White rings on the threatened coral, *Acropora palmata*, associated with foraging activity of the honeycomb cowfish, *Acanthostracion polygonius* (Ostraciidae)

Fig. 1 Time series photographs of the cowfish, *A. polygonius*, foraging on a colony of *A. palmata*, **a** before the lesion was created (designated by *black box*), **b** in the act of creating the lesion, and **c** after the lesion was created (designated by *black box*)

Fig. 2 Photograph of annular lesion created by *A. polygonius* on the coral, *A. palmata*

(Bruckner 2007). They appear as a white ring with apparently healthy, intact tissue in the center, and are approximately 2 cm in diameter (Fig. 2). The ring appearance results from partial removal of tissue from the sides of the corallites and coenosteum, leaving polyps within the ring intact. There is no apparent mechanical damage to the corallites. As healing progresses, the ring gradually becomes a ring of pale tissue until zooxanthellae are recovered. Lesions heal rapidly (less than 6 weeks) and do not contribute to significant losses of live tissue. It is uncertain whether the fish is actively feeding on the coral tissue or the lesion is a by-product of the fish's foraging behavior. Although these lesions are rare, affecting $6 \pm 4\%$ (mean $\pm$ SD) of colonies in the Florida Keys, their occurrence is typically clustered, affecting nearly 100 % of colonies at some sites. Of our 24 monitoring sites in Florida, colonies are consistently affected at three sites, while rings were rare to absent at the remaining sites. Through *A. palmata* monitoring in other locations: Curaçao (since 2006), Navassa (since 2006), British Virgin Islands (2006–2007), Puerto Rico (2007–2009), and US Virgin Islands (2007–2009), we have observed these annular lesions to have a similar patchy occurrence but lower average prevalence than in the Florida Keys.

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