

SOCIAL STRUCTURE, SEX RATIO AND SEXUAL DIMORPHISM IN THE INTERTIDAL GHOST SHRIMPS (DECAPODA, AXIIDAE, CALLIANASSIDAE) AND MUD SHRIMPS (DECAPODA, GEBIIDAE, AXIANASSIDAE-UPOGEBIIDAE) FROM THE SOUTHWESTERN ATLANTIC

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Information about lifestyle and sexual dimorphism in terms of body size and appendages used as weapons (e.g., chelipeds) gives us valuable information on mating systems in decapod species. In this study we described the social structure, sex ratio and sexual dimorphism in six species of ghost shrimps (Callianassidae: *Callichirus major*, *Lepidophthalmus siriboia*, *Neocallichirus maryae*, *Neocallichirus nickellae*, *Sergio guara*, *Sergio mirim*) and two of mud shrimps (Axianassidae: *Axianassa australis*; Upogebiidae: *Upogebia omissa*) collected during an extensive latitudinal expedition along the Brazilian coast (0°S to 32°S). With the exception of *A. australis* and *U. omissa* that was found living in pairs, no shrimp pairs or burrows inhabited by more than one shrimp were detected in the most species collected during the study period. In favor of expectations, the population sex ratio was skewed toward females in most of collected species, thus confirming the trend reported in other ghost shrimps and mud shrimps. In six of the eight studied species, males were smaller than females, denoting sexual dimorphism with respect to body size. Heterochely was a recurrent pattern in males of the most species with solitary habits, whereas the homochely was totally predominant in the two collected species whose males inhabited their galleries in heterosexual pairs. Our observations on social structure, sex ratio and sexual dimorphism argue to favor that solitary species are polygamous, whereas those forming heterosexual pairs monogamous. This assumption coincides with the fact that males in polygamous species invest heavily in structures, such as chelipeds, that are used as armament against other potential competitors. In contrast, in most monogamous species disproportionate sexual dimorphism of chelipeds is not observed because sexual selection is weak given that monogamy evolved from fidelity between heterosexual pairs.

Keywords: cheliped, heterochely, morphology, population biology, reproduction.

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