Octopus cleaned by two fish species at Fernando de Noronha Archipelago, SW Atlantic

Received: 26 September 2003 / Accepted: 2 January 2004 / Published online: 29 July 2004 © Springer-Verlag 2004



Fig. 1 The octopus *Octopus* cf. *vulgaris* cleaned by the goby *Elacatinus* cf. *randalli* while moving past a cleaning station at about 6-m depth (Fernando de Noronha Archipelago, May 2003)

Cleaning symbiosis in the sea involves a great range of species (Côté 2000), with a single record of an octopus cleaned by a fish (Johnson and Chase 1982). The authors report here on two instances of cleaning association between octopuses and cleaner fishes, both of them from a shipwreck site at the Fernando de Noronha Archipelago (03°50'S, 32°25'W) in northeast Brazil, SW Atlantic. In one record, an octopus (Octopus cf. vulgaris) moved past a cleaning station tended by the cleaner goby Elacatinus cf. randalli, a fish based on the substrate (Sazima and Moura 2000). As the octopus approached the station, the goby quickly swam towards it and inspected its mantle. The octopus paled during the cleaning (Fig. 1). After riding for about 2 m, the goby swam back to the station. In the second record, the octopus moved directly towards a station tended by the wrasse Thalassoma noronhanum, a fish that cleans in the water column (Francini-Filho et al. 2000). Settled atop a small promontory, the octopus darkened and paled while 10-12 fish nibbled at its skin. After 4 s, the octopus left the station. We suggest that the record

scarcity of octopuses at cleaning stations may be due to the very transient nature of the interaction plus the octopus' legendary cryptic behavior.

Acknowledgements We thank J. M. Silva-Jr. (Centro Golfinho Rotador) for logistics and other help; the Atlantis diving center for allowing free use of its facilities; the Ibama for issuing study permits at the Fernando de Noronha National Marine Park; and the CNPq and FAPESP for financial support.

References

Côté IM (2000) Evolution and ecology of cleaning symbioses in the sea. In: Gibson RN, Barnes M (eds) Oceanography and marine biology: an annual review, vol. 38. Taylor and Francis, London, pp 311–355

Francini-Filho RB, Moura RL, Sazima I (2000) Cleaning by the wrasse *Thalassoma noronhanum*, with two records of predation by its grouper client *Cephalopholis fulva*. J Fish Biol 56:802–809

Johnson WS, Chase VC (1982) A record of cleaning symbiosis involving *Gobiosoma* sp. and a large Caribbean octopus. Copeia 1982:712–714 Sazima I, Moura RL (2000) Shark (*Carcharhinus perezî*), cleaned by the goby (*Elacatinus randalli*), at Fernando de Noronha Archipelago, western South Atlantic. Copeia 2000:297–299

I. Sazima (🖂) · J. P. Krajewski · R. M. Bonaldo · C. Sazima

Dept. Zoologia and Museu de História Natural, Universidade Estadual de Campinas,

CP 6109, 13083-970 Campinas, Brasil

E-mail: isazima@unicamp.br