



**Fig. 1** **a** *Periclimenes yucatanicus* on *Actinotryx* sp. at Bocas Del Toro, Panama, 6 m depth. **b** *Periclimenes rathbunae* on *Ricordea florida* at Golden Reef, Belize, 8 m depth

## *Periclimenes yucatanicus* and *Periclimenes rathbunae* on unusual corallimorph hosts

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Symbiosis is a key process that is necessary for the survival of many coral reef organisms, yet little is known about the host range of many invertebrate symbionts. *Periclimenes yucatanicus* is a symbiotic shrimp that is most often associated with the anemones *Stichodactyla helianthus*, *Bartholomea annulata*, *Lebrunia danae* and *Condylactis gigantea* (Herrnkind et al. 1976; Limbaugh et al. 1961; Mahnken 1972) and on St Croix, USVI and on Martinique this shrimp was reported to associate with the corallimorph *Rhodactis sanctihomeae* (a synonym of *Actinotryx sanctihomeae*) (Spotte et al. 1991; Williams and Williams 1982). In 2004, we observed this shrimp on *Actinotryx* sp. at a depth of 6 m at Bocas Del Toro, Panama (Fig. 1a). *Periclimenes rathbunae* is known to associate with the anemones *S. helianthus*, *B. annulata*, *L. danae*, and *Homostichanthus duerdeni* (Mercado and Capriles 1982; Spotte et al. 1991). In 2006 in Belize we observed this shrimp associating with the corallimorph, *Ricordea florida* (Fig. 1b). Even though this association between *Periclimenes* spp. and a corallimorph is only the third such report since 1982, it is probably an indication of a wider host breadth for these shrimps than is known from the literature. The symbiotic advantage that *Periclimenes* spp. give their host (or vice-versa) is unknown. Which ecological processes drive host switching and whether these shrimps have locally adapted to different hosts in certain regions remains unstudied.

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### References

- Herrnkind W, Stanton G, Conklin E (1976) Initial characterization of the commensal complex associated with the anemone, *Lebrunia danae*, at Grand Bahama. *Bull Mar Sci* 26:65–71
- Limbaugh C, Pederson H, Chase FAJ (1961) Shrimps that clean fishes. *Bull Mar Sci* 11:237–257
- Mahnken C (1972) Observations on cleaner shrimps of the genus *Periclimenes*. *Nat Hist Mus Los Angel Cty Sci Bull* 14:71–83
- Mercado LM, Capriles VA (1982) Description of two commensal complexes associated with the anemones, *Stoichactis helianthus* and *Homostichanthus duerdeni* in Puerto Rico. *Caribb J Sci* 17:69–72
- Spotte S, Heard RW, Bubucis PM, Manstan RR, McLelland JA (1991) Pattern and coloration of *Periclimenes rathbunae* from the Turks and Caicos islands, with comments on host associations in other anemone shrimps of the West Indies and Bermuda. *Gulf Res Rep* 8:301–311
- Williams EHJ, Williams LB (1982) First report of *Periclimenes yucatanicus* (Ives) (Decapoda, Palaemonidae) in association with a corallimorpharian anemone. *Crustaceana* 42:318–319

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