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Epibionts Associated with *Chelonia mydas* from Northern Brazil

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Epibionts have been documented from all extant sea turtle species. The loggerhead turtle (*Caretta caretta*) appears to support the greatest diversity of epibionts (Frick *et al*. 1998; Frick *et al*. 2000). The green turtle (*Chelonia mydas*) is also commonly colonized by a variety of commensals (Bugoni *et al*. 2001; Hirth 1997). To date, there is a paucity of information on the epibionts of green turtles in northern Brazil. Here we present results of a survey of epibionts from green turtles incidentally captured in local fishing gear in Ceará, Brazil following the methods of Marcovaldi *et al*. (2001).

Epibionts were collected from 32 live turtles captured in fishing traps that were placed adjacent to Almofala beaches between Praia de Almofala (02º 91’ S, 03º 83’ W) and Volta do Rio (02º 85’ S, 03º 95’ W) from February - July 2005. Captured turtles were juveniles and subadults (mean curved carapace length = 67.6 cm). Epibionts were removed from the carapace and soft body tissues and immediately preserved in 70% ethyl alcohol. Soft-bodied organisms were placed in 10% $MgCl_2$. Samples were then sorted to the lowest taxon possible.

We identified two phyla associated with green turtles in northern Brazil: Arthropods (barnacles, *Chelonibia testudinaria* and unidentified Balanidae) and an Annelid (leech, Ozobranchidae), which was likely *Ozobranchus brachiatus* as this leech is more common as an ectoparasite of green turtles than its congener *O. margoi* (Hirth 1997). *C. testudinaria* was by far the most frequent barnacle observed from northern Brazilian *C. mydas* (100 % occurrence). This species has been reported from *C. mydas* populations worldwide (Hirth 1997) - including *C. mydas* from southern Brazil, state of Rio Grande do Sul (Bugoni *et al*. 2001). *C. testudinaria* density ranged from 3 - 25 individuals per turtle.

Unidentified balanid barnacles were not as common as *C. testudinaria* (3 turtles, 9.4 %). Given the numerous species of balanids reported from northern Brazil (Newman & Ross 1976), the unidentified specimens could represent one or more species. Bugoni *et al*. (2001) reported the

balanids *Balanus improvisus* and *B. venustus* from green turtles in southern Brazil and it is likely that they occur on *C. mydas* in northern Brazil as well.

Barnacles were largely confined to the scutes of the posterior and marginal areas of the host turtle's carapace – a similar location noted for epibionts of Atlantic loggerheads (Caine 1986) and noted as an ideal region for the recruitment of large filter-feeders like *C. testudinaria* (Matsuura & Nakamura 1993). We also found barnacles commonly situated on Inconel flipper tags.

We did not find a large variety nor a large number or organisms on the same turtle. Our results suggest that epibionts do not colonize green turtles as gregariously as other turtle species. Also noteworthy is that the leeches we observed were always associated with masses (possible fibropapillomas; 11 turtles, 34 %) and leech egg masses were commonly found along the front flippers of host turtles - zones of high turbulence and aeration that are likely conducive for embryonic development.

We were not surprised to find *C. testudinaria* on all the turtles that we observed, as this species is commonly observed on most sea turtle species – including green turtles from the Galapagos Islands (Green 1996). Similarly, none of the turtles examined during this study seemed to be physically affected by its barnacle load, including small juveniles and turtles suffering from fibropapillomatosis.

Given the aforementioned locations reported for barnacles on the host turtle carapace, we hypothesize that the turtles, when resting, may lay their flippers over the anterior half of the carapace - contributing to the observed epibiont colonization pattern. Other factors that may contribute to the distribution of barnacles and other epibionts on the carapace include intentional or inadvertent scratching against hard surfaces by the host, predation, stress and hydrodynamic drag. Future research goals for our program include a survey of the potential differences between commensals on adult and juvenile turtles and also between epibionts of different turtle species occurring in Brazil. We will also try to elucidate the behavioural, physical or even physiological factors associated with *C. mydas* that might explain why this species is relatively lacking in epibionts, given that it co-exists in Brazilian waters with highly recruited hosts like loggerheads and hawksbill turtles (*Eretmochelys imbricata*) (Frazier *et al*. 1992).

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