHRYSAUGINAE - 22
- EPIPASCHIINAE
- Phidotricha erigens (Ragonot) - 19
- GALLERIINAE
- Alpheias conspirata Heinrich - 24
- Corcyra cephalonica (Stainton) - 26
- Paralipsa gularis (Zeller) - 26
- Genopaschia protomis Dyar - 24
- Trachylepidia fructicassiella Ragonot - 25
- PHYCITINAE
- Amyelois transitella (Walker) - 13
- Ancylostomia stercorea (Zeller) - 8
- Cadra cautella (Walker) - 17
- Cadra figulilella (Gregson) - 18
- Cadra calidella (Guenée) - 18
- Cryptoblabes sp. - 6
- Ectomyelois ceratoniae (Zeller) - 13
- Elasmopalpus lignosellus (Zeller) - 6
- Ephestia elutella (Hübner) - 16
- Ephestia kuehniella (Zeller) - 16
- Etiella zinckenella (Treitschke) - 20
- Fundella pellucens Zeller - 10
- Homoeosoma electellum Hulst - 11
- Hypsipyla sp. - 9
- Moodna bisinuella Hampson - 9
- Mussidia nigrivenella Ragonot - 4
- Plodia interpunctella (Hübner) - 14
- PYRALINAE
- Pyralis farinalis Linnaeus - 21
- Aglossa caprealis (Hübner) - 21

Key to Selected Intercepted Pyraloidea Larvae

1. Sclerotized ring around seta SD1 on A 8 (missing in a some phycitines) (Fig. 8); three (sometimes two) setae in the L group on A 9 (Fig. 9) .....**Pyralidae**.....2
   Subfamilies: Chrysauginae, Epipaschiinae, Galleriinae, Phycitinae, Pyralinae
   Note: Sclerotized rings sometimes hard to see and appear as shiny, unsclerotized rings; 2 L setae in *Etiella zinckenella* (Tr.) and others
- No sclerotized ring around seta SD1 on A 8 (Fig. 10); one seta in the L group on A 9 (Fig.11). .....**Crambidae**.....27
   Subfamilies: Cathariinae, Crambinae, Cybalomiinae, Evergestinae, Glaphyriinae (includes Dichogaminae), Linostinae, Midilinae, Musotiminae, Noordinae, Nymphulinae, Odontiinae, Pyraustinae (includes Spilomelinae), Schoenobiinae, Scopariinae,Wurthiinae



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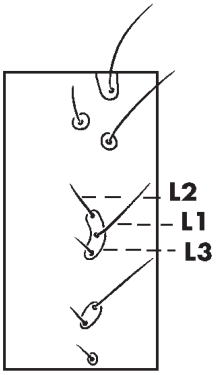

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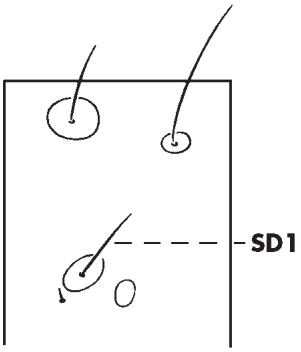

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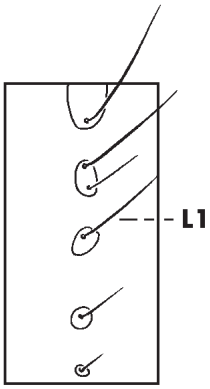

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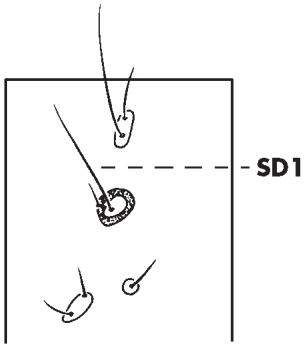
2. Sclerotized ring around seta SD1 on mesothorax, metathorax, or A1 (Fig. 12)..... .....**Galleriinae, Chrysauginae, Phycitinae**.....3
   Note: Sclerotized ring sometimes absent on these segments, but in taxa not covered in this key (Solis & Mitter 1992)
- No sclerotized ring around seta SD1 on mesothorax, metathorax, or A1..... ..... **Pyralinae, Epipaschiinae, few Phycitinae**.....19



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3. Sclerotized ring around seta SD1 of metathorax or A1.....**Chrysauginae, Galleriinae**.....22
- Sclerotized ring around seta SD1 on mesothorax.....**most Phycitinae**.....4

4. Sclerotized ring around seta SD1 on A2 to A7.....***Mussidia nigrivenella*** Ragonot
   Distribution: west tropical Africa; does not occur in the U.S.
   Hosts: 2006: *Capsicum* sp., *Ceratonia siliqua*, *Entada* sp., *Punica granatum*, stored seeds, *Tamarindus indica*, *Tetrapleura* sp.
   pre-1998: butter beans, cacao, calabar beans, carob or locust bean, stored grains (cereals)
   Note: see Aitken 1963; Corbet & Tams 1943
- Sclerotized ring around seta SD1 of mesothorax.....**other Phycitinae**.....5
   Note: see Hinton 1943; some Phycitinae lack this character, e.g. *Etiella* sp.

5. Prespiracular shield of prothorax extending below and behind the spiracle (Fig. 13) or completely enclosing spiracle (Fig. 16).....6
- Prespiracular shield of prothorax never extending below and behind spiracle (Fig.14).....7

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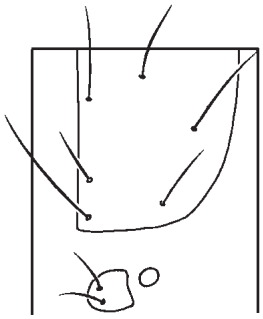

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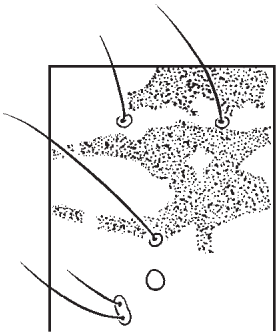
6. Posterior portion of prespiracular shield weakly pigmented (Fig. 13); body pink with whitish discontinuous longitudinal bands on most segments (Fig. 15); ring around mesothoracic seta SD1 not prominently sclerotized (Fig. 12)..... ***Elasmopalpus lignosellus*** (Zeller)
   Distribution: Western Hemisphere; adventive in Hawaii
   Hosts: 2006: *Ananas comosus*, *Asparagus officinalis*, *Ceratonia siliqua*, *Coffea arabica*, *Corylus avellana*, *Maranta* sp., *Mentha* sp., *Mimosa asperata*, *Sida* sp., *Sorghum* sp., *Zea mays* (unpopped corn)
   pre-1998: alfalfa, beans, cowpea, Johnsongrass, peas, soybean, strawberry, string bean, sugarcane
   Note: see Heinrich 1956; Luginbill & Ainslie 1917; Neunzig 1979

- Prespiracular shield completely enclosing spiracle weakly pigmented (Fig. 16); prominent longitudinal dark bands on all segments; ring around mesothoracic seta SD1 prominently sclerotized (Fig. 17).....***Cryptoblabes*** sp.
  Distribution: Europe, Africa, Asia
  Hosts: 2006: *Annona squamosa*, *Brassica* sp., *Citrus sinensis*, *Dimocarpus longan*, *Diospyros* sp., *Musa* sp., *Nephelium* sp., *Nephelium lappaceum*, *Passiflora* sp., *Phoenix* sp., *Pinus* sp., *Psidium guajava*, *Punica granatum*, *Quercus* sp., *Schinus* sp., *Xylopica* sp.
  pre-1998: *Amaranthus* sp., *Chaenomeles japonica*, grape, *Lythrum* sp., pineapple, raisin, *Tamarix* sp.
  Note: should be reported as "*Cryptoblabes gnidiella* (Millière)" if the origin is from the Western Hemisphere where it was introduced (Heinrich 1956); does not occur in the continental U.S. or Hawaii; see Neunzig 1986



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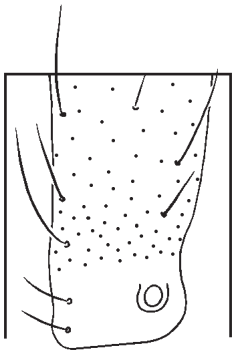

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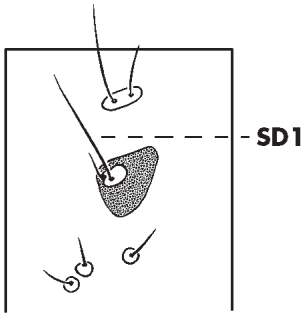

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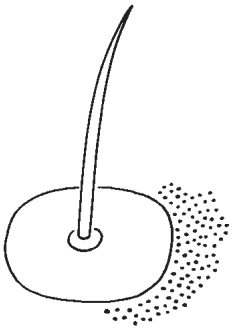
7. Integument granulose under low magnification (30X) (Fig.18).....8
- Integument not granulose under low magnification.....10



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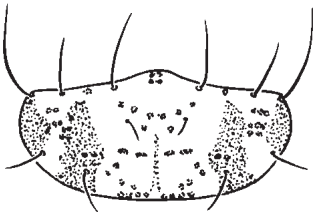
8. Prothoracic shield with black areas on lateral margins and longitudinal black areas on either side midway between center line and lateral margins (black areas on either side of center line may be very faint) (Fig. 19)..... ***Ancylostomia stercorea*** (Zeller)
  Distribution: tropical Western Hemisphere including southeastern U.S., Florida to Texas
  Hosts: 2006: *Cajanus cajan*, *Lablab* sp., *Mangifera indica*, *Momordica charantia*, *Phaseolus* sp., *Phaseolus vulgaris*, *Pisum* sp., *Pisum sativum*, *Psidium guajava*, *Rumex* sp.

pre-1998: chick pea, cow pea
Note: see Heinrich 1956

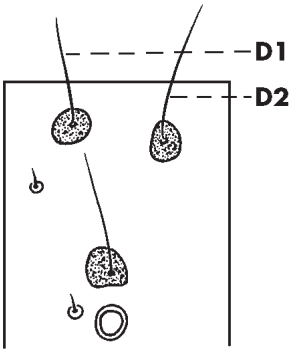
- Prothoracic shield not with the above color pattern.....9



19

9. Pinacula of body setae large and dark (Fig. 20); seta D2 of A1 to A7 below level of seta D1 (Fig. 20)..... ***Hypsipyla*** sp.
Distribution: tropical Western Hemisphere including southern Florida
Hosts: 2006: *Zea mays* (unpopped corn)
pre-1998: crabwood, mahogany, Spanish cedar logs
Note: see Heinrich 1956; Neunzig 1990

- Pinacula of body setae very small and pale (fig. 21); seta D2 of A1 to A7 at level of seta D1 (fig. 21).....***Moodna bisinuella*** Hampson
Distribution: southern Texas to Mexico, El Salvador
Hosts: 2006: *Phaseolus* sp., *Zea mays*
Note: see Heinrich 1956; Neunzig 1990



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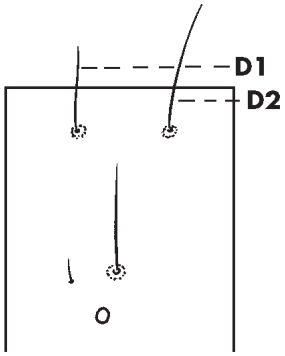

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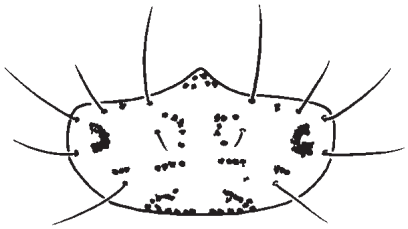


22

10. Prothoracic shield yellow with pattern of dark marks as illustrated (Fig.22).....
.....***Fundella pellucens*** Zeller

Distribution: tropical Western Hemisphere including Florida

Hosts: 2006: *Cajanus cajun*, *Cyamopsis tetragonoloba*, *Garcinia mangotana*, *Phaseolus* sp., *Phaseolus vulgaris*, *Pisum sativum*, *Vigna* sp., *Vigna sesquipedalis*, *Vigna unquiculata*

pre-1998: beans, cowpea, lima bean, peas

Note: see Heinrich 1956

- Prothoracic shield yellowish without the pattern as above.....10

11. Prothoracic shield with black areas on lateral and posterior margins (sometimes without black area on posterior margin) (Fig. 23); prominent longitudinal dark bands on all segments (Fig. 24); head with dark band from ocelli to posterior margin.....
.....***Homoeosoma electellum*** Hulst

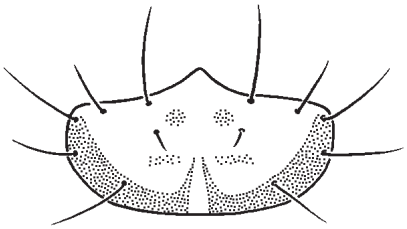
Distribution: North and South America

Hosts: 2006: *Bidens* sp., *Helianthus annuus*, *Limonium* sp., *Matricaria chamomilla*, *Tagetes* sp.

pre-1998: Asteraceae, cotton, orange

Note: see Heinrich 1956; Neunzig 1997

- Prothoracic shield yellowish without the pattern as in Fig. 23.....12



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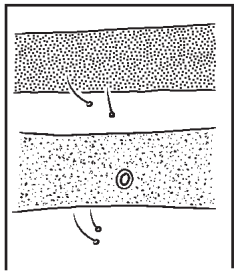
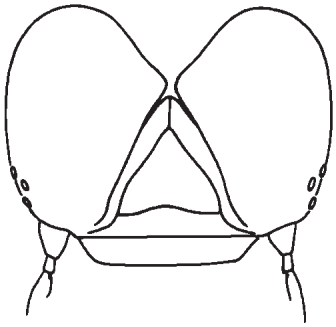


24

12. Coronal suture absent (Fig. 25); A1 to A7 with a crescent-shaped patch above seta SD1 (usually reduced to a small smudge or missing in *Amyelois transitella*) (Fig.26).....13

- Coronal suture present (Fig.27); A1 to A7 without crescent-shaped patch above seta SD1 (Fig. 28).....14



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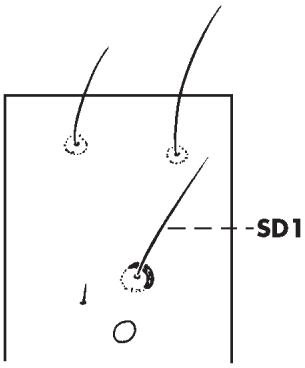

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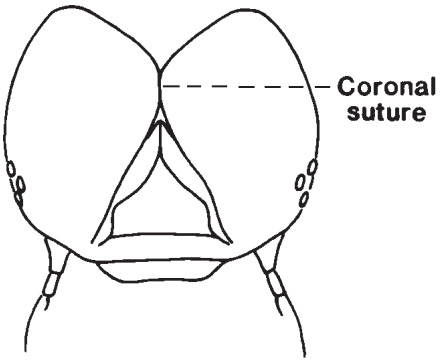

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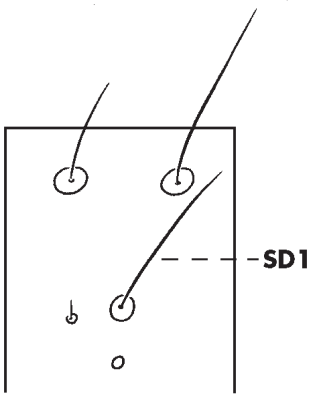


28

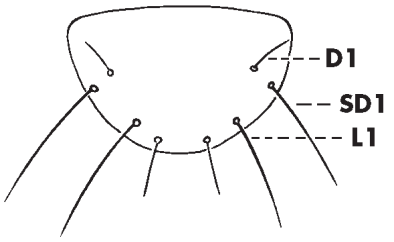
13. Anal plate with seta SD1 closer to seta D1 than to seta L1 (Fig. 29); seta SD2 of A8 usually separated from the spiracle by 2 or more times the diameter of the spiracle (Fig. 30); sclerotized ring around seta SD1 on A8 usually complete (Fig. 30)..... .....***Ectomyelois ceratoniae*** (Zeller)

Distribution: nearly cosmopolitan including Florida

Hosts: 2006: *Annona* sp., *Annona cherimola*, *Capsicum* sp., *Capsicum annuum*, *Cassia* sp., *Castanea sativa*, *Ceratonia siliqua*, *Cereus* sp., *Chimonanthus* sp., *Citrus sinensis*, *Cucurbita* sp., *Cydonia* sp., *Cydonia oblonga*, *Dialium guineense*, *Dioscorea* sp., *Diospyros* sp., *Ficus carica*, *Juglans* sp., *Juglans nigra*, *Juglans regia*, *Lansium domesticum*, *Malus* sp., *Malus pumila*, *Malus sylvestris*, *Mangifera indica*, *Melicoccus bijugatus*, *Phaseolus* sp., *Phoenix* sp., *Phoenix dactylifera*, *Pithecellobium dulce*, *Prunus americana*, *Prunus avium*, *Psidium guajava*, *Punica* sp., *Pyrus communis*, *Pyrus pyriflora*, *Punica granatum*, *Sesbania* sp., *Tamarindus* sp., *Tamarindus indica*, *Vigna* sp., *Vigna unguiculata*, *Zea mays*

pre-1998: carob or locust bean, dates, legumes, nuts, and others

Note: If the origin is from the tropical areas of the Western Hemisphere it should be reported as "probably *E. decolor* (Zeller)"; see Neunzig 1979, 1990



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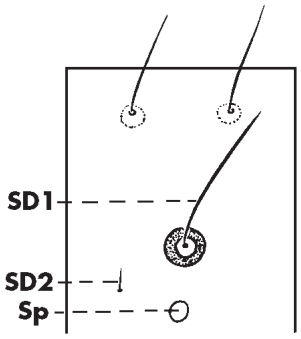


30

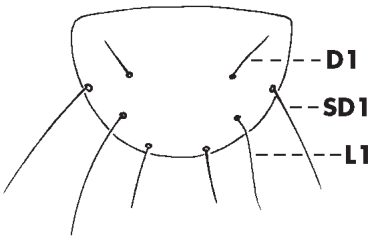
- Anal plate with seta SD1 equidistant from setae D1 and L1 (Fig. 31); seta SD2 of A8 usually separated from the spiracle by one to 1.5 times the diameter of the spiracle (Fig. 32); sclerotized ring around seta SD1 on A8 incomplete (Fig. 32).....***Amyelois transitella*** (Walker)

  Distribution: tropical Western Hemisphere including southern U.S.

  Hosts: 2006: *Citrus reticulata*, *Diospyros* sp., *Phaseolus* sp., *Phoenix* sp., *Pistacia vera*, *Randia echinocarpa*, *Vigna sesquipedalis*

  pre-1998: *Annona* sp., *Caesalpinia pulcherrima*, *Cajanus cajan*, *Citrus sinensis*, *Cydonia oblonga*, *Juglans* sp., *Malus* sp., *Malus sylvestris*, *Mangifera indica*, peach, peony, *Punica granatum*, *Pyrus communis*, *Randia* sp., *Tamarindus indica*, *Zea mays*, and other fruits and pods

  Note: see Neunzig 1990



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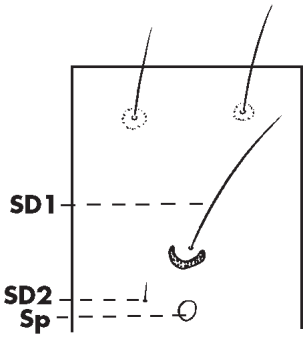

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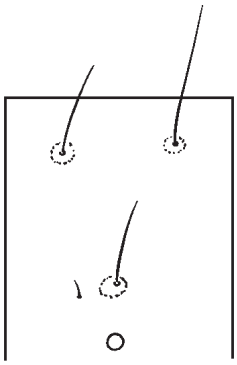

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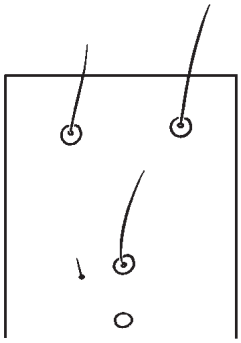


34

14. A1 to A8 apparently without pinacula (pinacula concolorous with body and not evident) (Fig. 33).....***Plodia interpunctella*** (Hübner)

  Distribution: cosmopolitan, adventive in Hawaii

  Hosts: 2006: *Abies nordmanniana*, *Anacardium occidentale*, *Ananas comosus*, *Arachis* sp., *Berberis* sp., *Camellia sinensis*, *Capsicum* sp., *Capsicum annuum*, *Castanea sativa*, *Cicer arietinum*, *Citrus* sp., *Coffea* sp., *Coffea arabica*, *Cola acuminata*, *Corylus* sp., *Cucurbita* sp., *Eucalyptus* sp., *Fernaldia pandurata*, *Ficus* sp., *Ficus carica*, *Gleditsia* sp., *Glycine max*, *Inga edulis*, *Juglans regia*, *Mentha* sp., *Morus* sp., *Musa paradisiaca*, *Olea* sp., *Oryza* sp., *Paeonia suffruticosa*, *Panax* sp., *Phaseolus* sp., *Pinus* sp., *Pistacia* sp., *Pistacia vera*, *Pithecellobium dulce*, *Pouteria sapota*, Poaceae, *Prosopis* sp., *Prunus* sp.,

Prunus americana, *Prunus armeniaca*, *Prunus avium*, *Prunus domestica*, *Prunus persica*, *Punica granatum*, *Pyrus communis*, *Raphanus* sp., *Sesamum orientale*, *Simmondsia chinensis*, *Solanum* sp., *Spondias dulcis*, *Tamarindus indica*, *Trifolium repens*, *Triticum aestivum*, *Vicia faba*, *Vitis* sp., *Zea mays*, *Ziziphus zizyphus*

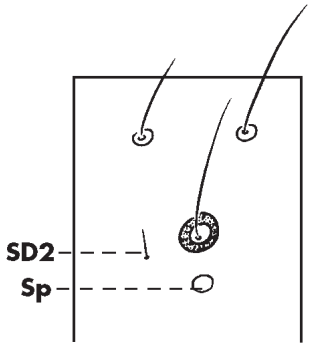
pre-1998: stored fruit, grain, and vegetable products

Note: see Neunzig 1990

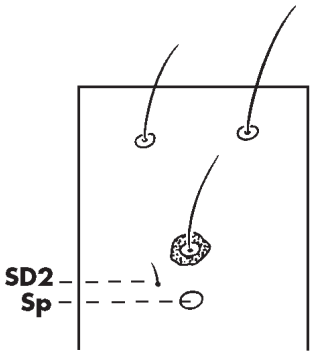
- A1 to A8 with small pigmented pinacula (Fig. 34).....15

15. A8 with seta SD2 separated from spiracle by 2 to 3 times the horizontal diameter of the spiracle (Fig. 35).....16

- A8 with seta SD2 separated from spiracle by a distance equal to the horizontal diameter of the spiracle (Fig. 36).....17



35



36

16. Spiracle of A8 as large as the area enclosed by the sclerotized ring around seta SD1 (Fig.37).. .....***Ephestia kuehniella*** (Zeller)

Distribution: nearly cosmopolitan; does not occur in Hawaii

Hosts: 2006: *Annona* sp., *Annona cherimola*, *Cajanus cajan*, *Chrysophyllum* sp., *Chrysophyllum cainito*, *Dennettia* sp., *Ixora* sp., *Mangifera indica*, *Moringa oleifera*, *Vigna unquiculata*, *Zea mays*

pre-1998: stored grain, stored and dried vegetable products

Note: see Neunzig 1990

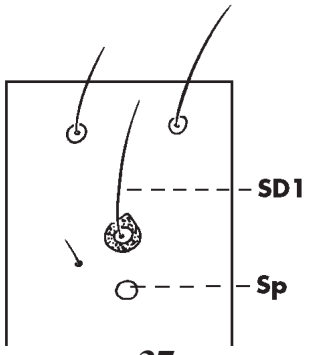
- Spiracle of A8 two-thirds or less as broad as the area enclosed by the sclerotized ring around seta SD1 (Fig. 38).....***Ephestia elutella*** (Hübner)

Distribution: Nearly cosmopolitan; does not occur in Hawaii

Hosts: 2006: *Acanthocereus* sp., *Allium* sp., *Allium sativum*, *Arctium lappa*, *Brassica* sp., *Capsicum* sp., *Castanea* sp., cereal products, *Citrus* sp., *Craspedia* sp., *Diospyros* sp., *Durio zibethinus*, *Eucalyptus* sp., *Ficus carica*, *Humulus lupulus*, *Hydrangea* sp., *Juglans* sp., *Juglans nigra*, *Lavandula* sp., *Malus* sp., *Medicago sativa*, *Ocimum basilicum*, *Oryza sativa*, *Persea americana*, *Phaseolus vulgaris*, *Protea* sp., *Prunus* sp., *Prunus armeniaca*, *Prunus avium*, *Punica granatum*, *Quercus* sp., *Ribes* sp., *Ribes rubrum*, *Tagetes* sp., *Triticum* sp., *Vitis* sp., *Zea mays*

pre-1998: stored and dried vegetable products

Note: see Neunzig 1990; early instars with partial sclerotization of SD1 ring A1 to



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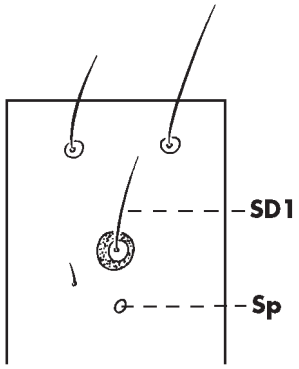


38

A7

17. Seta D2 of A1 to A 8, two to two and one-half times the length of seta D1 (Fig. 39) .....***Cadra cautella*** (Walker)

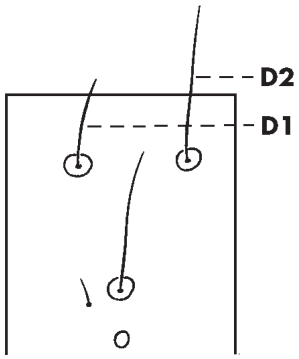
Distribution: cosmopolitan, adventive in Hawaii

Hosts: 2006: *Abelmoschus esculentus*, *Allium* sp., *Allium sativum*, *Anacardium* sp., *Anacardium occidentale*, *Ananas comosus*, *Arachis hypogaea*, *Arctium lappa*, *Areca* sp., *Areca catechu*, *Bambusa* sp., *Berberis* sp., *Bertholletia excelsa*, *Blighia sapida*, *Capsicum* sp., *Carica papaya*, *Chamaemelum nobile*, *Cicer arietinum*, *Citrus* sp., *Cocos nucifera*, *Coffea* sp., *Coffea arabica*, *Cola acuminata*, *Colocasia* sp., *Corylus* sp., *Crotalaria* sp., *Cucumeropsis manii*, *Cucurbita* sp., *Cuminum* sp., *Desmoncus* sp., *Elettaria cardamomum*, *Erythrina* sp., *Ficus carica*, *Glycine max*, *Guizotia abyssinica*, *Hordeum vulgare*, *Lavandula* sp., *Linum usitatissimum*, *Macadamia integrifolia*, *Malus* sp., *Malus sylvestris*, *Mangifera indica*, *Morus* sp., *Musa paradisiaca*, *Myristica fragrans*, *Oryza* sp., *Oryza sativa*, *Phaseolus* sp., *Phaseolus vulgaris*, *Phoenix dactylifera*, *Piper nigrum*, *Pisum sativum*, *Pithecellobium dulce*, *Prunus* sp., *Prunus americana*, *Prunus avium*, *Prunus persica*, *Psidium guajava*, *Pyrus communis*, *Rosa* sp., *Rubus* sp., *Sesamum orientale*, *Strelitzia reginae*, *Tamarindus* sp., *Tamarindus indica*, *Theobroma cacao*, *Triticum* sp., *Vaccinium* sp., *Vigna* sp., *Vitus* sp., *Zea mays*, cooked bamboo roots

pre-1998: stored and dried vegetable products

Note: see Neunzig 1990

- Seta D2 of A1 to A8, three to five times the length of seta D1 (Fig. 40).....18



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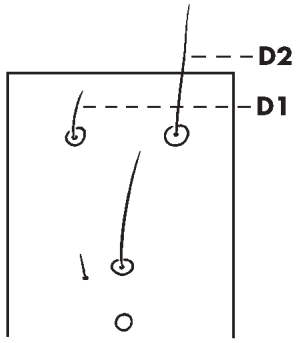

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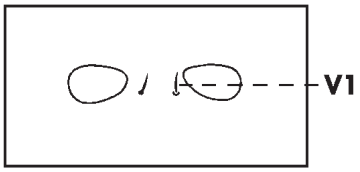
18. Metathorax with the distance between setae V1 2 times or less than the distance between seta V1 and the coxa (Fig. 41).....***Cadra figulilella*** (Gregson)
Distribution: nearly cosmopolitan; occurring in the continental U.S. and adventive in Hawaii
Hosts: 2006: *Allium sativum*, *Allium cepa*, *Alstroemeria* sp., *Berberis* sp., *Capsicum* sp., *Castanea sativa*, *Ficus* sp., *Ficus carica*, *Juglans* sp., *Litchi chinensis*, *Macadamia integrifolia*, *Manihot esculenta*, *Morus* sp., *Phaseolus* sp., *Phoenix* sp., *Phoenix dactylifera*, *Prunus* sp., *Prunus avium*, *Psidium* sp., *Prunus americana*, *Prunus domestica*, *Psidium guajava*, *Saccharum officinarum*, *Tamarindus indica*, *Zea mays*
pre-1998: dried beans, fruits, nuts, and seeds
Note: see Neunzig 1990

- Metathorax with the distance between setae V1 3 to 5 times the distance between seta V1 and the coxa (Fig. 42).....***Cadra calidella*** (Guenée)
Distribution: Mediterranean; does not occur in the U.S
Hosts: 2006: *Capsicum annuum*, *Castanea* sp., *Ceratonia siliqua*, dried foodstuffs, *Ficus* sp., *Ficus carica*, *Morus* sp., *Phoenix* sp., *Prunus* sp., *Prunus dulcis*, *Theobroma cacao*
pre-1998: dried fruit and nuts, *Plectranthus* sp. (seed), *Vitis vinifera*
Note: see Aitken 1963



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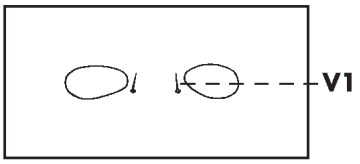


42

19. V1 on abdominal segment 7 as far apart as on segment 9 (Fig. 43); body without longitudinal dark bands.....**Phycitinae, Pyralinae**.....20

- V1 on abdominal segment 7 twice as far apart as on segment 9 (Fig. 44); body with longitudinal dark bands (Fig. 45).....**Epipaschiinae, *Phidotricha erigens*** (Ragonot)
Distribution: tropical Western Hemisphere including southern Florida
Hosts: 2006: *Averrhoa bilimbi*, *Benincasa hispida*, *Citrus sinensis*, *Cucumis* sp., *Mammea* sp., *Mimosa asperata*, Passion fruit, *Petiveria alliacea*, *Pithecellobium dulce*, *Vigna* sp., *Zea mays*, *Zingiber* sp.
pre-1998: cotton, lima bean, loquat, mango, sorghum, tamarind
Note: misidentified in the literature as *Pococera atramentalis* Lederer (Solis 1993); see Allyson 1977

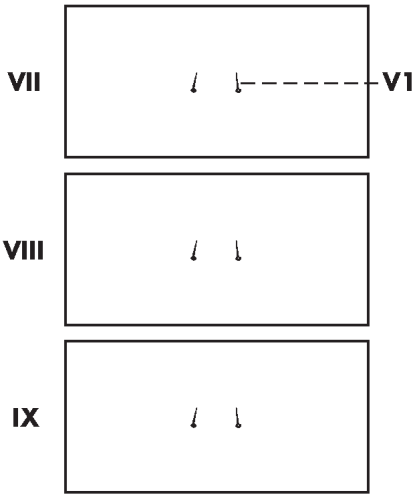
20. Prothoracic shield with pattern of dark markings as illustrated (Fig. 46)..... .....**Phycitinae, *Etiella zinckenella*** (Treitschke)
Distribution: nearly cosmopolitan; does not occur in Hawaii
Hosts: 2006: *Abelmoschus esculentus*, *Artemisia* sp., *Caesalpinia pulcherrima*, *Cajanus cajan*, *Capsicum annuum*, *Castanea* sp., *Castanea sativa*, *Cicer arietinum*, *Cucumis* sp., *Cucurbita* sp., *Cydonia oblonga*, *Lablab purpureus*, *Malus* sp., *Malus pumila*, *Opuntia* sp., *Parkia* sp., *Parkia speciosa*, *Persea americana*,

Phaseolus sp., *Phaseolus lunatus*, *Phaseolus vulgaris*, *Pisum* sp., *Pisum sativum*, *Solanum* sp., *Solanum tuberosum*, *Vicia faba*, *Zea mays*

pre-1998: legumes and other stored vegetable products

Note: because several immatures of species are indistinguishable, it should be reported as " *Etiella* sp." if the origin is southeast Asia; markings on prothorax can be more or less distinct

- Prothoracic shield not patterned as above.....21



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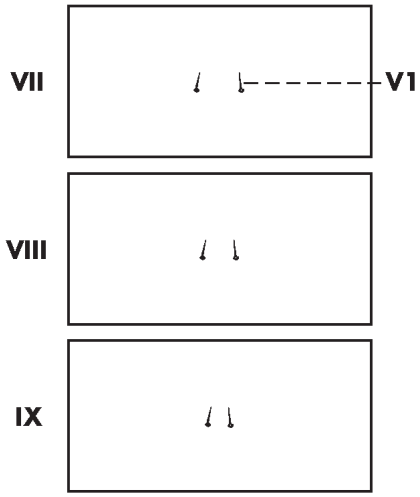

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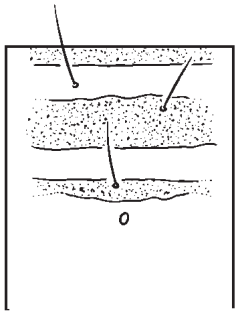

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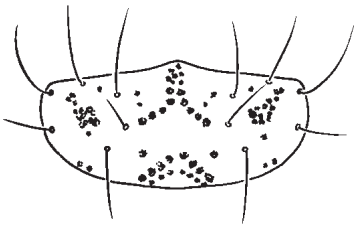


46

21. Head with only 4 distinct ocelli (ocelli I and II fused and ocellus VI usually missing) (Fig. 47); A9 with one subventral seta (Fig. 48).....***Pyralis farinalis*** Linnaeus

Distribution: nearly cosmopolitan, does not occcur in Hawaii

Hosts: 2006: *Allium* sp., *Alpinia purpurata*, foodstuffs, *Musa* sp., *Narcissus tazetta*, packing, *Triticum* sp.

pre-1998: dried vegetable products

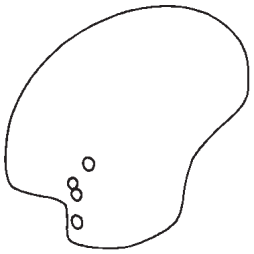
Note: the packing is usually associated with polished monuments, marble blocks, and tiles in wood crates

- Head with 6 ocelli (Fig. 49); A9 with two subventral setae (Fig.50)..... .....***Aglossa caprealis*** (Hübner)

Distribution: Nearly cosmopolitan, does not occur in Hawaii

Hosts: 2006: *Allium sativum*, *Momordica* sp.

pre-1998: damp grain and rotting vegetable matter, *Nephelium lappaceum*, packing in crates, *Persea americana*



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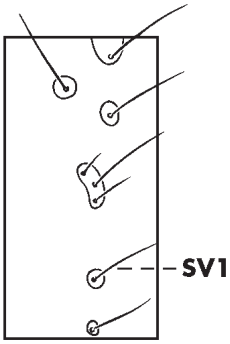

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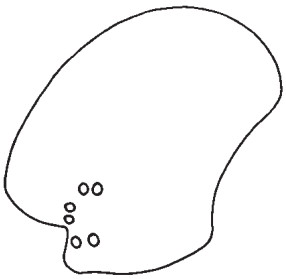

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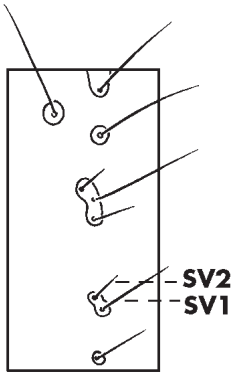
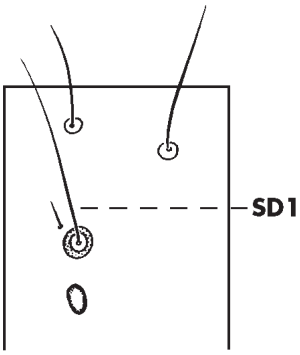


50

22. Sclerotized ring around seta SD1 of metathorax (Fig. 51).....**Chrysauginae**
- Sclerotized ring around seta SD1 of A1 (Fig. 52).....**Galleriinae**.....23



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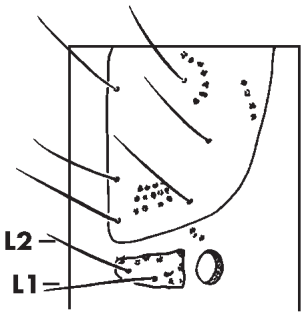
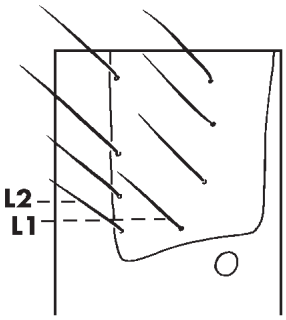


52

23. Prespiracular and prothoracic shields entirely fused (Fig. 53).....24
- Prespiracular and prothoracic shields not fused (Fig. 54).....25

24. Sclerotized rings around seta SD1 on A2 to A7 in addition to A1 and A8.....
..... ***Alpheias conspirata*** Heinrich
Distribution: Mexico
Hosts: *Ananas comosus*
Note: See Solis 2003b

- No sclerotized rings around seta SD1 on A2 to A7; sclerotized rings around A1 and A8 only .....***Genopaschia protomis*** Dyar
  Distribution: Panama
  Hosts: *Ananas comosus*
  Note: See Solis 2003b



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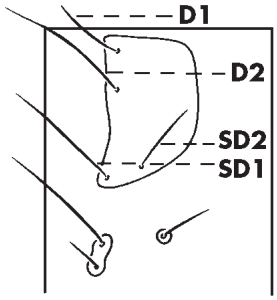
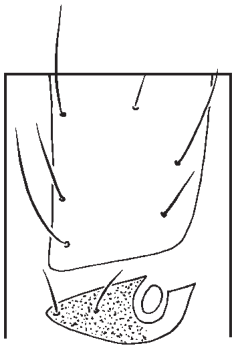


54

25. Prespiracular shield of prothorax not extending below and behind spiracle (Fig. 52).....26
- Prespiracular shield of prothorax extending below and behind the spiracle (Fig. 55)..... .....***Trachylepidia fructicassiella*** Ragonot
  Distribution: pantropical
  Hosts: 2006: *Cassia* sp., *Cassia fistula*, *Cassia grandis*, dried vegetable products, *Vigna* sp.
  pre-1998: *Inga*



55

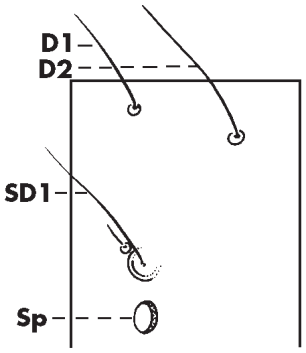
26. Sclerotized ring around seta SD1 on A1 and A8 not complete (Fig. 56); spiracular peritreme thicker on caudal margin (Fig. 56); pinacula of setae D1 and D2 on abdominal segments not pigmented (Fig. 56).....***Corcyra cephalonica*** (Stainton)
  Distribution: cosmopolitan
  Hosts: 2006: *Anacardium occidentale*, *Arachis* sp., *Bertholletia* sp., *Brassica* sp., *Cucurbita* sp., *Guazuma ulmifolia*, *Lens* sp., *Oryza* sp., *Oryza sativa*, *Phaseolus* sp., *Phaseolus vulgaris*, *Prunus americana*, *Sorghum bicolor*, *Theobroma cacao*, *Triticum* sp., *Vicia* sp.
  pre-1998: *Abelmoschus esculentus*, *Acacia* sp., cacao, *Cassia* sp., coffee, *Cola* sp., *Cuminum* sp., *Inga* sp., *Sesamum orientale*, *Sorghum* sp., stored vegetable products

- Sclerotized rings around seta SD1 on A1 and A8 complete (Fig. 57); spiracular peritremes of uniform thickness (Fig. 57); pinacula of setae D1 and D2 on abdominal segments pigmented (Fig. 57) .....***Paralipsa gularis*** (Zeller)

  Distribution: nearly cosmopolitan, adventive in Hawaii

  Hosts: 2006: *Ananas* sp., *Arctium lappa*, *Capsicum annuum*, *Cucurbita* sp., *Dimocarpus longan*, *Garcinia mangotana*, *Lansium domesticum*, *Nephelium lappaceum*, *Phoenix* sp., *Phoenix dactylifera*, *Punica granatum*, *Rhododendron* sp., *Solanum* sp., *Solanum melongena*, *Solanum tuberosum*, *Triticum aestivum*, *Zea mays*

  pre-1998: *Ananas comosus*, *Areca catechu*, *Bambusa* sp., *Calophyllum antillanum (brasiliense)*, *Cassia* sp., *Castanea* sp., *Ceratonia siliqua*, dunnage, *Elasis* sp., *Oncidium* sp., papyrus, *Stirlingia* sp., stored vegetable products



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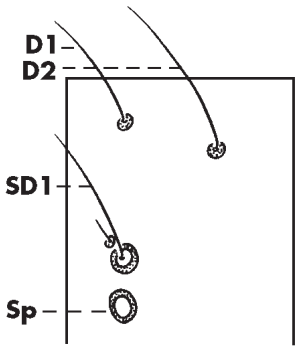


57

27. Lateral gills on body segments (Figs. 58, 59).....
.....**Acentropinae**.....***Parapoynx diminutalis*** Snellen

  Distribution: southeastern Asia, Africa, Australia, Europe, U.S.

  Hosts: 2006: *Cabomba caroliniana*, *Dracaena fragrans*, *Egeria densa*, *Hygrophila* sp., *Ludwigia* sp., *Mayaca fluviatilis*, *Rotala* sp., *Vallisneria* sp., *Vallisneria americana*

  pre-1998: *Cabomba* sp., *Hydrilla* sp., *Limnophila* sp., *Myriophyllum* sp.

  Note: Fig. 59 is an enlargement of one lateral gill, note base; *P. fluctuosalis* is adventive in Hawaii; Acentropinae = Nymphulinae; see Goater 1986

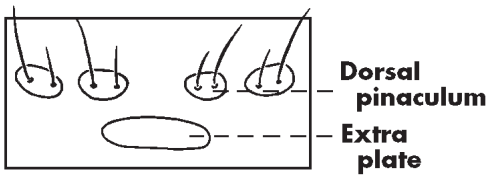
- Without lateral gills.....28

58

59

28. With membranous sac or gibbosity anterior to prothoracic coxae.....**Schoenobiinae**
Hosts: 2006: *Typha latifolia*
pre-1998: *Pistia stratiotes*
Note: for further information on this group see Passoa (1987) and Stehr (1987)
- Without membranous sac or gibbosity anterior to prothoracic coxa.....29

29. A single transverse plate posterior to dorsal pinacula on mesothorax (Fig. 60); crochets in complete circle (Fig. 61) .....**Crambinae**.....30
- A pair of transverse plates posterior to dorsal pinacula on mesothorax (Fig. 62) or plates absent; crochets in a mesal penellipse (Fig. 63) (or may be a circle weaker on lateral edge in *Lineodes integra* and *Udea rubigalis)* (Figs. 91, 93).....



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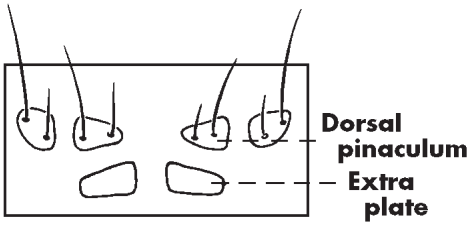
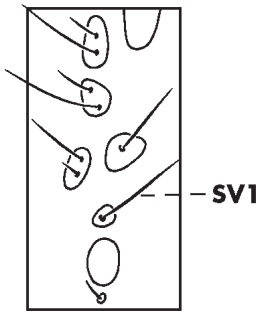


62

63

.....**Pyraustinae, Glaphyriinae, Evergestinae**.....32
Note: Unless otherwise stated, the taxa following couplet 31 are **Pyraustinae**

30. One subventral seta on meso- and metathorax (Fig. 64); body with 2 pink longitudinal stripes on each side (Fig. 65); pink-pigmented area around lateral setae on proleg-bearing segments..
.....***Eoreuma loftini*** (Dyar)
Distribution: Mexico and United States
Hosts: 2006: *Cymbopogon citratus*, *Saccharum* sp., *Saccharum officinarum*
pre-1998: corn, millet, rice, sorghum
Note: one SV seta also occurs in *Crambus;* see Rodriguez-del-Bosque et al. 1990



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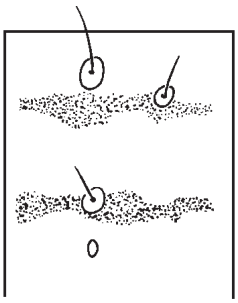
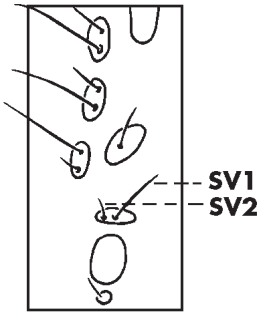

65

- Two subventral setae on meso- and metathorax (Fig.66); body with or without pigmented stripes; no pigmented area around lateral setae on proleg-bearing segments.....31



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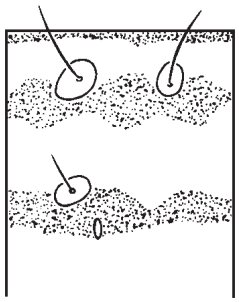


67

31. Body with pinkish middorsal stripe and two lateral stripes on each side (Fig. 67); setal pinacula concolorous with body.....***Chilo suppressalis*** (Walker)
Distribution: Europe, Middle East, Southeast Asia to India, Oceania; adventive in Hawaii
Hosts: 2006: *Cymbopogon citratus*, *Cymbopogon flexuosus*, reed, *Phragmites* sp., *Phragmites australis*, *Saccharum* sp., *Saccharum officanarum*
pre-1998: cabbage, corn, eggplant, millet, rice straw, sugarcane, sorghum, tomato, and wheat, many others
Note: early instars with crochets in an incomplete circle on specimens on reed from China see Bleszynski 1970; Meijermann & Ulenberg 1996; Whittle & Ferguson 1988

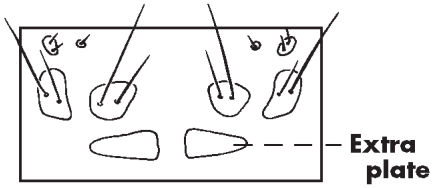
- Body with or without lateral stripes, but without pinkish middorsal stripe; setal pinacula concolorous with body (winter form) or darkly pigmented (summer form).....***Diatraea*** spp.
Distribution: tropical Western Hemisphere including southern U.S.
Hosts: 2006: *Cymbopogon citratus*, *Cyperus papyrus*, *Musa* sp., *Saccharum officinarum*, *Spartina alterniflora*, *Tripsacum dactyloides*, *Zea mays*
pre-1998: rice, sorghum
Note: Some species of *Chilo* will key to *Diatraea* based on color pattern (Passoa, pers. comm.), but *Diatraea* does not occur in the Old World*;* see Box 1931; Dyar & Heinrich 1927; Riey & Solis 2005; Solis 2004.

32. Meso- and metathorax without nonsetal bearing plates posterior to dorsal pinacula.....33
- Meso- and metathorax with a pair of nonsetal bearing plates posterior to dorsal pinacula (Fig. 68).....34

33. Small pinacula anterior to dorsal and subdorsal pinacula bearing microscopic setae on meso- and metathorax (also occurring in *L. orbonalis*, see couplet 36) (Fig. 68).....***Pyrausta*** sp.
Distribution: cosmopolitan
Hosts: 2006: *Acalypha hispida*, *Allium* sp., *Allium cepa*, *Anthemis* sp., *Citrullus lanatus*, *Crotalaria* sp., *Erythrina* sp., *Gomphrena* sp., *Limonium* sp., *Lippia graveolens*, *Mentha* sp., *Mentha arvensis*, *Mentha piperita*, *Momordica charantia*, *Ocimum* sp., *Ocimum basilicum*, *Origanum* sp., *Origanum vulgare*, *Origanum magorana*, *Rosmarinus* sp., *Rosmarinus officinalis*, *Salvia* sp., *Salvia officinalis*, *Satureja hortensis*, *Spinacia oleracea*, *Thymus* sp., *Thymus*

vulgaris, *Xanthosoma* sp.
pre-1998: *Amaranthus* sp.
Note: According to Allyson (1981b) last instar larvae are characterized by 2 or 3 SV setae on A1, prothoracic shield lightly pigmented, pinacula below spiracles with paler pigmentation than those above spiracles, body at most 20 mm long; although the genus is cosmopolitan, most of the interceptions on the host plants are from the tropical Western Hemisphere

- No small pinacula anterior to dorsal and subdorsal pinacula (Fig. 69).....36



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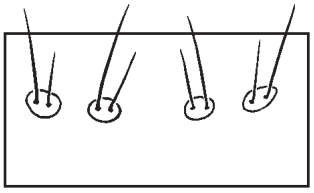

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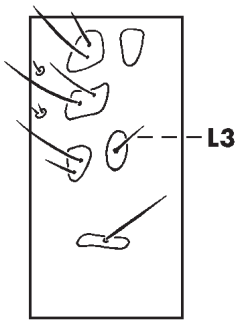
34. No extra nonsetal bearing plate below seta L3 on meso- and metathorax (Fig. 70) and behind L1 and L2 on abdominal segments 1 to 7 (Fig. 71).....35

- An extra nonsetal bearing plate below seta L3 on meso- and metathorax (Fig. 72) and behind L1 and L2 on A1 to A7 (Fig. 73)..... .....***Conogethes*** spp.

Distribution: southeast Asia, including India and Pakistan, Australia; does not occur in Hawaii
Hosts: 2006: *Castanea* sp., *Castanea sativa*, *Dimocarpus longan*, *Eugenia* sp., *Euphorbia* sp., *Gardenia* sp., *Litchi chinensis*, *Nephelium lappaceum*, *Psidium* sp., *Psidium guajava*, *Pyrus communis*, *Syzygium* sp., *Syzygium jambos*, *Syzygium malacense*, *Syzygium samarangese*
pre-1998: *Catalpa*, peach, pine
Note: prespiracular shield of prothorax extending below and beyond spiracle (Fig. 74); this species was known as *Dichocrocis punctiferalis* (Guenée); *C. punctiferalis* is a complex of species (unpublished).



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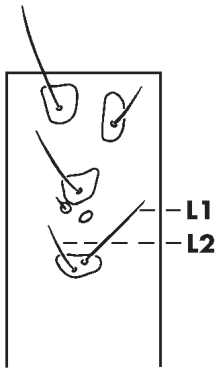

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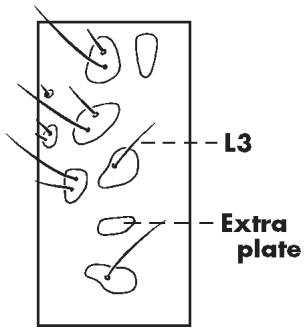

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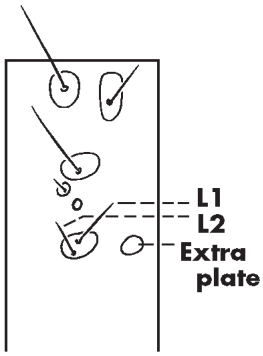


73

35. Prespiracular shield of prothorax crescent shaped extending below spiracle (Fig. 75)..... .....***Maruca vitrata*** (Fabricius)

Distribution: Africa, Asia, Australia, Mexico to South America, adventive in Hawaii
Hosts: 2006: *Lablab* sp., *Lablab purpureus*, *Lathyrus* sp., *Limonium sinuatum*, *Phaseolus*

sp., *Phaseolus lunatus*, *Phaseolus vulgaris*, *Pisum sativum*, *Psophocarpus tetragonolobus*, *Sesbania grandiflora*, *Vigna* sp., *Vigna sesquipedalis*, *Vigna unguiculata*

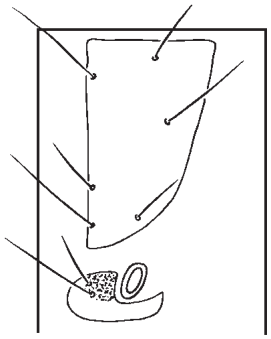
pre-1998: beans, legumes, peas, pigeion pea

Note: this species was known as *Maruca testulalis* (Geyer), synonymized by Munroe et al. 1995; there are a few records of adults captured in the southern U.S; see also Ferguson, not dated; Solis 2003

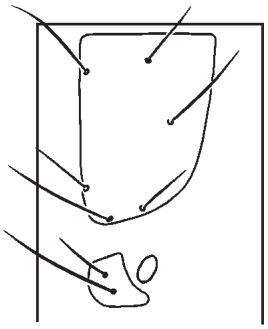
- Prespiracular shield of prothorax extending below and behind spiracle (Fig. 76)..... .....***Megastes*** sp.

Distribution: West Indies

Host: sweet potato



74



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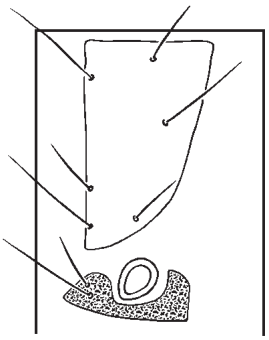


76

36. Head capsule with a lobelike extension over base of antenna (Fig.77)..... .....***Ostrinia nubilalis*** (Hübner)

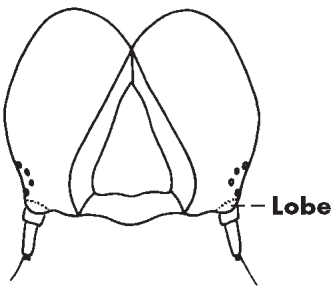
Distribution: Europe and United States

Hosts: 2006: *Capsicum* sp., *Capsicum annuum*, *Malus* sp., *Phaseolus* sp., *Phaseolus lunatus*, *Phaseolus vulgaris*, strawberry, *Zea mays*

pre-1998: beans, beets, celery, clover, cucumber, eggplant, lettuce, peas, potatoes, rhubarb, string bean, tomato, wheat

Note: see Heinrich 1919; Allyson 1981b

- Head capsule without a lobelike extension over base of antenna (Fig. 78).....37



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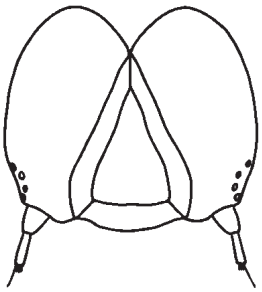
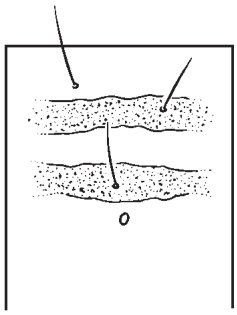


78

37. Dorsal and subdorsal setae of the abdominal segments on strongly conical black chalazae.....
.....**Evergestinae, *Evergestis rimosalis*** (Guenée)
Distribution: Western Hemisphere
Hosts: 2006: *Brassica* sp.
pre-1998: Brassicaceae: cabbage, brussel sprouts, cauliflower, watercress
Note: it should be reported as "probably *E. forficalis* (L.)" if the origin is Europe; see Munroe 1973

- Abdominal segments without conical black chalazae.....38



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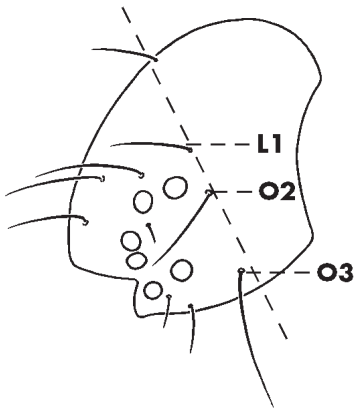
38. Body with pinkish longitudinal stripes (Fig. 79).....39
- Body without pinkish longitudinal stripes.....40



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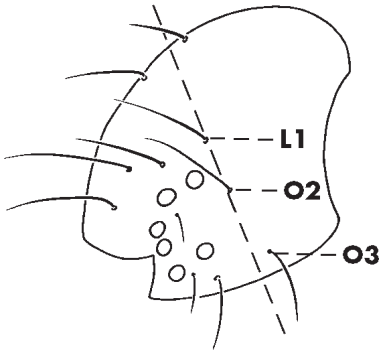

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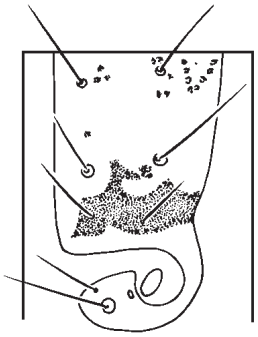
39. Head blackish or brownish with whitish areas along adfrontal sutures extending to vertex, seta O3 anterior to a line joining setae L1 and O2 (Fig. 80).....
.....**Glaphyriinae**, ***Hellula rogatalis*** (Hulst)
Distribution: Western Hemisphere; does not occur in Hawaii
Hosts: 2006: *Brassica* sp., *Brassica chinensis*, *Brassica oleracea*, *Brassica rapa*
pre-1998: mustard, radish, other Brassicaceae
Note: should be reported as "probably *H. undalis* (F.)" if the origin is the Old World; see Munroe 1972; Allyson 1981a

- Head pale, mottled, area along adfrontal sutures pale but not white, seta O3 posterior to a line joining setae L1 and O2 (Fig. 81).....**Glaphyriinae**, ***Hellula phidilealis*** (Walker)
  Distribution: Western Hemisphere; adventive in Hawaii
  Hosts: 2006: *Brassica* sp., *Brassica oleracea*, *Brassica pekinensis*, *Brassica rapa*, *Raphanus sativus*, *Spinacia oleracea*
  pre-1998: white chard, and other Brassicaceae
  Note: see Munroe 1972



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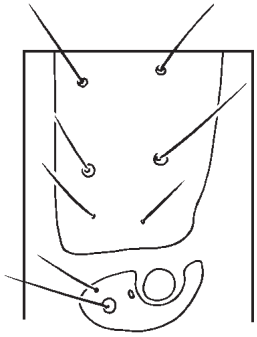

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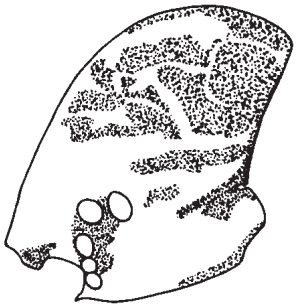
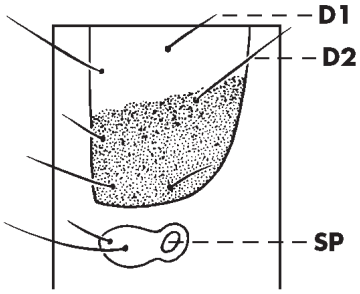


84

40. Prespiracular shield of prothorax extending below and behind spiracle (Figs. 82, 83).....41
- Prespiracular shield of prothorax not extending below and behind spiracle, but may completely enclose the spiracle (Figs.85, 87).....42

41. Prothorax with sclerotization extending from posterolateral margin of prothoracic shield behind and below spiracle to prespiracular shield (Fig. 82).....***Achyra rantalis*** (Guenée)
  Distribution: Mexico,West Indies, and United States
  Hosts: 2006: *Medicago sativa*, *Rosa* sp., *Sesuvium* sp., *Zea mays*
  pre-1998: beets, cotton, soybean, and many others
  Note: see Allyson 1976, 1981b
- Prespiracular shield of prothorax extending below and behind spiracle, not fused with posterolateral margin of prothoracic shield (Fig. 83).....***Loxomorpha flavidissimalis*** Grote
  Distribution: Mexico
  Hosts: cactus

42. Head yellow with dark pattern (Fig. 84); prothoracic shield broadly shaded laterally (Figs. 85, 87).....43
- Head not patterned; prothoracic shield without dark shading laterally.....44



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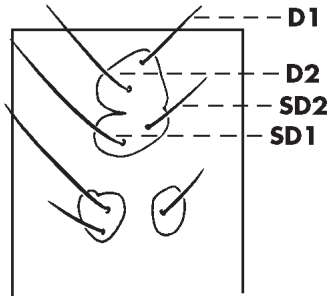


86

43. Prespiracular shield enclosing the spiracle (Fig. 85); A1 with SV trisetose; prothoracic shield with dark lateral shading extending to seta D2 (Fig. 85); dorsal and subdorsal pinacula of mesothorax fused (sometimes not fused in early instars) (Fig. 86)..... .....***Herpetogramma bipunctalis*** (Fabricius)

Distribution: Western Hemisphere

Hosts: 2006: *Amaranthus* sp., *Amaranthus caudatus*, *Anthemis* sp., *Asparagus officinalis*, *Brassica oleracea*, *Capsicum* sp., *Colysis pteropus*, *Corchorus olitorius*, *Coriandrum sativum*, *Gomphrena* sp., *Jatropha* sp., *Piper aduncum*, *Solanum nigrum*, *Spinacia* sp., *Strobilanthes* sp., *Xanthosoma* sp., *Xanthosoma brasiliense*

pre-1998: alfalfa, beets, cotton, soybean

Note: see Allyson 1984

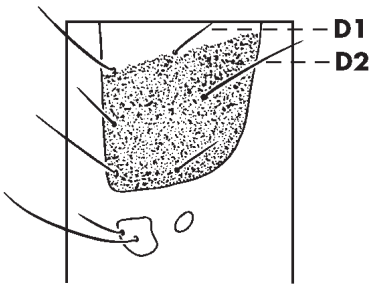
- Prespiracular shield not enclosing the spiracle (Fig. 87); A1 with SV setae bisetose; dorsal and subdorsal pinacula of mesothorax usually not fused (Fig. 88)..... .....***Rhectocraspeda periusalis*** (Walker)

Distribution: West Indies and United States

Hosts: 2006: *Amaranthus* sp., *Chenopodia charantia*, *Fernaldia* sp., *Momordica charantia*, *Strobilanthes* sp.

pre-1998: Solanaceae, including eggplant, potatoes, and tomato

Note: *Pilemia* Möschler is a junior synonym of *Rhectocraspeda* Warren, new combination in Munroe et al. 1995



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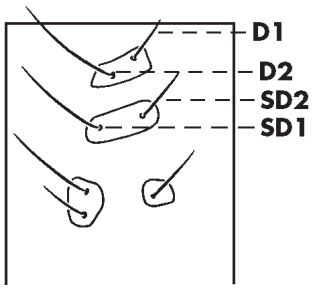

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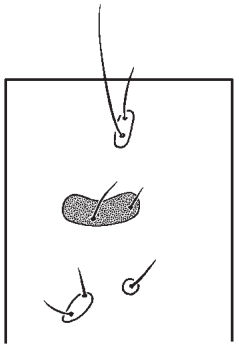
44. Prothoracic shield with at least one dark reniform spot posterior to seta XD2 (Figs. 90, 92).....45

- Prothoracic shield without dark reniform spot posterior to seta XD2.....47



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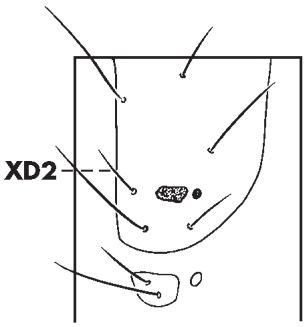

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91

45. D1 and D2 on mesothorax on the same sclerotized pinaculum (Fig. 89)..... .....***Spoladea recurvalis*** Fabricius

Distribution: cosmopolitan, adventive in Hawaii

Hosts: 2006: *Amaranthus* sp., *Apium graveolens*, *Atriplex* sp., *Beta vulgaris*, *Spermacoce* sp., *Bougainvillea* sp., *Brassica* sp., *Carya illinoinensis*, *Celosia* sp., *Chenopodium* sp., *Chrysanthemum* sp., *Colocasia* sp., *Corchorus* sp., *Corchorus olitorius*, *Eryngium foetidum*, *Eupatorium* sp., *Hemigraphis alternata*, *Impatiens* sp., *Jatropha curcas*, *Lactuca* sp., *Mentha* sp., *Nomaphila* sp., *Ocimum basilicum*, *Petroselinum crispum*, *Phytolacca* sp., *Phytolacca americana*, *Polygonum perfoliatum*, *Porophyllum* sp., *Ruta* sp., *Salvia officinalis*, *Spinacia* sp., *Spinacia oleracea*, *Viburnum* sp., *Xanthosoma* sp., *Xanthosoma brasiliense*, *Xanthosoma hastifollium*, *Zea mays*

pre-1998: Amaranthaceae, Areca palm, Asteraceae, beets ,Chenopodiaceae, soybean, Swiss chard

Note: see Allyson 1984

- D1 and D2 on mesothorax on separate, unsclerotized pinacula.....46

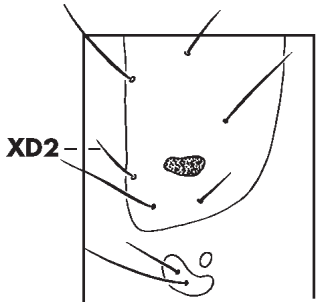
46. Prespiracular shield ovate (Fig. 90); crochets triordinal on mesal aspect (Fig. 91)..... .....***Udea rubigalis*** (Guenée)

Distribution: Canada south to Costa Rica

Hosts: 2006: *Amaranthus* sp., *Apium graveolens*, *Aster* sp., *Beta vulgaris*, *Chrysanthemum* sp., *Coriandrum sativum*, *Daucus* sp., *Daucus carota*, *Eryngium foetidum*, *Ipomoea* sp., *Limonium* sp., *Mentha* sp., *Momordica charantia*, *Ocimum* sp., *Ocimum basilicum*, *Petroselinum crispum*, *Pimenta dioica*, *Raphanus sativus*, *Solidago* sp., *Spinacia oleracea*

pre-1998: alfalfa, cabbage, celery, *Chrysanthemum*, clover, cucumber, lettuce, peas, rose, sugar beet, sweet potato

Note: should be reported as "probably *Udea ferrugalis* (Hübner)" if the origin is rope; see Allyson 1984



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93

- Prespiracular shield crescent shaped extending below spiracle (Fig. 92); crochets biordinal on mesal aspect (Fig. 93).....***Lineodes integra*** (Zeller)

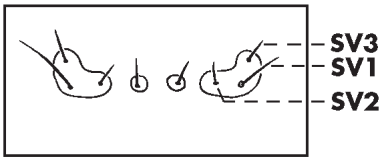
Distribution: Western Hemisphere

Hosts: 2006: *Capsicum* sp., *Lavandula* sp., *Physalis peruviana*, *Physalis philadelphica*, *Solanum lycopersicum, Solanum torvum*, *Thymus* sp.

pre-1998: Solanaceae, including eggplant

47. A1 with three subventral setae (Fig. 94).....48
- A1 with less than three subventral setae (Figs. 99, 101).....49

48. Prothorax with seta XD2 equidistant from setae SD1 and XD1 (Fig. 95); crochets biordinal (Fig. 96).....***Hendecasis duplifascialis*** Hampson
Distribution: southeastern Asia, does not occur in Hawaii
Hosts: 2006: *Cestrum* sp., *Dianthus* sp., *Gardenia* sp., *Gardenia jasminoides*, *Jasminum sambac*, *Murraya paniculata*, *Musa* sp., Orchidaceae, *Plumeria rubra*, *Polianthes tuberosa*, *Rosa* sp.
pre-1998: jasmine
- Prothorax with seta XD2 closer to seta SD1 than to seta XD1 (Fig. 97); crochets triordinal (Fig. 98).....***Duponchelia fovealis*** Zeller
Distribution: Europe, Middle East, Africa
Hosts: 2006: *Annona* sp., *Amaranthus* sp., *Anemone* sp., *Anthurium* sp., *Begonia* sp., *Beta vulgaris*, *Capsicum* sp., *Capsicum annuum*, *Limonium* sp., *Mentha* sp., *Ocimum basilicum*, *Origanum majorana*, *Paeonia* sp., *Sarracenia* sp., *Solanum lycopersicum, Tanacetum* sp.
Note: SV1 pinaclum elongate on all thoracic segments, darkly sclerotized pinacullum 3X as long as wide poserior to the seta. Commonly inercepted on peppers from the Netherlands, but has been foudn in a wide variety of hosts including cut flowers.



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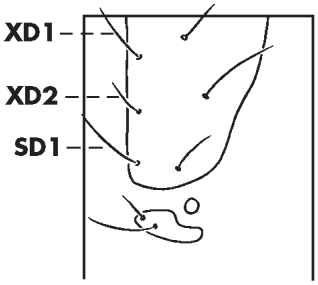

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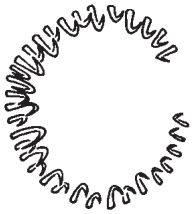
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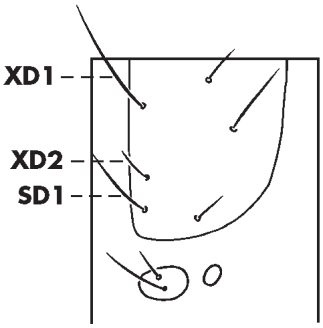

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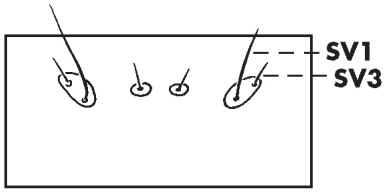

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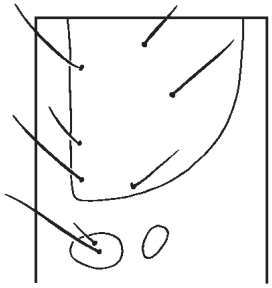
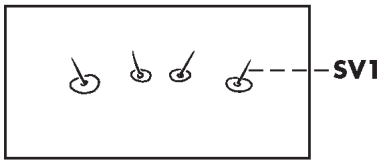


100

49. A1 with two (rarely three) subventral setae (Fig. 99); prespiracular shield oblong (Fig. 100); pinaculum of seta D1 on A2 to A8 without dark spot on anterior margin (Fig. 103).....50

\- A1 with one subventral seta (Fig. 101); prespiracular shield crescent shaped, may extend under spiracle (Fig. 102); pinaculum of seta D1 on A 2 to A 8 with dark spot on anterior margin (Fig. 103) (dark spot can appear very shiny white after preservation) 51



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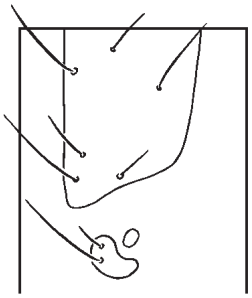

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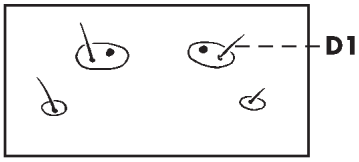


103

50. Head with a pigmented spot at genal angle (Fig. 104); mandible without a projection on lateral margin (Fig. 105); pinacula dark on early instars, pale in later instars..... .....***Diaphania nitidalis*** (Cramer)

Distribution: Tropical worldwide

Hosts: 2006: *Coccinia* sp., *Coccinia grandis*, *Cucumis* sp., *Cucumis melo*, *Cucumis sativus*, *Cucurbita* sp., *Cucurbita pepo*, *Sechium edule*, *Coccinia* sp., *Luffa* sp., *Momordica* sp., *Momordica charantia*, *Physalis philadelphica*

pre-1998: Cucurbitaceae, including gourd, melon, squash

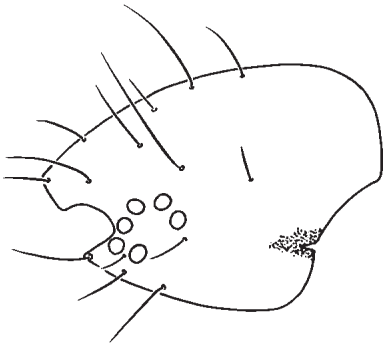
\- Head without pigmented spot at genal angle; mandible with a projection on lateral margin (Fig. 106); pinacula concolorous with body in all instars..... .....***Diaphania indica*** Saunders complex

Distribution: tropical worldwide, including Western Hemisphere

Hosts: 2006: *Coccinia* sp., *Cucurbita* sp., *Cucurbita pepo*, *Fernaldia* sp., *Luffa* sp., *Luffa acutangula*, *Momordica* sp., *Momordica charantia*, *Momordica balsimina*, *Murraya* sp., *Ocimum basilicum*, *Sechium edule*, *Thymus vulgaris*

pre-1998: Cucurbitaceae, including cucumber, cantaloupe, gourd, melon, pumpkin, squash

Note: to separate pupae of *D. hyalinata* (L.) from *D. indica* (Saunders): proboscis extends to A7 in *indica* and to A8 or A9 in *hyalinata; hyalinata* occurs from Canada south to Argentina, *indica* is cosmopolitan, in the Western Hemisphere occurring from Florida to South America; see Whittle & Ferguson 1987a; Clavijo 1990.



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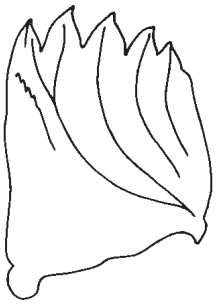

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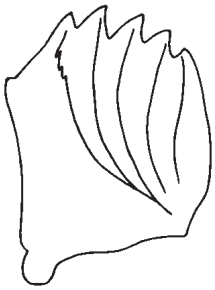

106

51. Head, prothoracic shield, and body pinacula brownish yellow, not concolorous..... .....***Leucinodes orbonalis*** (Guenée)

Distribution: Africa and Southeast Asia, does not occur in Hawaii

Hosts: 2006: *Capsicum* sp., *Cyphomandra betacea*, *Punica granatum*, *Solanum* sp., *Solanum melongena*, *Solanum torvum*

pre-1998: chayote, potatoes, Solanaceae, tomato

Note: The character that separates *L. orbonalis* from *N. elegantalis*, the presence of a dark spot on the anterior margin of the pinaculum of seta D1 of A2 to A8, was found to occur in both species; no adults of this species have been observed from the Western Hemisphere; see Capps 1948 and Whittle & Ferguson 1987b

\- Head and prothoracic shield pale yellow, pinacula concolorous with body..... .....***Neoleucinodes elegantalis*** (Guenée)

Distribution: Mexico to South America, and West Indies

Hosts: 2006: *Capsicum* sp., *Capsicum annuum*, *Sechium edule*, *Solanum* sp., *Solanum lycopersicum, Solanum melongena*, *Solanum quitoense*, *Solanum torvum*

pre-1998: Solanaceae

Note: See Capps 1948

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Table 2: Hosts and pyraloid larvae.

Host	Pyraloid Species	Page	Key Couplet
abata cola	*Cadra cautella* (Walker)	16	17
	Plodia interpunctella (Hübner)	14	14
Abelmoschus esculentus	see okra		
Abies nordmanniana	see Nordman fir		
acacia	*Corcyra cephalonica* (Stainton)	20	26
Acacia	see acacia		
Acalypha hispida	see chenille plant		
Acanthocereus	see cactus		
Afzelia	see mahogany		
akee	*Achyra rantalis* (Guenée)	27	41
alfalfa	*Cadra cautella* (Walker)	16	17
	Elasmopalpus lignosellus (Zeller)	9	6
	Ephestia elutella (Hübner)	15	16
	Herpetogramma bipunctalis (Fabricius)	27	43
	Udea rubigalis (Guenée)	29	46
Allium	*Cadra cautella* (Walker)	16	17
	Ephestia elutella (Hübner)	15	16
	Pyralis farinalis Linnaeus	18	21
	Pyrausta sp.	23	33
Allium cepa	see onion		
Allium sativum	see garlic		
allspice	*Udea rubigalis* (Guenée)	29	46
almond, sweet	*Cadra calidella* (Guenée)	17	18
Alpinia purpurata	see red ginger		
Alstroemeria	see amaryllis		
amaranth	*Herpetogramma bipunctalis* (Fabricius)	27	43
	Pyrausta sp.	23	33
Amaranthaceae	*Spoladea recurvalis* Fabricius	28	45
Amaranthus	*Cryptoblabes* sp.	10	6
	Duponchelia fovealis Zeller	30	48
	Herpetogramma bipunctalis (Fabricius)	27	43
	Pyrausta sp.	23	33
	Rhectocraspeda periusalis (Walker)	28	43
	Spoladea recurvalis Fabricius	28	45
	Udea rubigalis (Guenée)	29	46
Amaranthus caudatus	see tassel flower		
amaryllis	*Cadra figulilella* (Gregson)	17	18
Anacardium	*Cadra cautella* (Walker)	16	17
Anacardium occidentale	see cashew		
Ananas	*Paralipsa gularis* (Zeller)	20	26
Ananas comosus	see pineapple		
Anemone	*Duponchelia fovealis* Zeller	30	48
Annona	*Amyelois transitella* (Walker)	14	13
	Duponchelia fovealis Zeller	30	48
	Ectomyelois ceratoniae (Zeller)	13	13
	Ephestia kuehniella (Zeller)	15	16
Annona cherimola	see chirimoya		
Annona squamosa	see sugar apple		
Anthemis	*Herpetogramma bipunctalis* (Fabricius)	27	43
	Pyrausta sp.	23	33
Anthurium	*Duponchelia fovealis* Zeller	30	48
Antilles calophylum	*Paralipsa gularis* (Zeller)	20	26
Apium	see celery		

Host	Pyraloid Species	Page	Key Couplet
Apium graveolens	see wild celery		
apple	*Amyelois transitella* (Walker)	14	13
	Cadra cautella (Walker)	16	17
	Ectomyelois ceratoniae (Zeller)	13	13
	Ephestia elutella (Hübner)	15	16
	Etiella zinckenella (Treitschke)	17	20
	Ostrinia nubilalis (Hübner)	25	36
apple, Malaysian	*Conogethes* spp.	24	34
apple, paradise	*Ectomyelois ceratoniae* (Zeller)	13	13
	Etiella zinckenella (Treitschke)	17	20
apricot	*Plodia interpunctella* (Hübner)	14	14
	Ephestia elutella (Hübner)	15	16
Arachis hypogaea	see peanut		
Arachis	see peanut		
Arctium lappa	see greater burdock		
Areca catechu	see betel palm		
areca palm	*Cadra cautella* (Walker)	16	17
	Spoladea recurvalis Fabricius	28	45
Areca	see areca palm		
Artemisia	*Etiella zinckenella* (Treitschke)	17	20
asparagus, garden	*Elasmopalpus lignosellus* (Zeller)	9	6
	Herpetogramma bipunctalis (Fabricius)	27	43
Asparagus officinalis	see asparagus, garden		
Asteraceae	*Homoeosoma electellum* Hulst	12	11
	Spoladea recurvalis Fabricius	28	45
aster	*Udea rubigalis* (Guenée)	29	46
Aster	see aster		
Atriplex	see saltbush		
Averrhoa bilimbi	see bilimbi		
avocado	*Aglossa caprealis* (Hübner)	18	21
	Ephestia elutella (Hübner)	15	16
	Etiella zinckenella (Treitschke)	17	20
balsampear	*Ancylostomia stercorea* (Zeller)	10	8
	Diaphania indica Saunders complex	31	50
	Diaphania nitidalis (Cramer)	31	50
	Pyrausta sp.	23	33
	Rhectocraspeda periusalis (Walker)	28	43
	Udea rubigalis (Guenée)	29	46
balsampear, southern	*Diaphania indica* Saunders complex	31	50
bamboo	*Cadra cautella* (Walker)	16	17
	Paralipsa gularis (Zeller)	20	26
Bambusa	see bamboo		
Bambusa	see cooked bamboo roots		
banana	*Cryptoblabes* sp.	10	6
	Diatraea spp.	23	31
	Hendecasis duplifascialis Hampson	29	48
	Pyralis farinalis Linnaeus	18	21
Barbados nut	*Spoladea recurvalis* Fabricius	28	45
barberry	*Cadra cautella* (Walker)	16	17
	Cadra figulilella (Gregson)	17	18
	Plodia interpunctella (Hübner)	14	14
barley, common	*Cadra cautella* (Walker)	16	17
basil	*Pyrausta* sp.	23	33
	Udea rubigalis (Guenée)	29	46
basil, sweet	*Diaphania indica* Saunders complex	31	50

Host	Pyraloid Species	Page	Key Couplet
	Duponchelia fovealis Zeller	30	48
	Ephestia elutella (Hübner)	15	16
	Pyrausta sp.	23	33
	Spoladea recurvalis Fabricius	28	45
	Udea rubigalis (Guenée)	29	46
bastardcedar	*Corcyra cephalonica* (Stainton)	20	26
bean	*Amyelois transitella* (Walker)	14	13
	Ancylostomia stercorea (Zeller)	10	8
	Cadra cautella (Walker)	16	17
	Cadra figulilella (Gregson)	17	18
	Corcyra cephalonica (Stainton)	20	26
	Ectomyelois ceratoniae (Zeller)	13	13
	Elasmopalpus lignosellus (Zeller)	9	6
	Etiella zinckenella (Treitschke)	17	20
	Fundella pellucens Zeller	11	10
	Maruca vitrata (Fabricius)	24	35
	Moodna bisinuella Hampson	11	9
	Ostrinia nubilalis (Hübner)	25	36
	Plodia interpunctella (Hübner)	14	14
bean, butter	*Mussidia nigrivenella* Ragonot	9	4
bean, calabar	*Mussidia nigrivenella* Ragonot	9	4
bean, kidney	*Ancylostomia stercorea* (Zeller)	10	8
	Cadra cautella (Walker)	16	17
	Corcyra cephalonica (Stainton)	20	26
	Ephestia elutella (Hübner)	15	16
	Etiella zinckenella (Treitschke)	17	20
	Fundella pellucens Zeller	11	10
	Maruca vitrata (Fabricius)	24	35
	Ostrinia nubilalis (Hübner)	25	36
bean, lima or sieva	*Etiella zinckenella* (Treitschke)	17	20
	Fundella pellucens Zeller	11	10
	Maruca vitrata (Fabricius)	24	35
	Ostrinia nubilalis (Hübner)	25	36
	Phidotricha erigens (Ragonot)	17	19
bean, winged	*Maruca vitrata* (Fabricius)	24	35
bean, yardlong	*Amyelois transitella* (Walker)	14	13
	Fundella pellucens Zeller	11	10
	Maruca vitrata (Fabricius)	24	35
beet	*Achyra rantalis* (Guenée)	27	41
	Duponchelia fovealis Zeller	30	48
	Herpetogramma bipunctalis (Fabricius)	27	43
	Ostrinia nubilalis (Hübner)	25	36
	Spoladea recurvalis Fabricius	28	45
	Udea rubigalis (Guenée)	29	46
beggarticks	*Homoeosoma electellum* Hulst	12	11
begonia	*Duponchelia fovealis* Zeller	30	48
Begonia	see begonia		
Benincasa hispida	see waxgourd		
Berberis	see barberry		
Bertholletia excelsa	see brazil nut		
Bertholletia	*Corcyra cephalonica* (Stainton)	20	26
Beta vulgaris	see beet		
Beta vulgaris	see sugar beet		
Beta vulgaris ssp. *Cicla*	see Swiss chard		
betel palm	*Cadra cautella* (Walker)	16	17

Host	Pyraloid Species	Page	Key Couplet
	Paralipsa gularis (Zeller)	20	26
Bidens	see beggarticks		
bilimbi	*Phidotricha erigens* (Ragonot)	17	19
bird-of-paradise	*Cadra cautella* (Walker)	16	17
blackberry	*Cadra cautella* (Walker)	16	17
Blighia sapida	see akee		
blueberry	*Cadra cautella* (Walker)	16	17
bougainvillea	*Spoladea recurvalis* Fabricius	28	45
Bougainvillea	see bougainvillea		
box, Chinese	*Hendecasis duplifascialis* Hampson	29	48
Brassica chinensis	see pak choi		
Brassica oleracea	see cabbage		
Brassica oleracea var *botrytis*	see broccoli		
Brassica oleracea var *botrytis*	see cauliflower		
Brassica oleracea var *gemmifera*	see brussel sprouts		
Brassica rapa	see mustard		
Brassicaceae	*Cadra cautella* (Walker)	16	17
	Evergestis rimosalis (Guenée)	25	37
	Hellula phidilealis (Walker)	26	39
brazil nut	*Hellula rogatalis* (Hulst)	26	39
Brazilian waterweed	*Parapoynx diminutalis* Snellen	21	27
broccoli	*Hellula phidilealis* (Walker)	26	39
	Hellula rogatalis (Hulst)	26	39
	Herpetogramma bipunctalis (Fabricius)	27	43
brussel sprouts	*Evergestis rimosalis* (Guenée)	25	37
buttonweed	*Spoladea recurvalis* Fabricius	28	45
cabbage	*Chilo suppressalis* (Walker)	23	31
	Evergestis rimosalis (Guenée)	25	37
	Udea rubigalis (Guenée)	29	46
Cabomba caroliniana	see Carolina fanwort		
Cabomba	*Parapoynx diminutalis* Snellen	21	27
cacao	*Cadra calidella* (Guenée)	17	18
	Cadra cautella (Walker)	16	17
	Corcyra cephalonica (Stainton)	20	26
	Mussidia nigrivenella Ragonot	9	4
cactus	*Ephestia elutella* (Hübner)	15	16
Caesalpinia pulcherrima	see pride of Barbados		
Cajanus cajan	see pigeon pea		
callingcard vine	*Mussidia nigrivenella* Ragonot	9	4
Calophyllum antillanum (*brasiliense*)	see Antilles calophylum		
Camellia sinensis	see tea		
cantaloupe	*Diaphania indica* Saunders complex	31	50
	Diaphania nitidalis (Cramer)	31	50
cape jasmine	*Hendecasis duplifascialis* Hampson	29	48
Capsicum	see pepper		
Capsicum annuum	see cayenne pepper		
Carapa guianensis	see crabwood		
cardamom	*Cadra cautella* (Walker)	16	17
Carica papaya	see papaya		
carob or locust bean	*Cadra calidella* (Guenée)	17	18
	Ectomyelois ceratoniae (Zeller)	13	13
	Elasmopalpus lignosellus (Zeller)	9	6
	Mussidia nigrivenella Ragonot	9	4
	Paralipsa gularis (Zeller)	20	26
Carolina fanwort	*Parapoynx diminutalis* Snellen	21	27

Host	Pyraloid Species	Page	Key Couplet
carrot	*Udea rubigalis* (Guenée)	29	46
Carya illinoinensis	see pecan		
cashew	*Cadra cautella* (Walker)	16	17
	Corcyra cephalonica (Stainton)	20	26
	Plodia interpunctella (Hübner)	14	14
cassava	*Cadra figulilella* (Gregson)	17	18
cassia	*Corcyra cephalonica* (Stainton)	20	26
	Ectomyelois ceratoniae (Zeller)	13	13
	Paralipsa gularis (Zeller)	20	26
	Trachylepidia fructicassiella Ragonot	20	25
Cassia	see cassia		
Cassia fistula	see golden shower		
Cassia grandis	see pink shower		
Castanea	see chestnut		
Castanea sativa	see European chestnut		
catalpa	*Conogethes* spp.	24	34
Catalpa	see catalpa		
cattail, broadleaf	Schoenobiinae	21	28
cauliflower	*Evergestis rimosalis* (Guenée)	25	37
cayenne pepper	*Cadra calidella* (Guenée)	17	18
	Duponchelia fovealis Zeller	30	48
	Ectomyelois ceratoniae (Zeller)	13	13
	Etiella zinckenella (Treitschke)	17	20
	Neoleucinodes elegantalis (Guenée)	32	51
	Ostrinia nubilalis (Hübner)	25	36
	Paralipsa gularis (Zeller)	20	26
	Plodia interpunctella (Hübner)	14	14
celery	*Ostrinia nubilalis* (Hübner)	25	36
	Udea rubigalis (Guenée)	29	46
Celosia	see cock's comb		
Ceratonia siliqua	see carob or locust bean		
cereal products	*Ephestia elutella* (Hübner)	15	16
Cereus	see sweet potato cactus		
Cestrum	see jessamine		
Chaenomeles japonica	see Maule's quince		
Chamaemelum nobile	see Roman chamomile		
chamomile, German	*Homoeosoma electellum* Hulst	12	11
chayote	*Diaphania indica* Saunders complex	31	50
	Diaphania nitidalis (Cramer)	31	50
	Leucinodes orbonalis (Guenée)	32	51
	Neoleucinodes elegantalis (Guenée)	32	51
chenille plant	*Pyrausta* sp.	23	33
Chenopodia charantia	*Rhectocraspeda periusalis* (Walker)	28	43
Chenopodium	see goosefoot		
cherry, sweet	*Cadra cautella* (Walker)	16	17
	Cadra figulilella (Gregson)	17	18
	Ectomyelois ceratoniae (Zeller)	13	13
	Ephestia elutella (Hübner)	15	16
	Plodia interpunctella (Hübner)	14	14
chestnut	*Cadra calidella* (Guenée)	17	18
	Conogethes spp.	24	34
	Ephestia elutella (Hübner)	15	16
	Etiella zinckenella (Treitschke)	17	20
	Paralipsa gularis (Zeller)	20	26
chick pea	*Ancylostomia stercorea* (Zeller)	10	8

Host	Pyraloid Species	Page	Key Couplet
	Cadra cautella (Walker)	16	17
	Etiella zinckenella (Treitschke)	17	20
	Plodia interpunctella (Hübner)	14	14
Chimonanthus	*Ectomyelois ceratoniae* (Zeller)	13	13
chirimoya	*Ectomyelois ceratoniae* (Zeller)	13	13
	Ephestia kuehniella (Zeller)	15	16
chrysanthemum	*Udea rubigalis* (Guenée)	29	46
Chrysanthemum	see daisy		
chrysophyllum	*Ephestia kuehniella* (Zeller)	15	16
Chrysophyllum	see chrysophyllum		
Chrysophyllum cainito	see star apple		
Cicer arietinum	see chick pea		
Citrullus lanatus	see watermelon		
citrus	*Cadra cautella* (Walker)	16	17
	Ephestia elutella (Hübner)	15	16
	Plodia interpunctella (Hübner)	14	14
Citrus reticulata	see tangerine		
Citrus sinensis	see orange		
clover	*Ostrinia nubilalis* (Hübner)	25	36
	Udea rubigalis (Guenée)	29	46
clover, white	*Plodia interpunctella* (Hübner)	14	14
coccinia	*Diaphania indica* Saunders complex	31	50
	Diaphania nitidalis (Cramer)	31	50
Coccinia	see coccinia		
Coccinia grandis	see ivy gourd		
cock's comb	*Spoladea recurvalis* Fabricius	28	45
coconut palm	*Cadra cautella* (Walker)	16	17
Cocos nucifera	see coconut palm		
Coffea	see coffee		
Coffea arabica	see coffee, Arabian		
coffee	*Cadra cautella* (Walker)	16	17
	Corcyra cephalonica (Stainton)	20	26
	Plodia interpunctella (Hübner)	14	14
coffee, Arabian	*Cadra cautella* (Walker)	16	17
	Elasmopalpus lignosellus (Zeller)	9	6
	Plodia interpunctella (Hübner)	14	14
cola	*Corcyra cephalonica* (Stainton)	20	26
Cola	see cola		
Cola acuminata	see abata cola		
colocasia	*Cadra cautella* (Walker)	16	17
	Spoladea recurvalis Fabricius	28	45
Colocasia	see colocasia		
Colysis pteropus	*Herpetogramma bipunctalis* (Fabricius)	27	43
cooked bamboo roots	*Cadra cautella* (Walker)	16	17
corchorus	*Spoladea recurvalis* Fabricius	28	45
Corchorus	see corchorus		
Corchorus olitorius	see nalta jute		
cordgrass, smooth	*Diatraea* spp.	23	31
coriander	*Herpetogramma bipunctalis* (Fabricius)	27	43
	Udea rubigalis (Guenée)	29	46
Coriandrum sativum	see coriander		
corn	*Achyra rantalis* (Guenée)	27	41
	Amyelois transitella (Walker)	14	13
	Cadra cautella (Walker)	16	17
	Cadra figulilella (Gregson)	17	18

Host	Pyraloid Species	Page	Key Couplet
	Chilo suppressalis (Walker)	23	31
	Diatraea spp.	23	31
	Ectomyelois ceratoniae (Zeller)	13	13
	Elasmopalpus lignosellus (Zeller)	9	6
	Eoreuma loftini (Dyar)	22	30
	Ephestia elutella (Hübner)	15	16
	Ephestia kuehniella (Zeller)	15	16
	Etiella zinckenella (Treitschke)	17	20
	Hypsipyla sp.	11	9
	Moodna bisinuella Hampson	11	9
	Ostrinia nubilalis (Hübner)	25	36
	Paralipsa gularis (Zeller)	20	26
	Phidotricha erigens (Ragonot)	17	19
	Plodia interpunctella (Hübner)	14	14
	Spoladea recurvalis Fabricius	28	45
Corylus avellana	see filbert, common		
Corylus	see hazelnut		
cotton	*Achyra rantalis* (Guenée)	27	41
	Herpetogramma bipunctalis (Fabricius)	27	43
	Homoeosoma electellum Hulst	12	11
	Phidotricha erigens (Ragonot)	17	19
cowpea	*Ancylostomia stercorea* (Zeller)	10	8
	Cadra cautella (Walker)	16	17
	Ectomyelois ceratoniae (Zeller)	13	13
	Elasmopalpus lignosellus (Zeller)	9	6
	Fundella pellucens Zeller	11	10
	Maruca vitrata (Fabricius)	24	35
	Phidotricha erigens (Ragonot)	17	19
	Trachylepidia fructicassiella Ragonot	20	25
crabapple, European	*Amyelois transitella* (Walker)	14	13
	Cadra cautella (Walker)	16	17
	Ectomyelois ceratoniae (Zeller)	13	13
crabwood	*Hypsipyla* sp.	11	9
Craspedia	*Ephestia elutella* (Hübner)	15	16
Crotalaria	see rattlebox		
cucumber	*Diaphania indica* Saunders complex	31	50
	Diaphania nitidalis (Cramer)	31	50
	Ostrinia nubilalis (Hübner)	25	36
	Udea rubigalis (Guenée)	29	46
Cucumeropsis manii	*Cadra cautella* (Walker)	16	17
Cucumis	see melon		
Cucumis melo	see cantaloupe		
Cucumis sativus	see cucumber		
Cucurbita	see gourd		
Cucurbita	see squash		
Cucurbita pepo	see pumpkin		
Cucurbitaceae	*Diaphania indica* Saunders complex	31	50
	Diaphania nitidalis (Cramer)	31	50
cumin	*Cadra cautella* (Walker)	16	17
	Corcyra cephalonica (Stainton)	20	26
Cuminum	see cumin		
currant	*Ephestia elutella* (Hübner)	15	16
currant, cultivated	*Ephestia elutella* (Hübner)	15	16
Cyamopsis tetragonoloba	see guar		
cydonia	*Ectomyelois ceratoniae* (Zeller)	13	13

Host	Pyraloid Species	Page	Key Couplet
Cydonia	see cydonia		
Cydonia oblonga	see quince		
Cymbopogon citratus	see lemon grass		
Cymbopogon flexuosus	see lemon grass, east Indian		
Cyperus papyrus	see papyrus		
Cyphomandra betacea	see tree tomato		
daisy	*Spoladea recurvalis* Fabricius	28	45
	Udea rubigalis (Guenée)	29	46
damp grain	*Aglossa caprealis* (Hübner)	18	21
dancing-lady orchid	*Paralipsa gularis* (Zeller)	20	26
Daucus	see carrot		
Daucus carota	see carrot		
Dennettia	*Ephestia kuehniella* (Zeller)	15	16
Desmoncus	*Cadra cautella* (Walker)	16	17
Dialium guineense	see velvet tamarind		
Dianthus	see pink		
Dimocarpus longan	see longan		
Dioscorea	see yam		
diospyros	*Amyelois transitella* (Walker)	14	13
	Cryptoblabes sp.	10	6
	Ectomyelois ceratoniae (Zeller)	13	13
	Ephestia elutella (Hübner)	15	16
Diospyros	see diospyros		
dock	*Ancylostomia stercorea* (Zeller)	10	8
Dracaena fragrans	see fragrant dracaena		
dried beans	*Cadra figulilella* (Gregson)	17	18
dried foodstuffs	*Cadra calidella* (Guenée)	17	18
dried fruit	*Cadra calidella* (Guenée)	17	18
	Cadra figulilella (Gregson)	17	18
dried vegetable products	*Cadra cautella* (Walker)	16	17
	Ephestia elutella (Hübner)	15	16
	Ephestia kuehniella (Zeller)	15	16
	Pyralis farinalis Linnaeus	18	21
	Trachylepidia fructicassiella Ragonot	20	25
dunnage	*Paralipsa gularis* (Zeller)	20	26
durian	*Ephestia elutella* (Hübner)	15	16
Durio zibethinus	see durian		
eelgrass	*Parapoynx diminutalis* Snellen	21	27
eelgrass, American	*Parapoynx diminutalis* Snellen	21	27
Egeria densa	see Brazilian waterweed		
eggplant	*Chilo suppressalis* (Walker)	23	31
	Leucinodes orbonalis (Guenée)	32	51
	Lineodes integra (Zeller)	29	46
	Neoleucinodes elegantalis (Guenée)	32	51
	Ostrinia nubilalis (Hübner)	25	36
	Paralipsa gularis (Zeller)	20	26
	Rhectocraspeda periusalis (Walker)	28	43
Elasis	*Paralipsa gularis* (Zeller)	20	26
elephant's ear	*Herpetogramma bipunctalis* (Fabricius)	27	43
	Pyrausta sp.	23	33
	Spoladea recurvalis Fabricius	28	45
Elettaria cardamomum	see cardamom		
Entada	see callingcard vine		
Eriobotrya	see loquat		
Eryngium foetidum	see spiritweed		

Host	Pyraloid Species	Page	Key Couplet
erythrina	*Cadra cautella* (Walker)	16	17
	Pyrausta sp.	23	33
Erythrina	see erythrina		
Eucalyptus	*Ephestia elutella* (Hübner)	15	16
	Plodia interpunctella (Hübner)	14	14
Eugenia	*Conogethes* spp.	24	34
Eupatorium	see thoroughwort		
Euphorbia	*Conogethes* spp.	24	34
European chestnut	*Cadra figulilella* (Gregson)	17	18
	Conogethes spp.	24	34
	Ectomyelois ceratoniae (Zeller)	13	13
	Etiella zinckenella (Treitschke)	17	20
	Plodia interpunctella (Hübner)	14	14
fanpetals	*Elasmopalpus lignosellus* (Zeller)	9	6
Fernaldia	*Diaphania indica* Saunders complex	31	50
	Rhectocraspeda periusalis (Walker)	28	43
Fernaldia pandurata	see loroco		
Ficus	*Cadra calidella* (Guenée)	17	18
	Cadra figulilella (Gregson)	17	18
	Plodia interpunctella (Hübner)	14	14
Ficus carica	see fig		
fig	*Cadra calidella* (Guenée)	17	18
	Cadra cautella (Walker)	16	17
	Cadra figulilella (Gregson)	17	18
	Ectomyelois ceratoniae (Zeller)	13	13
	Ephestia elutella (Hübner)	15	16
	Plodia interpunctella (Hübner)	14	14
filbert, common	*Elasmopalpus lignosellus* (Zeller)	9	6
flax, common	*Cadra cautella* (Walker)	16	17
foodstuffs	*Pyralis farinalis* Linnaeus	18	21
Fragaria	see strawberry		
fragrant dracaena	*Parapoynx diminutalis* Snellen	21	27
gamagrass, eastern	*Diatraea* spp.	23	31
Garcinia mangostana	see mangosteen		
gardenia	*Conogethes* spp.	24	34
	Hendecasis duplifascialis Hampson	29	48
Gardenia	see gardenia		
Gardenia jasminoides	see cape jasmine		
garlic	*Aglossa caprealis* (Hübner)	18	21
	Cadra cautella (Walker)	16	17
	Cadra figulilella (Gregson)	17	18
	Ephestia elutella (Hübner)	15	16
ginger	*Phidotricha erigens* (Ragonot)	17	19
ginseng	*Plodia interpunctella* (Hübner)	14	14
Gleditsia	see locust		
Glycine max	see soybean		
golden shower	*Trachylepidia fructicassiella* Ragonot	20	25
goldenrod	*Udea rubigalis* (Guenée)	29	46
Gomphrena	see amaranth		
goosefoot	*Spoladea recurvalis* Fabricius	28	45
Gossypium	see cotton		
gourd	*Cadra cautella* (Walker)	16	17
	Corcyra cephalonica (Stainton)	20	26
	Diaphania indica Saunders complex	31	50
	Diaphania nitidalis (Cramer)	31	50

Host	Pyraloid Species	Page	Key Couplet
	Ectomyelois ceratoniae (Zeller)	13	13
	Etiella zinckenella (Treitschke)	17	20
	Paralipsa gularis (Zeller)	20	26
	Plodia interpunctella (Hübner)	14	14
grape	*Cadra cautella* (Walker)	16	17
	Cryptoblabes sp.	10	6
	Ephestia elutella (Hübner)	15	16
	Plodia interpunctella (Hübner)	14	14
grape, wine	*Cadra calidella* (Guenée)	17	18
greater burdock	*Cadra cautella* (Walker)	16	17
	Ephestia elutella (Hübner)	15	16
	Paralipsa gularis (Zeller)	20	26
groundcherry, Mexican (tomatillo)	*Diaphania nitidalis* (Cramer)	31	50
	Lineodes integra (Zeller)	29	46
groundcherry, Peruvian	*Lineodes integra* (Zeller)	29	46
guar	*Fundella pellucens* Zeller	11	10
guava	*Ancylostomia stercorea* (Zeller)	10	8
	Cadra cautella (Walker)	16	17
	Cadra figulilella (Gregson)	17	18
	Conogethes spp.	24	34
	Cryptoblabes sp.	10	6
	Ectomyelois ceratoniae (Zeller)	13	13
Guazuma ulmifolia	see bastardcedar		
guinea henweed	*Phidotricha erigens* (Ragonot)	17	19
Guizotia abyssinica	see ramtilla		
hazelnut	*Cadra cautella* (Walker)	16	17
	Plodia interpunctella (Hübner)	14	14
Helianthus annuus	see sunflower, common		
Hemigraphis alternata	see redivy		
higuillo de hoja menuda	*Herpetogramma bipunctalis* (Fabricius)	27	43
hop, common	*Ephestia elutella* (Hübner)	15	16
Hordeum vulgare	see barley, common		
horsebean	*Etiella zinckenella* (Treitschke)	17	20
	Plodia interpunctella (Hübner)	14	14
horseradishtree	*Ephestia kuehniella* (Zeller)	15	16
Humulus lupulus	see hop, common		
hyacinthbean	*Etiella zinckenella* (Treitschke)	17	20
	Maruca vitrata (Fabricius)	24	35
hydrangea	*Ephestia elutella* (Hübner)	15	16
Hydrangea	see hydrangea		
hydrilla	*Parapoynx diminutalis* Snellen	21	27
Hydrilla	see hydrilla		
Hygrophila	see swampweed		
icecreambean	*Plodia interpunctella* (Hübner)	14	14
Impatiens	see touch-me-not		
indigoberry	*Amyelois transitella* (Walker)	14	13
inga	*Corcyra cephalonica* (Stainton)	20	26
	Trachylepidia fructicassiella Ragonot	20	25
Inga	see inga		
Inga edulis	see icecreambean		
Ipomoea	see morning-glory		
Ipomoea batatas	see sweet potato		
ivy gourd	*Diaphania nitidalis* (Cramer)	31	50
ixora	*Ephestia kuehniella* (Zeller)	15	16
Ixora	see ixora		

Host	Pyraloid Species	Page	Key Couplet
jasmine	*Hendecasis duplifascialis* Hampson	29	48
jasmine, Arabian	*Hendecasis duplifascialis* Hampson	29	48
Jasminum sambac	see jasmine, Arabian		
Jatropha curcas	see Barbados nut		
Jatropha	see nettlespurge		
jessamine	*Hendecasis duplifascialis* Hampson	29	48
Johnsongrass	*Elasmopalpus lignosellus* (Zeller)	9	6
jojoba	*Plodia interpunctella* (Hübner)	14	14
Juglans	see walnut		
Juglans nigra	see walnut, black		
Juglans regia	see walnut, English		
jujube, common	*Plodia interpunctella* (Hübner)	14	14
lablab	*Ancylostomia stercorea* (Zeller)	10	8
	Maruca vitrata (Fabricius)	24	35
Lablab	see lablab		
Lablab purpureus	see hyacinthbean		
Lactuca	see lettuce		
langsat	*Ectomyelois ceratoniae* (Zeller)	13	13
	Paralipsa gularis (Zeller)	20	26
Lansium domesticum	see langsat		
Lathyrus	see pea		
Lavandula	see lavender		
lavender	*Cadra cautella* (Walker)	16	17
	Ephestia elutella (Hübner)	15	16
	Lineodes integra (Zeller)	29	46
legume	*Ectomyelois ceratoniae* (Zeller)	13	13
	Etiella zinckenella (Treitschke)	17	20
	Maruca vitrata (Fabricius)	24	35
lemon grass	*Chilo suppressalis* (Walker)	23	31
	Diatraea spp.	23	31
	Eoreuma loftini (Dyar)	22	30
lemon grass, east Indian	*Chilo suppressalis* (Walker)	23	31
Lens	see lentil		
lentil	*Corcyra cephalonica* (Stainton)	20	26
lettuce	*Ostrinia nubilalis* (Hübner)	25	36
	Spoladea recurvalis Fabricius	28	45
	Udea rubigalis (Guenée)	29	46
Limnophila	see marshweed		
Limonium	see sealavender		
Limonium sinuatum	see sealavender, wavyleaf		
Linum usitatissimum	see flax, common		
Lippia graveolens	see oregano, Mexican		
Litchi chinensis	see lychee		
locust	*Plodia interpunctella* (Hübner)	14	14
longan	*Conogethes* spp.	24	34
	Cryptoblabes sp.	10	6
	Paralipsa gularis (Zeller)	20	26
loosestrife	*Cryptoblabes* sp.	10	6
loquat	*Phidotricha erigens* (Ragonot)	17	19
loroco	*Plodia interpunctella* (Hübner)	14	14
Ludwigia	see primrose-willow		
luffa	*Diaphania indica* Saunders complex	31	50
	Diaphania nitidalis (Cramer)	31	50
Luffa	see luffa		
Luffa acutangula	see sinkwa towelsponge		

Host	Pyraloid Species	Page	Key Couplet
lychee	*Cadra figulilella* (Gregson)	17	18
	Conogethes spp.	24	34
Lythrum	see loosestrife		
Macadamia integrifolia	see macadamia nut		
macadamia nut	*Cadra cautella* (Walker)	16	17
	Cadra figulilella (Gregson)	17	18
mahogany	*Hypsipyla* sp.	11	9
Malus	see apple		
Malus pumila	see apple, paradise		
Malus sylvestris	see crabapple, European		
mammea	*Phidotricha erigens* (Ragonot)	17	19
Mammea	see mammea		
mammee sapote	*Plodia interpunctella* (Hübner)	14	14
Mangifera indica	see mango		
mango	*Amyelois transitella* (Walker)	14	13
	Ancylostomia stercorea (Zeller)	10	8
	Cadra cautella (Walker)	16	17
	Ectomyelois ceratoniae (Zeller)	13	13
	Ephestia kuehniella (Zeller)	15	16
	Phidotricha erigens (Ragonot)	17	19
mangosteen	*Fundella pellucens* Zeller	11	10
	Paralipsa gularis (Zeller)	20	26
Manihot esculenta	see cassava		
maranta	*Elasmopalpus lignosellus* (Zeller)	9	6
Maranta	see maranta		
marigold	*Ephestia elutella* (Hübner)	15	16
	Homoeosoma electellum Hulst	12	11
marjoram, sweet	*Duponchelia fovealis* Zeller	30	48
	Pyrausta sp.	23	33
marshweed	*Parapoynx diminutalis* Snellen	21	27
Matricaria chamomilla	see chamomile, German		
Maule's quince	*Cryptoblabes* sp.	10	6
Mayaca fluviatilis	see stream bogmoss		
Medicago sativa	see alfalfa		
Melicoccus bijugatus	see spanish lime		
melon	*Diaphania indica* Saunders complex	31	50
	Diaphania nitidalis (Cramer)	31	50
	Etiella zinckenella (Treitschke)	17	20
	Phidotricha erigens (Ragonot)	17	19
Mentha	see mint		
Mentha arvensis	see mint, wild		
Mentha piperita	see peppermint		
mesquite	*Plodia interpunctella* (Hübner)	14	14
millet	*Chilo suppressalis* (Walker)	23	31
	Eoreuma loftini (Dyar)	22	30
Mimosa pigra	see Puerto Rico sensitive-briar		
mint	*Duponchelia fovealis* Zeller	30	48
	Elasmopalpus lignosellus (Zeller)	9	6
	Plodia interpunctella (Hübner)	14	14
	Pyrausta sp.	23	33
	Spoladea recurvalis Fabricius	28	45
	Udea rubigalis (Guenée)	29	46
mint, wild	*Pyrausta* sp.	23	33
mombin, yellow	*Plodia interpunctella* (Hübner)	14	14
momordica	*Aglossa caprealis* (Hübner)	18	21

Host	Pyraloid Species	Page	Key Couplet
	Diaphania indica Saunders complex	31	50
	Diaphania nitidalis (Cramer)	31	50
Momordica	see momordica		
Momordica balsimina	see balsampear, southern		
Momordica charantia	see balsambear		
monkeypod	*Cadra cautella* (Walker)	16	17
	Ectomyelois ceratoniae (Zeller)	13	13
	Phidotricha erigens (Ragonot)	17	19
	Plodia interpunctella (Hübner)	14	14
Moringa oleifera	see horseradishtree		
morning-glory	*Udea rubigalis* (Guenée)	29	46
Morus	see mulberry		
mulberry	*Cadra calidella* (Guenée)	17	18
	Cadra cautella (Walker)	16	17
	Cadra figulilella (Gregson)	17	18
	Plodia interpunctella (Hübner)	14	14
murraya	*Diaphania indica* Saunders complex	31	50
Murraya	see murraya		
Murraya paniculata	see box, Chinese		
Musa	see banana		
Musa paradisiaca	see plantain, French		
mustard	*Corcyra cephalonica* (Stainton)	20	26
	Cryptoblabes sp.	10	6
	Ephestia elutella (Hübner)	15	16
	Evergestis rimosalis (Guenée)	25	37
	Hellula phidilealis (Walker)	26	39
	Hellula rogatalis (Hulst)	26	39
	Spoladea recurvalis Fabricius	28	45
Myriophyllum	see watermilfoil		
Myristica fragrans	see nutmeg		
nalta jute	*Herpetogramma bipunctalis* (Fabricius)	27	43
	Spoladea recurvalis Fabricius	28	45
naranjilla	*Neoleucinodes elegantalis* (Guenée)	32	51
Narcissus tazetta	see narcissus, cream		
narcissus, cream	*Pyralis farinalis* Linnaeus	18	21
Nasturtium officinale	see watercress		
nephelium	*Cryptoblabes* sp.	10	6
Nephelium	see nephelium		
Nephelium lappaceum	see rambutan		
nettlespurge	*Herpetogramma bipunctalis* (Fabricius)	27	43
nightshade	*Etiella zinckenella* (Treitschke)	17	20
	Leucinodes orbonalis (Guenée)	32	51
	Neoleucinodes elegantalis (Guenée)	32	51
	Paralipsa gularis (Zeller)	20	26
	Plodia interpunctella (Hübner)	14	14
nightshade, black	*Herpetogramma bipunctalis* (Fabricius)	27	43
nomaphila	*Spoladea recurvalis* Fabricius	28	45
Nomaphila	see nomaphila		
Nordman fir	*Plodia interpunctella* (Hübner)	14	14
nutmeg	*Cadra cautella* (Walker)	16	17
nuts	*Cadra calidella* (Guenée)	17	18
	Cadra figulilella (Gregson)	17	18
	Ectomyelois ceratoniae (Zeller)	13	13
oak	*Cryptoblabes* sp.	10	6
	Ephestia elutella (Hübner)	15	16

Host	Pyraloid Species	Page	Key Couplet
Ocimum	see basil		
Ocimum basilicum	see basil, sweet		
okra	*Cadra cautella* (Walker)	16	17
	Corcyra cephalonica (Stainton)	20	26
	Etiella zinckenella (Treitschke)	17	20
Olea	see olive		
olive	*Plodia interpunctella* (Hübner)	14	14
Oncidium	see dancing-lady orchid		
onion	*Cadra figulilella* (Gregson)	17	18
	Pyrausta sp.	23	33
Opuntia	see pricklypear		
orange	*Amyelois transitella* (Walker)	14	13
	Cryptoblabes sp.	10	6
	Ectomyelois ceratoniae (Zeller)	13	13
	Homoeosoma electellum Hulst	12	11
	Phidotricha erigens (Ragonot)	17	19
Orchidaceae	*Hendecasis duplifascialis* Hampson	29	48
oregano	*Pyrausta* sp.	23	33
oregano, Mexican	*Pyrausta* sp.	23	33
origanum	*Pyrausta* sp.	23	33
Origanum	see origanum		
Origanum majorana	see marjoram, sweet		
Origanum vulgare	see oregano		
Oryza	see rice		
Oryza sativa	see rice		
packing in crates	*Aglossa caprealis* (Hübner)	18	21
	Pyralis farinalis Linnaeus	18	21
Paeonia	see peony		
Paeonia suffruticosa	see peony, moutan		
pak choi	*Hellula rogatalis* (Hulst)	26	39
palm, date	*Amyelois transitella* (Walker)	14	13
	Cadra calidella (Guenée)	17	18
	Cadra cautella (Walker)	16	17
	Cadra figulilella (Gregson)	17	18
	Cryptoblabes sp.	10	6
	Ectomyelois ceratoniae (Zeller)	13	13
	Paralipsa gularis (Zeller)	20	26
Panax	see ginseng		
papaya	*Cadra cautella* (Walker)	16	17
papyrus	*Diatraea* spp.	23	31
	Paralipsa gularis (Zeller)	20	26
parkia	*Etiella zinckenella* (Treitschke)	17	20
Parkia	see parkia		
Parkia speciosa	see parkia		
parsley	*Spoladea recurvalis* Fabricius	28	45
	Udea rubigalis (Guenée)	29	46
Passiflora	see passionflower		
Passiflora edulis	see Passion fruit		
Passion fruit	*Phidotricha erigens* (Ragonot)	17	19
passionflower	*Cryptoblabes* sp.	10	6
pea	*Ancylostomia stercorea* (Zeller)	10	8
	Etiella zinckenella (Treitschke)	17	20
	Maruca vitrata (Fabricius)	24	35
pea, blackeyed	*Ectomyelois ceratoniae* (Zeller)	13	13
	Ephestia kuehniella (Zeller)	15	16

Host	Pyraloid Species	Page	Key Couplet
	Fundella pellucens Zeller	11	10
	Maruca vitrata (Fabricius)	24	35
pea, garden	*Ancylostomia stercorea* (Zeller)	10	8
	Cadra cautella (Walker)	16	17
	Elasmopalpus lignosellus (Zeller)	9	6
	Etiella zinckenella (Treitschke)	17	20
	Fundella pellucens Zeller	11	10
	Maruca vitrata (Fabricius)	24	35
	Ostrinia nubilalis (Hübner)	25	36
	Udea rubigalis (Guenée)	29	46
peach	*Amyelois transitella* (Walker)	14	13
	Cadra cautella (Walker)	16	17
	Conogethes spp.	24	34
	Plodia interpunctella (Hübner)	14	14
peanut	*Cadra cautella* (Walker)	16	17
	Corcyra cephalonica (Stainton)	20	26
	Plodia interpunctella (Hübner)	14	14
pear, chinese	*Ectomyelois ceratoniae* (Zeller)	13	13
pear, common	*Amyelois transitella* (Walker)	14	13
	Cadra cautella (Walker)	16	17
	Conogethes spp.	24	34
	Ectomyelois ceratoniae (Zeller)	13	13
	Plodia interpunctella (Hübner)	14	14
pecan	*Spoladea recurvalis* Fabricius	28	45
peony	*Amyelois transitella* (Walker)	14	13
	Duponchelia fovealis Zeller	30	48
peony, moutan	*Plodia interpunctella* (Hübner)	14	14
pepper	*Cadra cautella* (Walker)	16	17
	Cadra figulilella (Gregson)	17	18
	Duponchelia fovealis Zeller	30	48
	Ectomyelois ceratoniae (Zeller)	13	13
	Ephestia elutella (Hübner)	15	16
	Herpetogramma bipunctalis (Fabricius)	27	43
	Leucinodes orbonalis (Guenée)	32	51
	Lineodes integra (Zeller)	29	46
	Mussidia nigrivenella Ragonot	9	4
	Neoleucinodes elegantalis (Guenée)	32	51
	Ostrinia nubilalis (Hübner)	25	36
	Plodia interpunctella (Hübner)	14	14
pepper, black	*Cadra cautella* (Walker)	16	17
peppermint	*Pyrausta* sp.	23	33
peppertree	*Cryptoblabes* sp.	10	6
Persea americana	see avocado		
Petiveria alliacea	see guinea henweed		
Petroselinum crispum	see parsley		
Phaseolus	see bean		
Phaseolus lunatus	see bean, butter		
Phaseolus lunatus	see bean, lima or sieva		
Phaseolus vulgaris	see bean, kidney		
Phoenix	see palm, date		
Phoenix dactylifera	see palm, date		
Phragmites	see reed		
Phragmites australis	see reed, common		
Physalis peruviana	see groundcherry, Peruvian		
Physalis philadelphica	see groundcherry, Mexican (tomatillo)		

Host	Pyraloid Species	Page	Key Couplet
Physostigma venenosum	see bean, calabar		
Phytolacca	see pokeweed		
Phytolacca americana	see pokeweed, american		
pigeon pea	*Amyelois transitella* (Walker)	14	13
	Ancylostomia stercorea (Zeller)	10	8
	Ephestia kuehniella (Zeller)	15	16
	Etiella zinckenella (Treitschke)	17	20
	Fundella pellucens Zeller	11	10
	Maruca vitrata (Fabricius)	24	35
Pimenta dioica	see allspice		
pine	*Conogethes* spp.	24	34
	Cryptoblabes sp.	10	6
	Plodia interpunctella (Hübner)	14	14
pineapple	*Alpheias conspirata* Heinrich	19	24
	Cadra cautella (Walker)	16	17
	Cryptoblabes sp.	10	6
	Elasmopalpus lignosellus (Zeller)	9	6
	Genopaschia protomis Dyar	19	24
	Paralipsa gularis (Zeller)	20	26
	Plodia interpunctella (Hübner)	14	14
pink	*Hendecasis duplifascialis* Hampson	29	48
pink shower	*Trachylepidia fructicassiella* Ragonot	20	25
Pinus	see pine		
Piper aduncum	see higuillo de hoja menuda		
Piper nigrum	see pepper, black		
pistache	*Plodia interpunctella* (Hübner)	14	14
pistachio nut	*Amyelois transitella* (Walker)	14	13
	Plodia interpunctella (Hübner)	14	14
Pistacia	see pistache		
Pistacia vera	see pistachio nut		
Pistia stratiotes	see water lettuce		
Pisum	see pea		
Pisum sativum	see pea, garden		
pitcherplant	*Duponchelia fovealis* Zeller	30	48
Pithecellobium dulce	see monkeypod		
plantain, French	*Cadra cautella* (Walker)	16	17
	Plodia interpunctella (Hübner)	14	14
plectranthus	*Cadra calidella* (Guenée)	17	18
Plectranthus (seed)	see plectranthus		
plum	*Cadra calidella* (Guenée)	17	18
	Cadra cautella (Walker)	16	17
	Cadra figulilella (Gregson)	17	18
	Ephestia elutella (Hübner)	15	16
	Plodia interpunctella (Hübner)	14	14
plum, American	*Cadra cautella* (Walker)	16	17
	Cadra figulilella (Gregson)	17	18
	Corcyra cephalonica (Stainton)	20	26
	Ectomyelois ceratoniae (Zeller)	13	13
	Plodia interpunctella (Hübner)	14	14
plum, European	*Cadra figulilella* (Gregson)	17	18
	Plodia interpunctella (Hübner)	14	14
plum, Malabar	*Conogethes* spp.	24	34
Plumeria rubra	see templetree		
Poaceae	*Plodia interpunctella* (Hübner)	14	14
pokeweed	*Spoladea recurvalis* Fabricius	28	45

Host	Pyraloid Species	Page	Key Couplet
pokeweed, american	*Spoladea recurvalis* Fabricius	28	45
Polianthes tuberosa	see tuberose		
Polygonum perfoliatum	see tearthumb, Asiatic		
pomegranate	*Amyelois transitella* (Walker)	14	13
	Cryptoblabes sp.	10	6
	Ectomyelois ceratoniae (Zeller)	13	13
	Ephestia elutella (Hübner)	15	16
	Leucinodes orbonalis (Guenée)	32	51
	Mussidia nigrivenella Ragonot	9	4
	Paralipsa gularis (Zeller)	20	26
	Plodia interpunctella (Hübner)	14	14
poreleaf	*Spoladea recurvalis* Fabricius	28	45
Porophyllum	see poreleaf		
potato	*Leucinodes orbonalis* (Guenée)	32	51
	Ostrinia nubilalis (Hübner)	25	36
	Rhectocraspeda periusalis (Walker)	28	43
potato, irish	*Etiella zinckenella* (Treitschke)	17	20
	Paralipsa gularis (Zeller)	20	26
Pouteria sapota	see mammee sapote		
pricklypear	*Etiella zinckenella* (Treitschke)	17	20
	Loxomorpha flavidissimalis Grote	27	41
pride of Barbados	*Amyelois transitella* (Walker)	14	13
	Etiella zinckenella (Treitschke)	17	20
primrose-willow	*Parapoynx diminutalis* Snellen	21	27
Prosopis	see mesquite		
protea	*Ephestia elutella* (Hübner)	15	16
Protea	see protea		
Prunus	see plum		
Prunus americana	see plum, American		
Prunus armeniaca	see apricot		
Prunus avium	see cherry, sweet		
Prunus domestica	see plum, European		
Prunus dulcis	see almond, sweet		
Prunus persica	see peach		
Psidium	see guava		
Psidium guajava	see guava		
Psophocarpus tetragonolobus	see bean, winged		
Puerto Rico sensitive-briar	*Elasmopalpus lignosellus* (Zeller)	9	6
	Phidotricha erigens (Ragonot)	17	19
pumpkin	*Diaphania indica* Saunders complex	31	50
	Diaphania nitidalis (Cramer)	31	50
Punica	see pomegranate		
Punica granatum	see pomegranate		
Pyrus communis	see pear, common		
Pyrus pyriflora	see pear, chinese		
Quercus	see oak		
quince	*Amyelois transitella* (Walker)	14	13
	Ectomyelois ceratoniae (Zeller)	13	13
	Etiella zinckenella (Treitschke)	17	20
radish	*Hellula rogatalis* (Hulst)	26	39
	Plodia interpunctella (Hübner)	14	14
radish, cultivated	*Hellula phidilealis* (Walker)	26	39
	Udea rubigalis (Guenée)	29	46
raisin	*Cryptoblabes* sp.	10	6
rambutan	*Aglossa caprealis* (Hübner)	18	21

Host	Pyraloid Species	Page	Key Couplet
	Conogethes spp.	24	34
	Cryptoblabes sp.	10	6
	Paralipsa gularis (Zeller)	20	26
ramtilla	*Cadra cautella* (Walker)	16	17
Randia	see indigoberry		
Randia echinocarpa	*Amyelois transitella* (Walker)	14	13
Raphanus	see radish		
Raphanus sativus	see radish, cultivated		
rattlebox	*Cadra cautella* (Walker)	16	17
	Pyrausta sp.	23	33
red ginger	*Pyralis farinalis* Linnaeus	18	21
redivy	*Spoladea recurvalis* Fabricius	28	45
reed	*Chilo suppressalis* (Walker)	23	31
reed, common	*Chilo suppressalis* (Walker)	23	31
Rheum	see rhubarb		
rhododendron	*Paralipsa gularis* (Zeller)	20	26
Rhododendron	see rhododendron		
rhubarb	*Ostrinia nubilalis* (Hübner)	25	36
Ribes	see currant		
Ribes rubrum	see currant, cultivated		
rice	*Cadra cautella* (Walker)	16	17
	Corcyra cephalonica (Stainton)	20	26
	Diatraea spp.	23	31
	Eoreuma loftini (Dyar)	22	30
	Ephestia elutella (Hübner)	15	16
	Plodia interpunctella (Hübner)	14	14
rice straw	*Chilo suppressalis* (Walker)	23	31
riverhemp	*Ectomyelois ceratoniae* (Zeller)	13	13
Roman chamomile	*Cadra cautella* (Walker)	16	17
Rosa	see rose		
rose	*Achyra rantalis* (Guenée)	27	41
	Cadra cautella (Walker)	16	17
	Hendecasis duplifascialis Hampson	29	48
	Udea rubigalis (Guenée)	29	46
rosemary	*Pyrausta* sp.	23	33
Rosmarinus	see rosemary		
Rosmarinus officinalis	see rosemary		
rotala	*Parapoynx diminutalis* Snellen	21	27
Rotala	see rotala		
rotting vegetable matter	*Aglossa caprealis* (Hübner)	18	21
Rubus	see blackberry		
rue	*Spoladea recurvalis* Fabricius	28	45
Rumex	see dock		
Ruta	see rue		
Saccharum	see sugarcane		
Saccharum officanarum	see sugarcane		
sage	*Pyrausta* sp.	23	33
sage, blue	*Pyrausta* sp.	23	33
	Spoladea recurvalis Fabricius	28	45
saltbush	*Spoladea recurvalis* Fabricius	28	45
Salvia	see sage		
Salvia officinalis	see sage, blue		
Sarracenia	see pitcherplant		
Satureja hortensis	see summer savory		
Schinus	see peppertree		

Host	Pyraloid Species	Page	Key Couplet
sealavender	*Duponchelia fovealis* Zeller	30	48
	Homoeosoma electellum Hulst	12	11
	Pyrausta sp.	23	33
	Udea rubigalis (Guenée)	29	46
sealavender, wavyleaf	*Maruca vitrata* (Fabricius)	24	35
seapurslane	*Achyra rantalis (*Guenée)	27	41
Sechium edule	see chayote		
seeds	*Cadra figulilella* (Gregson)	17	18
sesame	*Cadra cautella* (Walker)	16	17
	Corcyra cephalonica (Stainton)	20	26
	Plodia interpunctella (Hübner)	14	14
Sesamum orientale	see sesame		
Sesbania	see riverhemp		
Sesbania grandiflora	see vegetable hummingbird		
Sesuvium	see seapurslane		
Sida	see fanpetals		
Simmondsia chinensis	see jojoba		
sinkwa towelsponge	*Diaphania indica* Saunders complex	31	50
Solanaceae	*Leucinodes orbonalis* (Guenée)	32	51
	Lineodes integra (Zeller)	29	46
	Neoleucinodes elegantalis (Guenée)	32	51
	Rhectocraspeda periusalis (Walker)	28	43
Solanum	see nightshade		
Solanum	see potato		
Solanum lycopersicum	see tomato		
Solanum melongena	see eggplant		
Solanum nigrum	see nightshade, black		
Solanum quitoense	see naranjilla		
Solanum torvum	see turkey berry		
Solanum tuberosum	see potato, irish		
Solidago	see goldenrod		
sorghum	*Chilo suppressalis* (Walker)	23	31
	Corcyra cephalonica (Stainton)	20	26
	Diatraea spp.	23	31
	Elasmopalpus lignosellus (Zeller)	9	6
	Eoreuma loftini (Dyar)	22	30
	Phidotricha erigens (Ragonot)	17	19
Sorghum	see sorghum		
Sorghum bicolor	see sorghum		
Sorghum halepense	see Johnsongrass		
soybean	*Achyra rantalis* (Guenée)	27	41
	Cadra cautella (Walker)	16	17
	Elasmopalpus lignosellus (Zeller)	9	6
	*Herpetogramma bipunctalis (*Fabricius)	27	43
	Plodia interpunctella (Hübner)	14	14
	Spoladea recurvalis Fabricius	28	45
Spanish cedar logs	Hypsipyla sp.	11	9
spanish lime	*Ectomyelois ceratoniae* (Zeller)	13	13
Spartina alterniflora	see cordgrass, smooth		
Spermacoce (Borreria)	see buttonweed		
spinach	*Hellula phidilealis* (Walker)	26	39
	Herpetogramma bipunctalis (Fabricius)	27	43
	Pyrausta sp.	23	33
	Spoladea recurvalis Fabricius	28	45
	Udea rubigalis (Guenée)	29	46

Host	Pyraloid Species	Page	Key Couplet
spinach, Tahitian	*Herpetogramma bipunctalis* (Fabricius)	27	43
spinach, Tahitian	*Spoladea recurvalis* Fabricius	28	45
Spinacia	see spinach		
Spinacia oleracea	see spinach		
spiritweed	*Spoladea recurvalis* Fabricius	28	45
	Udea rubigalis (Guenée)	29	46
Spondias dulcis	see mombin, yellow		
squash	*Diaphania indica* Saunders complex	31	50
	Diaphania nitidalis (Cramer)	31	50
star apple	*Ephestia kuehniella* (Zeller)	15	16
Stirlingia	*Paralipsa gularis* (Zeller)	20	26
stored fruit	*Plodia interpunctella* (Hübner)	14	14
stored grain	*Ephestia kuehniella* (Zeller)	15	16
	Mussidia nigrivenella Ragonot	9	4
	Plodia interpunctella (Hübner)	14	14
stored seeds	*Mussidia nigrivenella* Ragonot	9	4
stored vegetable products	*Cadra cautella* (Walker)	16	17
	Corcyra cephalonica (Stainton)	20	26
	Ephestia elutella (Hübner)	15	16
	Ephestia kuehniella (Zeller)	15	16
	Etiella zinckenella (Treitschke)	17	20
	Paralipsa gularis (Zeller)	20	26
	Plodia interpunctella (Hübner)	14	14
strawberry	*Elasmopalpus lignosellus* (Zeller)	9	6
	Ostrinia nubilalis (Hübner)	25	36
stream bogmoss	*Parapoynx diminutalis* Snellen	21	27
Strelitzia reginae	see bird-of-paradise		
string bean	*Elasmopalpus lignosellus* (Zeller)	9	6
	Ostrinia nubilalis (Hübner)	25	36
Strobilanthes	*Herpetogramma bipunctalis* (Fabricius)	27	43
	Rhectocraspeda periusalis (Walker)	28	43
sugar apple	*Cryptoblabes* sp.	10	6
sugar beet	*Udea rubigalis* (Guenée)	29	46
sugarcane	*Cadra figulilella* (Gregson)	17	18
	Chilo suppressalis (Walker)	23	31
	Diatraea spp.	23	31
	Elasmopalpus lignosellus (Zeller)	9	6
	Eoreuma loftini (Dyar)	22	30
summer savory	*Pyrausta* sp.	23	33
sunflower, common	*Homoeosoma electellum* Hulst	12	11
swampweed	*Parapoynx diminutalis* Snellen	21	27
sweet potato	*Ectomyelois ceratoniae* (Zeller)	13	13
	Megastes sp.	25	35
	Udea rubigalis (Guenée)	29	46
Swiss chard	*Spoladea recurvalis* Fabricius	28	45
syzygium	*Conogethes* spp.	24	34
Syzygium	see syzygium		
Syzygium jambos	see plum, Malabar		
Syzygium malaccense	see apple, Malaysian		
Syzygium samarangense	see syzygium		
Tagetes	see marigold		
tamarind	*Amyelois transitella* (Walker)	14	13
	Cadra cautella (Walker)	16	17
	Cadra figulilella (Gregson)	17	18
	Ectomyelois ceratoniae (Zeller)	13	13

Host	Pyraloid Species	Page	Key Couplet
	Mussidia nigrivenella Ragonot	9	4
	Plodia interpunctella (Hübner)	14	14
	Phidotricha erigens (Ragonot)	17	19
Tamarindus	see tamarind		
Tamarindus indica	see tamarind		
tamarisk	Cryptoblabes sp.	10	6
Tamarix	see tamarisk		
Tanacetum	see tansy		
tangerine	*Amyelois transitella* (Walker)	14	13
tansy	*Duponchelia fovealis* Zeller	30	48
tassel flower	*Herpetogramma bipunctalis* (Fabricius)	27	43
tea	*Plodia interpunctella* (Hübner)	14	14
tearthumb, Asiatic	*Spoladea recurvalis* Fabricius	28	45
templetree	*Hendecasis duplifascialis* Hampson	29	48
Tetrapleura	*Mussidia nigrivenella* Ragonot	9	4
Theobroma cacao	see cacao		
thoroughwort	*Spoladea recurvalis* Fabricius	28	45
thyme	*Lineodes integra* (Zeller)	29	46
	Pyrausta sp.	23	33
thyme, garden	*Diaphania indica* Saunders complex	31	50
	Pyrausta sp.	23	33
Thymus	see thyme		
Thymus vulgaris	see thyme, garden		
tomato	*Chilo suppressalis* (Walker)	23	31
	Duponchelia fovealis Zeller	30	48
	Leucinodes orbonalis (Guenée)	32	51
	Lineodes integra (Zeller)	29	46
	Neoleucinodes elegantalis (Guenée)	32	51
	Ostrinia nubilalis (Hübner)	25	36
	Rhectocraspeda periusalis (Walker)	28	43
touch-me-not	*Spoladea recurvalis* Fabricius	28	45
tree tomato	*Leucinodes orbonalis* (Guenée)	32	51
Trifolium	see clover		
Trifolium repens	see clover, white		
Tripsacum dactyloides	see gamagrass, eastern		
Triticum	see wheat		
Triticum aestivum	see wheat, common		
tuberose	*Hendecasis duplifascialis* Hampson	29	48
turkey berry	*Leucinodes orbonalis* (Guenée)	32	51
	Lineodes integra (Zeller)	29	46
	Neoleucinodes elegantalis (Guenée)	32	51
Typha latifolia	see cattail, broadleaf		
Vaccinium	see blueberry		
Vallisneria	see eelgrass		
Vallisneria asiatica	see eelgrass, American		
vegetable hummingbird	*Maruca vitrata* (Fabricius)	24	35
velvet tamarind	*Ectomyelois ceratoniae* (Zeller)	13	13
vetch	*Corcyra cephalonica* (Stainton)	20	26
viburnum	*Spoladea recurvalis* Fabricius	28	45
Viburnum	see viburnum		
Vicia	see vetch		
Vicia faba	see horsebean		
Vigna	see cowpea		
Vigna unguiculata	see pea, blackeyed		
Vigna unquiculata ssp. *sesquipedalis*	see bean, yardlong		

Host	Pyraloid Species	Page	Key Couplet
Vitis	see grape		
Vitis	see raisin		
Vitis vinifera	see grape, wine		
walnut	*Amyelois transitella* (Walker)	14	13
	Cadra figulilella (Gregson)	17	18
	Ectomyelois ceratoniae (Zeller)	13	13
	Ephestia elutella (Hübner)	15	16
walnut, black	*Ectomyelois ceratoniae* (Zeller)	13	13
	Ephestia elutella (Hübner)	15	16
walnut, English	*Ectomyelois ceratoniae* (Zeller)	13	13
	Plodia interpunctella (Hübner)	14	14
water lettuce	Schoenobiinae	21	28
watercress	*Evergestis rimosalis* (Guenée)	25	37
watermelon	*Pyrausta* sp.	23	33
watermilfoil	*Parapoynx diminutalis* Snellen	21	27
waxgourd	*Phidotricha erigens* (Ragonot)	17	19
wheat	*Cadra cautella* (Walker)	16	17
	Chilo suppressalis (Walker)	23	31
	Corcyra cephalonica (Stainton)	20	26
	Ephestia elutella (Hübner)	15	16
	Ostrinia nubilalis (Hübner)	25	36
	Pyralis farinalis Linnaeus	18	21
wheat, common	*Paralipsa gularis* (Zeller)	20	26
	Plodia interpunctella (Hübner)	14	14
white chard	*Hellula phidilealis* (Walker)	26	39
wild celery	*Spoladea recurvalis* Fabricius	28	45
	Udea rubigalis (Guenée)	29	46
Xanthosoma	see elephant's ear		
Xanthosoma brasiliense	see spinach, Tahitian		
Xanthosoma hastifollium	*Spoladea recurvalis* Fabricius	28	45
xylopia	*Cryptoblabes* sp.	10	6
Xylopia	see xylopia		
yam	*Ectomyelois ceratoniae* (Zeller)	13	13
Zea mays	see corn		
Zingiber	see ginger		
Ziziphus zizyphus	see jujube, common		