



<http://dx.doi.org/10.11646/zootaxa.3616.2.7>

<http://zoobank.org/urn:lsid:zoobank.org:pub:0BD7E235-F1A7-4CB4-8F9A-0423DE55FE29>

## Remarks on the sexual dimorphism and taxonomy of *Fabia* Dana, 1851 (Crustacea, Brachyura, Pinnotheridae)

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### Abstract

A study of the holotype of *Pinnotheres hemphilli* Rathbun, 1918, revealed it is an early post-hard female, not a male, of *Fabia* Dana, 1851. The morphology of *Pinnotheres emiliai* Melo, 1971 (based on a male specimen) and *Fabia insularis* Melo, 1971 (based on a female specimen) confirm earlier hypothesis that they belong to a sexually dimorphic species that should be known as *F. emiliai* (Melo, 1971). The redescription of the holotype of *Fabia felderi* Gore, 1986, supports its generic assignment and its relationship with *F. emiliai*. The implication of sexual dimorphism and intersexes in the taxonomy of *Fabia* is discussed.

**Key words:** Crustacea, Pinnotheridae, sexual dimorphism, intersex, taxonomy, *Fabia*

### Resumen

El estudio del holotipo de *Pinnotheres hemphilli* Rathbun, 1918, reveló que éste es una hembra posdura, no un macho, perteneciente al género *Fabia* Dana, 1851. Las morfologías de *Pinnotheres emiliai* Melo, 1971 (basada sobre un espécimen macho) y *Fabia insularis* Melo, 1971 (basada sobre un espécimen hembra) confirman una hipótesis previa que ellos pertenecen a una especie sexualmente dimórfica que debe ser conocida como *F. emiliai* (Melo, 1971). La redescrición del holotipo de *Fabia felderi* Gore, 1986, apoya su asignación genérica y su relación con *F. emiliai*. Se discuten las implicaciones del dimorfismo sexual e intersexos en la taxonomía de *Fabia*.

### Introduction

The pinnotherid genus *Fabia* Dana, 1851, is composed of eight American species of symbiotic crabs: the Atlantic *Fabia byssommiae* (Say, 1818), *F. tellinae* Cobb, 1973, *F. emiliai* (Melo, 1971), and *F. felderi* Gore, 1986, and the Pacific *F. subquadrata* (Dana, 1851), *F. concharum* (Rathbun, 1893), *F. malaguena* (Garth, 1948), and *F. carvachoi* Campos, 1996 (see Campos 1996; Gore 1986; Campos & Manning 1998). Other nominal species, such as *F. sebastianensis* Rodrigues da Costa, 1970, and *F. obtusidentata* Dai, Feng, Song & Chen, 1980 (see Rodrigues da Costa 1970; Dai *et al.* 1980; Campos 1996; Becerra *et al.* 2006; Ng *et al.* 2008) were incorrectly placed in *Fabia* and their systematic status will need to be discussed in a forthcoming publications. Species of *Fabia* are sexually dimorphic and undergo remarkable morphological changes in their life history (Pearse 1966; Campos 1996). These developmental changes and coupled with sexual dimorphism have led to some authors describing the same species twice (see below; Campos 1996). Fenucci (1975) discovered one of these mistakes during a study of sexual pairs of specimens living symbiotically with the bivalve *Glycimeris longior* (Sowerby, 1832). He found that the morphology of the female concurred with *F. insularis* Melo, 1971, while the male agreed with *Pinnotheres emiliai* Melo, 1971. Fenucci (1975) accordingly synonymized both species and his conclusions were later followed by Campos (1996). Martins & D’Incao (1998), as well as Melo (1998), Boschi *et al.* (1992) and Bezerra *et al.* (2006), subsequently revalidated both Melo’s species. This study reassesses the conclusions of Martins & D’Incao (1998). *Fabia felderi* Gore, 1986, and *Pinnotheres hemphilli* (Rathbun, 1918), are re-described and the latter species is