

Reef sites

A unique red algal reef formation in Puerto Rico



Fig. 1 *Ramicrusta textilis*, a typical colony (field = approx. 11 cm)



Fig. 2 *Ramicrusta textilis* colony overgrowing the coral *Montastraea faveolata* (field = approx. 45 cm)



Fig. 3 *Ramicrusta textilis* colony that has become eroded underneath (field = approx. 1.0 m)

The genus *Ramicrusta* has only been known in the western Atlantic since 2009 (as *Ramicrusta textilis* Peuschel & Saunders 2009). The species was since reported by Ballantine et al. (2011) from a shallow water site located adjacent to Isla Caja de Muertos, offshore from Ponce, Puerto Rico (Fig. 1). *Ramicrusta* is the principal calcareous benthic element in this patch reef environment. We speculate that the algal reef functions similarly to shallow scleractinian-dominated coral patch reefs, supporting similar fish and macro-invertebrate communities (Electronic Supplemental Material). Individual *Ramicrusta* mounds reach 3 m in diameter and to 1.0 m in height.

Ramicrusta may have become established at the site after overgrowing scleractinian and soft corals (Fig. 2). Individual stands of *Ramicrusta textilis* are probably not long-lived as they become hollowed out within (Fig. 3) and in this state are subject to being torn away from their substratum by wave and current energy. Nevertheless, the reef persists, presumably due to the rapid growth of the red alga. We have conservatively estimated an aerial cover of approximately 18,000 m² for the formation. Other than the well-known role of coralline red algae which make up ‘algal ridges’ (Adey 1978), red algae making up reef structural habitats is previously unknown in the Caribbean region.

Acknowledgments This contribution was supported by the NOAA Caribbean Coral Reef Institute (CCRI), University of Puerto Rico.

References

- Adey W (1978) Algal ridges of the Caribbean sea and West Indies. *Phycologia* 17:361–367
- Ballantine DL, Athanasiadis A, Ruiz H (2011) Notes on the benthic marine algae of Puerto Rico X. Additions to the Flora. *Bot Mar* 54:293–302
- Pueschel CM, Saunders GW (2009) *Ramicrusta textilis* sp. nov. (Peyssonneliaceae, Rhodophyta), an anatomically complex Caribbean alga that overgrows corals. *Phycologia* 48:480–491

Electronic supplementary material The online version of this article (doi: 10.1007/s00338-013-1016-2) contains supplementary material, which is available to authorized users.

D. L. Ballantine (✉) · H. Ruiz
Department of Marine Sciences, University of Puerto Rico, Mayagüez, PR, USA
e-mail: david.ballantine@upr.edu

D. L. Ballantine
Department of Botany, National Museum of Natural History, Smithsonian Institution, Washington, DC, USA