

Reef sites

Multispecies aggregations of mushroom corals in the Gambier Islands, French Polynesia

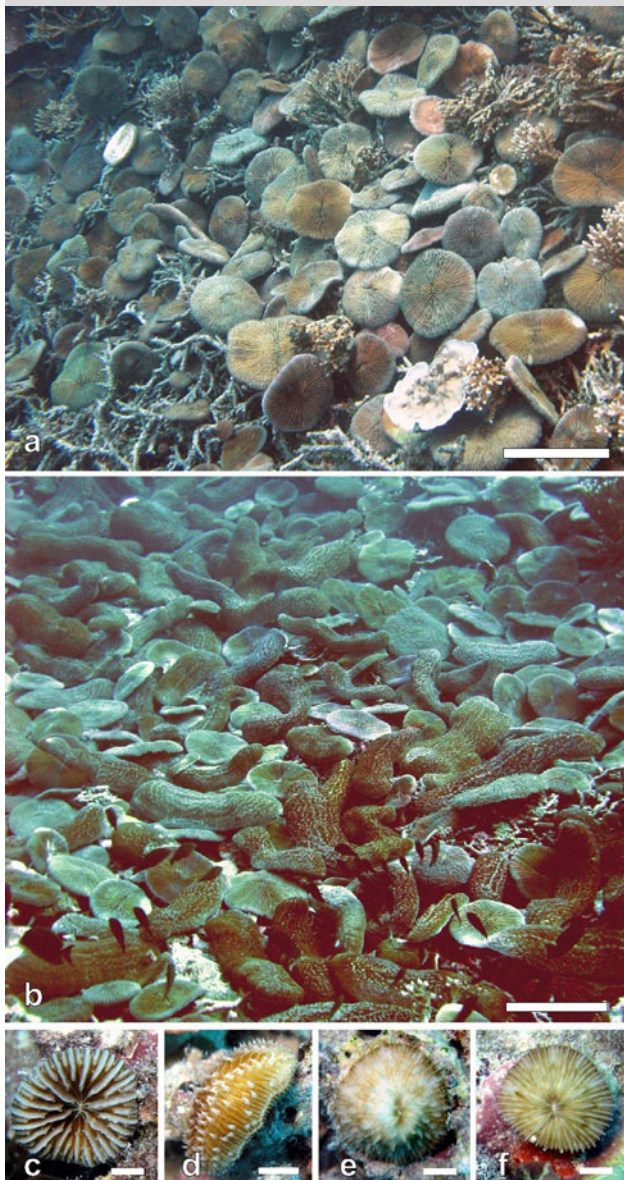


Fig. 1 Multispecies mushroom coral aggregations in two depth zones on a lagoon pinnacle at Mangareva Island, Gambier Islands: **a** 5 m, **b** 20 m. Scale bars 20 cm. Attached juveniles: **c** *Danafungia scruposa*, **d** *Herpolitha limax*, **e** *Lobactis scutaria*, **f** *Lithophyllon repanda*. Scale bars 1 cm

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The coral reefs of the isolated Gambier Islands were studied mid-2011 at 24 sites by the Tara Oceans expedition (Karsenti et al. 2011). Their mushroom coral fauna (Scleractinia: Fungiidae) consisted of only six species, one more than previously recorded (Chevalier 1974).

Dense aggregations of large free-living fungiids appeared to be a typical feature of the reef pinnacles in the protected lagoon north of Mangareva Island (23°5.581'S; 134°59.144'W). Aggregations on pinnacle tops and upper slopes (3–10 m) were dominated by *Danafungia scruposa* (Klunzinger, 1879) and *Lithophyllon repanda* (Dana, 1846) (Fig. 1a). These species were less abundant in deeper assemblages (15–20 m), which predominantly consisted of large *Herpolitha limax* (Esper, 1797) and *Sandalolitha dentata* (Quelch, 1884) (Fig. 1b). *Lobactis scutaria* (Lamarck, 1801) and *Pleuractis paumotensis* (Stutchbury, 1833) were scarce in both depth zones. It is remarkable that the development of these aggregations was not limited by the low species numbers at Gambier.

The frequent occurrence of attached juveniles as sexually derived recruits (Fig. 1c–f) and the low generation of fragments and buds as asexual propagules in comparison with fungiid aggregations in which these dominant species are less abundant (Hoeksema 2012, references herein) suggest that local sexual reproduction rather than cloning has led to the aggregations in the Gambier Islands, which may indicate a lack of recent disturbance (Gilmour et al. 2006). The species compositions of juveniles and adult mushroom corals indicate that success of sexual reproduction in the assemblages is not necessarily species-dependent and that any effect of interspecific competition by overtopping (Fig. 1a, b) is not apparent.

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