1. PaDIL Species Factsheet

Scientific Name:
*Cryptolestes pusillus* (Schönherr, 1817)
(Coleoptera: Laemophloeidae)

Common Name
flat grain beetle

Image Library
Australian Biosecurity

Partners for Australian Biosecurity image library

- Museum Victoria
- CRC National Plant Biosecurity
- Plant Health Australia
- Department of Agriculture, Fisheries and Forestry
- Department of Agriculture and Food, Western Australia
2. Species Information

2.1. Details

**Specimen Contact:** Cameron Brumley - cameron.brumley@agric.wa.gov.au

**Author:** Andras Szito

**Citation:** Andras Szito (2011) flat grain beetle (*Cryptolestes pusillus*) Updated on 2/13/2012 Available online: PaDIL - http://www.padil.gov.au

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2.2. URL


2.3. Facets

**Commodity Overview:** General

**Commodity Type:** Grains, Rice

**Distribution:** Africa, Australasian - Oceanian, Central and South America, Cosmopolitan, Europe and Northern Asia, Mediterranean Basin, South and South-East Asia, USA and Canada

**Group:** Beetles

**Status:** Exotic Species Establishment in Australia

2.4. Diagnostic Notes

Click here to view live footage of this beetle:

Live footage

Laemophloeidae is a small family of beetles including only about 500 species worldwide. The latest overview of the biology, ecology, morphology and classification was provided Thomas and Leschen (2010). The family is reviewed for the USA, Europe and Africa but there has not been a revision or any recent work on the family in Australia.

The pest species of *Cryptolestes* were reviewed by Halstead in 1993. In his excellent revision he provided an identification key and also very detailed descriptions. The author listed nine pest species occurring in stored products: *C. capensis* (Waltl), *C. cornutus* (Thomas and Zimmermann), *C. divaricatus* (Grouvelle), *C. ferrugineus* (Stephens), *C. klapperichi* (Lefkovitch), *C. pusilloides* (Steel and Howe), *C. pusillus* (Schönherr), *C. turcicus* (Grouvelle) and *C. ugandae* (Steel and Howe). Out of the listed species so far, only the cosmopolitan *C. ferrugineus*, *C. pusillus* and *C. pusilloides* have been detected in Australia.

In spite of Halstead (1993) and Banks (1980) publications, *Cryptolestes* specimens are usually identified to generic level only. The reason being that reliable identification requires genitalia dissection. Until one examines cleared specimens -- particularly genitalia -- under the microscope, one doesn't realise how inadequate the images are in Banks' paper or how difficult it is to associate the line drawings in Halstead's paper with real specimens. This is a result of the small image size, similarity of the species and the poor imaging and printing technology available at that time.

Species level identification has become important since 2007 with the finding that *C. ferrugineus* is
capable of developing high level of phosphine resistance, particularly when the grain is stored in poorly sealed silos or the fumigation regime not carried out correctly. In any case, when results of the identifications have significant impact on biosecurity, the identification should be based on genitalia dissections (performed by a beetle taxonomist) and the identification must be validated by an independent beetle taxonomist.

Simplified key to the identification of the three introduced stored product pest _Cryptolestes _spp. occurring in Australia.

**1** First and second elytral interspace with 3 complete rows of setae _C_. _pusilloides _(Steel and Howe)
- First and second elytral interspace with 4 complete rows of setae in the first and second elytral interspace

**2**

**2** Head without posterior transverse sulcus (this feature separates the species from all other _Cryptolestes _pests) _C_. _ferrugineus _(Stephens)
- Head with posterior transverse sulcus _C_. _pusillus _(Schönerr)

2.5. References

2.6. Web Links
3. Diagnostic Images

Cryptolestes pusillus elytra. Australia 2010 det: A. Szito

Cryptolestes pusillus elytra: Pia Scanlon DAFWA

Cryptolestes pusillus cleared female abdomen. Australia 2010 det: A. Szito

Cryptolestes pusillus female abdomen: Pia Scanlon DAFWA

Cryptolestes pusillus cleared female dorsal.

Cryptolestes pusillus female dorsal: Pia Scanlon DAFWA

Cryptolestes pusillus cleared female genitalia. Australia 2010 det: A. Szito

Cryptolestes pusillus female genitalia: Pia Scanlon DAFWA

Cryptolestes pusillus cleared male abdomen. Australia 2010 det: A. Szito

Cryptolestes pusillus male abdomen: Pia Scanlon DAFWA

Cryptolestes pusillus cleared male dorsal. Australia 2010 det: A. Szito

Cryptolestes pusillus male dorsal: Pia Scanlon DAFWA
Cryptolestes pusillus cleared male genitalia. Australia 2010 det: A. Szito

**Cryptolestes pusillus male genitalia:** Pia Scanlon DAFWA

Cryptolestes pusillus cleared male head. Australia 2010 det: A. Szito

**Cryptolestes pusillus male head:** Pia Scanlon DAFWA

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