

1. PaDIL Species Factsheet



Scientific Name:

Chilo auricilius Dudgeon 1905
(Lepidoptera:Crambidae)

Common Name

Gold-fringed Rice Borer

Live link: <http://www.padil.gov.au:80/pests-and-diseases/Pest/Main/142264>

Image Library

Australian Biosecurity

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Museum Victoria

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CRC National Plant Biosecurity

<http://www.crcplantbiosecurity.com.au/>



Plant Health Australia

<http://www.planthealthaustralia.com.au/>



Department of Agriculture, Fisheries and Forestry

<http://www.daff.gov.au/>



Department of Agriculture and Food, Western Australia

<http://www.agric.wa.gov.au/>

2. Species Information

2.1. Details

Specimen Contact: DAFF Biosecurity - daff.gov.au

Author: S. Anderson & L. Tran-Nguyen

Citation: S. Anderson & L. Tran-Nguyen (2012) Gold-fringed Rice Borer (*Chilo auricilius*) Updated on 2/24/2012

Available online: PaDIL - <http://www.padil.gov.au>

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2.2. URL

Live link: <http://www.padil.gov.au:80/pests-and-diseases/Pest/Main/142264>

2.3. Facets

Commodity Overview: Field Crops and Pastures

Commodity Type: Grains, Grasses, Sugarcane, Rice

Distribution: Australasian - Oceanian, South and South-East Asia

Group: Moths

Status: Exotic species - absent from Australia

2.4. Other Names

Chilo auricilia Dudgeon 1905:405

Chilo popescuroorji Bleszynski 1963

Chilotraea auricilia (Dudgeon) Kapur 1950

Diatraea auricilia (Dudgeon) Fletcher 1928

Gold-fringed borer

Gold-fringed moth

Gold-fringed rice borer

Gold-fringed rice stem borer

Rice stalk borer

Sugarcane stalk borer

2.5. Diagnostic Notes

****Identification is currently undergoing peer review as part of the National Diagnostic Protocols by SPHDS.****

****Egg**** oval, dorsoventrally flattened, scale like and creamy-white appearance when first laid, arranged in 2-5 parallel rows (Chaudhary & Sharma 1986), eggs turn black after a number of days (Shenhmar & Singh 1997).

****Larva**** new larvae creamy-white, approximately 1mm long and have a black flattened head, last instar larvae are about 25-30 mm long with five violet stripes running the length of the body, brown head, crochets multiordinal arranged in complete circles, open spiracles, grey rimmed oval outline (Butani 1956; Shenhmar & Singh 1997).

****Pupa**** range in size from 10-15 mm long depending on sex with the females being larger; dark brown; transverse ridge present above eyes (hornlike); abdominal ring segments incomplete, spines extend to spiracles on 5, 6 and 7 segments; spines absent on anal area but have 2 pointy projections (Chaudhary & Sharma 1986).

****Adult****

C. auricilius can be easily confused with *C. polychrysus* by adult and larval morphology.

Chilo auricilius terminal dots large; subterminal line row of metallic scales close to apical margin; median line metallic; discal dot visible; fringe shining golden; hindwing light brown (Barrion et al 1990).

Chilo polychrysus terminal dots indistinct; subterminal line white with few silvery scales; median line distinct, oblique & pale yellow brown; discal dot highly reduced; fringe slightly glossy; hindwing whitish to dirty cream.

Chilo auricilius ocellus present; face prognathous, smooth or with small point; labial palpus 3 to 4 times as long as diameter of eye; forewing: 8-13 mm long with a maximum width of 3-4 mm, R1 confluent with Sc, base colour is yellow, occasionally brown, variable irrorated with brown scales, discal dot present, subterminal line close to termen, signified by a row of metallic scales, median line is the same colour as the subterminal line, few small silvery specks in the middle to the wing, terminal dots large, fringe shiny golden; hind wing light brownish.

Colouration and pattern of the forewing is inconsistent and in some species the fore wing is also most unicolouration yellow; sometimes the silvery specks are irregularly arranged, while in other specimens they have formed two parallel transverse lines.

Genitalia

pars basalis absent; saccus large; juxta plate with 2 symmetrical arms ending before basal costal angle of valva; aedeagus with distinct sub apical conical projection; ventral arm long with a notched apex; bulbous basal projection small; cornutus absent.

ostial pouch slightly demarcated from ductus bursae, medium to heavily sclerotized; signum absent (Bleszynski 1970).

As fresh specimens become available, dissection images will be updated.

Coming soon - PBT link with DNA barcoding for *Chilo auricilius*.

2.6. References

- Amsel H.G, Gregor F, Reisser H. (1965). *Microlepidoptera Palaearctica*. Volume 1. Verlag Georg Fromme & Co. Wien.
- Armstrong, K. (2010). DNA barcoding: a new module in New Zealand's plant biosecurity diagnostic toolbox. *Bulletin OEPP/EPPO Bulletin* 40: 91-100.
- Arora, G.S. (2000). Studies on some Indian Pyralid species of economic importance, Part I. *Records of the Zoological Survey of India* 181, ZSI, Calcutta.
- Barrion A.T, Catindig J.L.A, Litsinger J.A. (1990). *Chilo auricilius* Dudgeon (Lepidoptera : Pyralidae), the correct name for the dark-headed stem borer (SB) found in the Philippines. *International Rice Research Newsletter*, 15(4):29.
- Bleszynski, S. (1965). Crambinae. In: AMSEL, GREGOR, Reisser: *Microlepidoptera Palaearctica* Publisher G. I. Fromme & Co., Vienna.
- Bleszynski, S. (1970). A Revision of the world species of *Chilo* Zincken (Lepidoptera:Pyralidae), *Bulletin of the British Museum (Natural History) Entomology*. London: Vol 25 No. 4, 101-195.
- Butani, D.K. (1956). A key for the identification of sugarcane borers. *Indian Journal of Entomology*, 18(3):303-304.
- Chaudhary J.P, Sharma S.K. (1986). The stalk borer, *Chilo auricilius* Dudgeon. In: David H, Easwaramoorthy S, Jayanthi R, eds. *Sugarcane Entomology in India*. Coimbatore, Tamil Nadu, India: Sugarcane Breeding Institute, ICAR, 135-150.
- Cho S, Mitchell A, Mitter C, Regier J, Matthews M, Robertson R. (2008). Molecular phylogenetics of heliothine moths (Lepidoptera: Noctuidae: Heliothinae), with comments on the evolution of host range and pest status. *Systematic Entomology*. 33: 581-594.
- Common, I.F.B. (1990). *Moths of Australia*. Carlton, Victoria. Melbourne University Press, appendix 1, p471-482.

Dudgeon, G.C. (1905). Description of new species of moths from India and Burma. *Journal of the Bombay Natural History Society*, vol xvi, No.3, p405.

EPPO. (2007). PQR database (version 4.6). Paris, France: European and Mediterranean Plant Protection Organisation. www.eppo.org

Folmer O, Black M, Hoeh W, Lutz R, Vrijenhoek R. (1994). DNA primers for amplification of mitochondrial cytochrome c oxidase subunit I from diverse metazoan invertebrates. *Molecular Marine Biology and Biotechnology.*, 3(5): 294-299.

Hajibabaei M, Janzen D.H, Burns J.M, Hallwachs W, Hebert P.D.N. (2006). DNA barcodes distinguish species of tropical Lepidoptera. *Proceedings of the National Academy of Sciences.* 103(4): 968-971.

Hanner, R. (2005). Proposed standards for BARCODE records in INSDC (BRIs). http://www.barcoding.si.edu/PDF/DWG_data_standards-Final.pdf.

Hebert, P.D.N., Cywinska, A., Ball, S.L., deWaard, J.R. (2003). Biological identifications through DNA barcodes. *Proceedings of the Royal Society of London*, B270: 313-321.

Hebert, P.D.N., Penton, E.H., Burns, J.M., Janzen, D.H., Hallwachs, W. (2004). Ten species in one: DNA barcoding reveals cryptic species in the neotropical skipper butterfly *Astraptes fulgerator*. *Proceedings of the National Academy of Sciences.* 101(41): 14812-14817.

Kapur, A.P. (1950). The identity of some crambinae associated with sugar-cane in India and of certain species related to them (Lepidoptera:Pyralidae). *Trans. R. Entomology Society, London*, 101. Part II.

Mitchell, A. and Maddox, C. (2010). Bark beetles (Coleoptera: Curculionidae: Scolytinae) of importance to the Australian macadamia industry: an integrative taxonomic approach to species diagnostics. *Australian Journal of Entomology.* 49: 104-113.

Munroe, E. Solis, M.A. (1999). Pyraloidea, pp. 233-256. In: Kristensen, N. (ed.) *Lepidoptera, Moths and Butterflies, Vol. I. Arthropoda, Insect, Vol. 4, Part 35. Handbook of Zoology.* Walter de Gruyter & Co. Berlin. 491p.

Sallam N, Achadian E, Kristini A, Sochib M, Adi H. (2010). Monitoring sugarcane moth borers in Indonesia: towards better preparedness for exotic incursions. *Proc Aust Soc Sugar Cane Technology Volume 32.*

Sallam M.S, Allsopp P.G. (2002). BSS249 Preparedness for Borer incursion *Chilo incursion mana*

3. Diagnostic Images



TBA
Aedeagus: S. Anderson DAFF Biosecurity



TBA
Antennae: S. Anderson DAFF Biosecurity



S. Eyres P056464
Borer damage: S. Eyres Department of Agriculture Western Australia



TBA
C. auricilius female: S. Anderson DAFF Biosecurity



Larva causing stalk damage
C. auricilius larva: N. Sallam DAFF Biosecurity



TBA
C. auricilius male: S. Anderson DAFF Biosecurity



N. Sallam
Dead heart damage: N. Sallam DAFF
Biosecurity



TBA
Female genitalia: S. Anderson DAFF
Biosecurity



TBA
Male genitalia: S. Anderson DAFF
Biosecurity



TBA
Male genitalia: S. Anderson DAFF
Biosecurity

Results Generated:

Friday, October 19, 2018
