

Scientific note

To be or not to be planktonic: the first observation of parental care in the hermit crab *Clibanarius foresti* Holthuis, 1959

(Decapoda, Diogenidae)

Déborah Elena Galvão Martins & Flavio de Almeida Alves-Júnior

Hermit crabs of the family Diogenidae Ortmann, 1892 comprise 22 genera and 486 recent species, widely distributed worldwide. *Clibanarius foresti* Holthuis, 1959 is restricted to southwestern Atlantic (Suriname, French Guiana and Brazil), occurring from the intertidal regions to continental shelf (~200 m) (Melo 1999, Barreto et al. 2003). Although common in marine environments, few studies have reported on the biology and life cycle of this species. It is expected for the group that its larval stages are carried out in the planktonic environment. However, in this paper, we report the first observation of the extended parental care promoted by *Clibanarius foresti*.

The specimens were collected as bycatch during commercial fisheries of red snapper *Lutjanus purpureus* (Poey, 1866) (SISBIO: 44915-3) in the Amazon continental shelf (03°19'43.94" N, 049°36'54.04" W) using a "manzuá" trap at the depth of 70 m, in December 2023. In the laboratory, the specimens were removed from its shells for identification following Melo (1999), photographed and measured in carapace length (cl.). The specimens were deposited at the carcinological collection of the Laboratório de Crustáceos (LABCRUS/UFRA) (Voucher number: 54.2.1A).

We collected two females of *C. foresti* (cl. 6 and 7.1 mm), carrying between 26 and 28 zoea stage III (Fig. 1), of four zoea stages described for this genus. Although not common in hermit crabs, investment in lecithotrophic larvae (also parental care) maximizes the reproductive success, as seen in some species (e.g. *Calcinus* spp. Dana, 1851; *Paguristes frontalis* (H. Milne Edwards, 1836); *Areopaguristes abbreviatus* (Dechancé, 1963)). These species exhibit abbreviated larval development (sequential molts) inside the female's shell, ensuring greater protection for the larvae until they reach adulthood (Calado et al. 2006). However, parental care is not observed for all species, most of the hermit crabs produce large quantities of eggs and release their larvae into the planktonic environment, where predation may reduce the recruitment. Due to the small size observed in *C. foresti* adults, parental care may be a positive strategy for the perpetuation of the species in highly predatory environments.

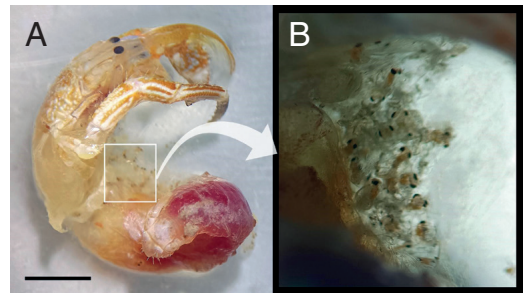


Fig. 1. A. Lateral view of *Clibanarius foresti* Holthuis, 1959; B. Zoea III larvae adhered on the female pleopods. Scale bar = 3 mm.

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References

- Barreto, A. V., Calado, T. C. S., Soares, C. M. A. & Araújo, J. S. 2003. Stomatopoda and Decapoda Anomura along the Northeast-Brazilian continental shelf and slope. *Tropical Oceanography* 31(1): 63–69.
- Calado, R., Nogueira, N. & Santos, A. 2006. Extended parental care in a hermit crab of the genus *Calcinus* (Anomura: Diogenidae). *Journal of the Marine Biological Association of the United Kingdom* 86: 121–126.
- Melo, G. A. S. 1999. Manual de identificação dos Crustacea Decapoda do litoral brasileiro: Anomura, Thalassinidea, Palinuridae e Astacidea. 551 pp., São Paulo (Editora Plêiade/FAPESP).