

LepIntercept

An identification resource for intercepted Lepidoptera larvae



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CRAMBIDAE - *Diatraea considerata* Heinrich

Taxonomy

Pyraloidea: Crambidae: Crambinae: *Diatraea considerata* Heinrich

Larval diagnosis (Summary)

- SD1 pinacula extends to the top of, or slightly below the top of, the spiracle on A3-6
- Larvae 16 mm or less with lateral markings or stripes; larvae 16 to 33 mm have transverse markings (fused spots to bands)
- Markings, if present, are colored lavender to light pink to light purple
- Head orange to honey colored, prothoracic shield honey colored
- SD2 on A8 absent or in front of (not below) the SD1 pinaculum
- Paraproct setae almost as long as SV1 on A9
- Color is variable; pinacula are pigmented in non-diapausing larvae and pale in diapausing larvae
- Found on sugarcane from Mexico (Sinaloa south to Michoacan)

Host/origin information

The majority of interception records (94%) are from Mexico on sugarcane (*Saccharum officinarum*).

Origin	Host(s)
Mexico	<i>Saccharum officinarum</i>

Recorded distribution

Diatraea considerata has only been recorded from western Mexico (Sinaloa south to Michoacan) (Rodriguez del Bosque 2009, 2012).

Identification authority (Summary)

Identification of *D. considerata* is difficult because of confusion with several sibling species. In some cases, a genus-level identification is more accurate. A species-level identification is possible if the larva is from certain portions of its known distribution, is associated with sugarcane and the morphology seems to fit. See the Detailed Information page for characteristics of sugarcane feeding *Diatraea* species in Mexico.

Pest characterization

(Based on Cavey 2001, Solis 2004)

- Taxonomy: **Medium**. Species-level identification is sometimes possible.
- Distribution: **High**. *Diatraea considerata* is not present in the U.S.
- Potential Impact: **High**. *Diatraea considerata* is a serious pest.

This ranking characterizes *D. considerata* as a quarantine significant species in the U.S.

Larval diagnosis (Detailed)

The larva of *Diatraea considerata* was recently surveyed in Mexico by Rodriguez del Bosque (2009, 2012). Because of confusion with *Diatraea magnifactella*, literature and preserved specimens said to be *D. considerata* cannot always be trusted. For the purposes of this project, we limit literature citations on *D. considerata* to publications by Box (1935), Bleszynski (1969), Solis (2004), and Rodriguez del Bosque (2009, 2012, or works coauthored with him). Our material examined will require some comments and justification.

Reference specimens of *D. considerata* were loaned from the Box collection at the United States

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Fig. 1: Late instar, lateral view



Fig. 2: Late instar, lateral view



Fig. 3: Early instar, lateral view



Fig. 4: Late instar, dorsal view



Fig. 5: Mid-instar



Fig. 6: Paraproct setae



Fig. 7: Crochets



Fig. 8: Head

National Museum. These (8 larvae, 2 pupae) were collected in Sinaloa during 1933 by T. Vogliotti and reared from sugarcane (see Box 1935). This is the type locality for *D. considerata* and outside the known range of *D. magnifactella*. Two larvae, one molting, labeled as *D. considerata*, were collected during May, 1984 at Tepic (Nayarit, Mexico) by Browning, Bennett and Melton. This is also outside the known range of *D. magnifactella*. Although the label does not state these larvae were from sugarcane, all three collectors have studied natural enemies of sugarcane stem borers in western Mexico (Melton et al. 1986, Bennett, 1969). It seems reasonable to assume the host was sugarcane.

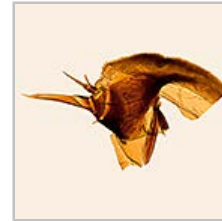


Fig. 9: Hypo. complex

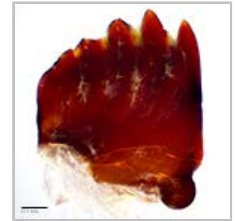


Fig. 10: Mandible

Reference specimens (8 larvae) of *D. magnifactella* were also borrowed from the Box collection. These were from Tamaulipas, collected on sugarcane in 1951 by Box. At that time, *Diatraea magnifactella* was known to be a dominant borer in the region (Rodriguez del Bosque et al. 2011). We obtained additional well preserved fresh specimens of *D. magnifactella* from sugarcane stems at Morelos, Mexico (outside the known range of *D. considerata*) in 2011 identified and sent by L. A. Rodriguez del Bosque.

Another issue is how to separate *D. considerata* from both *D. grandiosella* and *D. saccharalis*. Our specimens of *D. grandiosella* are from the United States (Texas A&M laboratory culture, Kansas, Arizona) which is outside the range of *D. considerata*. Numerous *D. saccharalis* were examined, mostly from Honduras (see Passoa 1985) and Mexico (from a USDA rearing project, see Riley and Solis 2005). These were often associated with reared adults or were taken from areas with few other sibling species. A small series of intercepted *Diatraea* specimens from sugarcane, without specific Mexican localities, were examined from California and Texas ports.

The most accurate identification of *D. considerata* requires a combination of factors including origin, host, appearance, and morphology. Each of these will be discussed in turn.

Box (1935), Bleszynski (1969), Solis (2004), and Rodriguez del Bosque (2009, 2012) all record *D. considerata* from Mexico on sugarcane. For now, it seems best to restrict the distribution to Mexico and the host to sugarcane. The Mexican distribution is from Sinaloa south to Michoacan. Any other record will require confirmation. Particularly important, and doubtful, is the record for *D. considerata* from Texas (Zhang 1994: 182). We could not verify any records of *D. considerata* from Venezuela as suggested by Sugar Research Australia (not dated).

Characters for recognizing the genus *Diatraea*, mentioned under *D. lineolata*, will also apply to *D. considerata*. In particular, there is an inner tooth on the mandible (not obvious on our photo); both the L and SV setae lie anterior to the prothoracic spiracle; the prespiracular pinaculum extends below the prothoracic spiracle but not behind it; the SV group is bisetose on the thoracic segments; and the crochets of A3-6 are in a triordinal circle. The non-diapausing form has an obvious elongate extra pinacula lacking setae on the mesothorax and metathorax (Passoa 1985, Weisman 1986).

Based on Box (1935) and our preserved larvae, *Diatraea considerata* has a light orange to honey colored head and a honey colored prothoracic shield. Small larva (16 mm or less) have lateral stripes but older larvae (up to 33 mm long) tend to be transversely marked. These markings, if present, are lavender to light purple to pink. The anal shield is pigmented. This coloration is similar to *D. magnifactella* but different from *D. saccharalis* or *D. grandiosella*. The head color of *D. saccharalis* tends to be reddish brown, more rarely light brown or honey colored. It is also smaller (25 mm long or less) than *D. considerata*. The coloration of *D. grandiosella* is more like *D. considerata* and *D. magnifactella* but without transverse bands or the lavender to purple to pink markings. In summary, large larvae (25 mm or more), without a red to brown head, but with transverse bands or at least spots that group in a transverse marking, are either *D. considerata* or *D. magnifactella* if from Mexican sugarcane. Separation of these two species is based on morphology, not host.

Diatraea magnifactella has a minute SD2 seta below the middle of the SD1 pinaculum on A8. When SD2 on A8 is visible in *D. considerata*, it is located somewhere anterior to the midline of the SD1 pinaculum. Other morphological characters of importance shared by both species include an inner tooth on the mandible and a sclerotized patch of tonofibrillary platelets is anterior to the prothoracic coxae. Four commonly intercepted *Diatraea* we examined (*lineolata*, *saccharalis*, *magnifactella*, and *considerata*) all have A9 with the D2 setae joined on a common pinaculum above a second pinaculum with D1 above the hairlike SD1 seta. The spinneret of *Diatraea* appears to have microsetae at the tip but the distribution of this character is unknown.

The frontal pores are well below a line connecting the F1 setae in most *D. grandiosella*. In addition, the SD1 pinacula extends to middle of the spiracle on A3-6 and the paraproctal setae are only half as long as SV1 on A9. This easily separates *D. grandiosella* from *D. considerata*.

Two keys to *Diatraea* are presented below. One emphasizes morphology without mentioning origins and includes only the most common Mexican species. If a specific origin in Mexico or a country in Latin America is known, the second key can be used. It is more accurate and includes some of the rarer species. Each has its own set of warnings and caveats not repeated here. A larger series of determined specimens is needed to determine the variation of taxonomic important characters.

Identification authority (Detailed)

Identification of *D. considerata* is only justified in a few cases; otherwise it is more accurate to stop at the genus level. At minimum, the origin must be from the proper part of Mexico on sugarcane. SD2 must be anterior to the midline of the SD1 pinaculum on A8 or be apparently absent. Late instar larvae should have transverse bands; smaller larvae are striped laterally. Some specimens will no doubt fit the above characterization, others will not. Origin and host is more important than morphology until a large series of specimens are studied.

As with *D. lineolata*, origin and host information are critical for accurate identification of *D. considerata*. Inspectors must get specific origins from Mexico, photograph the larva or remember details of the head and body color before preservation. Ports must be prepared to send occasional

specimens to quarantine facilities for rearing to the adult stage. This is especially important because several species of *Diatraea* have unknown life histories. Because we did not study the diapausing forms carefully, use caution with identifications of these stages.



Morphological guide to known species of *Diatraea* intercepted at U.S. ports of entry from Mexico



Guide to species of *Diatraea* intercepted or potentially encountered at U.S. ports of entry using morphology and origin

Origin records

Diatraea considerata has been intercepted from the following locations:

Bolivia, Mexico, Nigeria, Peru

Records from outside of Mexico likely represent misidentifications.

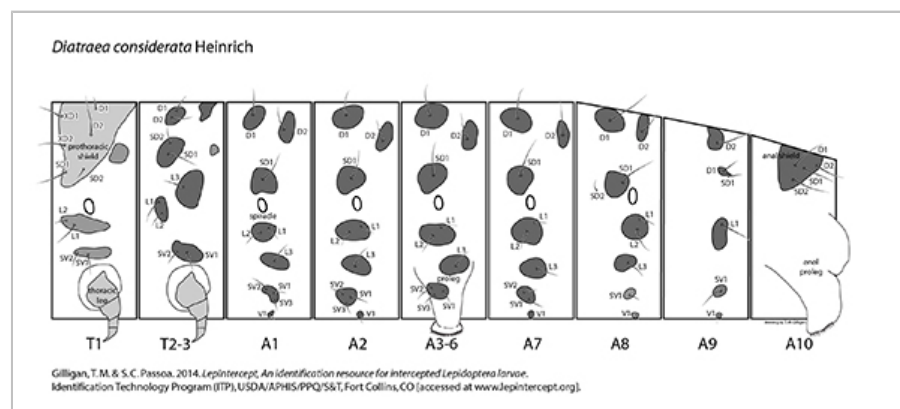
Host records

Diatraea considerata has been intercepted on the following hosts:

Cuminum cyminum, *Cymbopogon citratus*, *Physalis* sp., *Saccharum officinarum*, *Saccharum* sp., *Saccharum spontaneum*, *Zea mays*, *Zea* sp.

Records from hosts other than *Saccharum* likely represent other species of *Diatraea* or Pyraloidea (on *Cuminum cyminum*, *Physalis*).

Setal map



Diatraea considerata setal map



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