



MONOGAMY IN THE BURROWING SHRIMP *Axianassa australis* RODRIGUES & SHIMIZU, 1992 (DECAPODA, GEBIIDEA, AXIANASSIDAE)

HERNÁEZ, P.^{1,*}, MUGNAI, R.², SOUZA-FILHO, J.F.³ & PINHEIRO, M.A.A.⁴

¹ Universidad de Tarapacá (UTA), Facultad de Ciencias, Centro de Estudios Marinos y Limnológicos, Arica, Chile

² Universidade Federal do Maranhão (UFMA), Centro de Ciências Agrárias e Ambientais, Laboratório de Biogeociclos/Limnologia, Chapadinha, Maranhão, Brazil; ³ Universidade Federal de Pernambuco (UFPE), Departamento de Oceanografia, Museu de Oceanografia Petrônio Alves Coelho, Recife, Pernambuco, Brazil;

⁴ Universidade Estadual Paulista (UNESP), Instituto de Biociências (IB), Campus do Litoral Paulista (CLP), Laboratório de Biologia da Conservação de Crustáceos (LBC), Grupo de Pesquisa em Biologia de Crustáceos (CRUSTA), São Vicente, São Paulo, Brazil.

* Corresponding author: pahernaез@gmail.com

Our knowledge of the mating systems in burrowing shrimps (infraorder Axiidea and Gebiidea) is still rather limited. Here, we described the burrow use pattern, sex ratio and sexual dimorphism of the burrowing shrimp *Axianassa australis* to test for monogamy, considering that monogamous species live in heterosexual pairs and exhibit a low degree of sexual dimorphism. To this end, a total of 226 individuals of *A. australis* were collected from northeast region of Brazil. Samples were randomly collected at low tide during periods of lower daily temperature. Shrimps were collected from the burrows by using a handmade yabby pump. Our results showed that *A. australis* inhabited their burrows mainly as pairs, most of which were male-female pairs. In agreement with the expectations, *A. australis* was found dwelling as heterosexual pairs more frequently than expected by chance alone. The presence of ovigerous females was associated with the burrow occupation; that is, brooding females were more frequently observed in male-female combinations than solitary. Also supporting theoretical considerations, we did not observe sexual dimorphism in body size between males and females of the population and the different categories of the burrow occupation. Conversely, sexual dimorphism in cheliped size was evident in the population, with larger chelipeds in males than in females. This observation agrees with that reported for most burrowing shrimps in which male-male competition is the main evolutionary force of the sexual selection. The observations above argue in favor of the hypothesis that *A. australis* is primarily monogamous with a small fraction of the males moderately promiscuous.

Keywords: allometric growth, Brazil, Crustacea, mating systems, population demography.

Financial support: FAPESP, FACEPE and CNPq (PQ # 305957/2019-8).

Area: Ecology & Biodiversity

