



## Rediscovery and redescription of *Cassidulus infidus* (Echinoidea: Cassidulidae) from Northeastern Brazil

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### Abstract

*Cassidulus infidus* Mortensen 1948b is one of the few recent species of the family Cassidulidae Agassiz & Desor 1847 and known only from its poorly described holotype. In Brazil, this family is represented only by two extant species and, to date, both are endemic to Bahia (*C. infidus*) and Rio de Janeiro (*Cassidulus mitis* Krau 1954). After a century of its first capture, some topotypes of *C. infidus* were found enabling its redescription, which are provided herein. The characterization of some of its ecological aspects and a key to the known species of *Cassidulus* are also given.

**Key words:** Echinodermata, taxonomy, identification key, Cassiduloidea, Bahia State

### Resumo

*Cassidulus infidus* Mortensen 1948b é uma das poucas espécies recentes da família Cassidulidae Agassiz & Desor 1847 e conhecida apenas pelo seu holótipo, pobremente descrito. No Brasil, esta família é representada apenas por duas espécies recentes e, até o momento, ambas são endêmicas da Bahia (*C. infidus*) e Rio de Janeiro (*Cassidulus mitis* Krau 1954). Após um século da sua primeira captura, alguns topotipos de *C. infidus* foram encontrados, possibilitando a sua redescrção, provida neste trabalho. A caracterização de alguns dos seus aspectos ecológicos e uma chave de identificação para as espécies conhecidas de *Cassidulus* também são apresentadas.

**Palavras-chave:** Echinodermata, Taxonomia, chave de identificação, Cassiduloidea, Estado da Bahia

### Introduction

Cassidulids appeared in the Late Cretaceous (Maastrichtian) and reached their peak in the Eocene, after passing through certain morphological changes such as reduction of the number of pores beyond petals from two to one, change from a tetrabasal to a monobasal apical disc and the introduction of buccal pores (Kier 1962). Cassidulidae is composed by about two to six fossil and two to five extant genera, depending on the classification used (e.g., Mooi 1990b; Smith 2005; Saucède & Néraudeau 2006; Kroh 2010 following the Treatise on Invertebrate Paleontology). Regarding the extant genera, *Cassidulus* Lamarck 1801, *Rhyncholampas* Agassiz 1869 and *Eurhodia* d'Archiac & Haime 1853 are well established in the family (Kier 1962; Smith 2005); and *Oligopodia* Duncan 1889 and *Studeria* Duncan 1889, however, were provisionally included by Mooi (1990b). Indeed, this inclusion has been supported by many cladistic analyses, which have shown that these genera are closely related to the other cassidulids (Suter 1994a; b; Wilkinson *et al.* 1996; Saucède & Néraudeau 2006). According to Suter (1994b), the monophyly of this family is supported by four synapomorphies, comprising an aboral lip above periproct (character reversed in *Cassidulus malayanus* Mortensen 1948b), a broad interambulacrum 5 naked zone, an ambulacral III naked zone, and the pitted test surface of the naked zones.