

Orbicella faveolata (Mountainous Star Coral)

Order: Scleractinia (Stony Corals)

Class: Anthozoa (Corals and Sea Anemones)

Phylum: Cnidaria (Corals, Sea Anemones and Jellyfish)



Fig. 1. Mountainous star coral, *Orbicella faveolata*.

[<http://www.coralreefphotos.com/giant-mound-of-mountainous-star-coral-curacao/>, downloaded 3 March 2017]

TRAITS. *Orbicella faveolata* is commonly referred to as the mountainous star coral, and was previously known as *Montastraea faveolata*. This is a very large species of coral, referred to as reef-building corals (Fig. 1), their colony sizes are usually from 0.3-3m in height. This coral varies in size, colour, and shape. Some colonies may be flattened as a result of wave action, others may be stumpy (EDGE, 2017) and possess small lumps or holes (Guppy and Bythell, 2006). The corallites, as shown in Fig. 2, are the stony cups that contain the individual animals or polyps in them. These polyps are about 5mm in diameter and cover the entire surface of the coral. The colour of the coral is usually pale to deep brown and has highlights of fluorescent green or yellow; the colour also varies with environmental factors (Guppy and Bythell, 2006; EDGE, 2017).

DISTRIBUTION. This coral species is native to the Caribbean Sea (Vermeij et al., 2006; EDGE, 2017), off the coast of Florida, in the Gulf of Mexico and also in the western Atlantic Ocean.

HABITAT AND ACTIVITY. These corals are only found in the marine environment, in a wide range of depths from 0.5-40m. This species is usually found on the back reef and fore reef slopes of fringing reefs 10-20m below the surface. Fig. 3 shows how a fringing reef is close to the coast (Guppy and Bythell, 2006; EDGE, 2017). Corals feed both heterotrophically and autotrophically (Teece et al., 2011). This organism has a symbiotic relationship with zooxanthellae, which are photosynthetic algae living in the coral's tissues which aid in energy production within the coral (EDGE, 2017).

FOOD AND FEEDING. The zooxanthellae can supply the coral with up to 100% of the energy required in an ideal environment. These are microscopic plants which utilise the sun's rays in order to produce their own food, which makes the coral polyps especially dependent on photoautotrophy; more than heterotrophy or catching prey (Szmant and Meadows, 2006; EDGE, 2017). Like other coral species the mountainous star coral are sessile in their feeding practices. These corals basically dominate the adult coral community of many Caribbean reefs. Algae living in coral tissues die when there is disruption in sunlight or high sea temperatures, which causes bleaching of the corals as the algal cells begin to leave the organism (Green et al., 2014; Guppy and Bythell, 2006).

POPULATION ECOLOGY. These corals have a slow growth rate (EDGE, 2017) as it takes them 3-8 years to become mature, compared to the average lifetime of a coral of 10 years (Guppy and Bythell, 2006). Sexual reproduction is important in coral reef-building and also in regeneration of the population (Wikipedia, 2017). These corals are hermaphrodite in that each polyp contains both male and female sex cells. In this species of corals the gametes released are synchronised in relation to the release in other conspecifics. This synchronised behaviour is governed by full moon events and also distance of mates. Gametes are released into the ocean by the corals and become fertilized. The resultant fertilized eggs are distributed long distances from the source as they are moved by wave action (EDGE, 2017).

APPLIED ECOLOGY. This species is listed as endangered because it has a long generation period and is very susceptible to bleaching. Regeneration of the population is limited (Aronson et al., 2008). For example, there was a 90% decline of corals off the coast of Jamaica from 1980 to 1994 (Guppy and Bythell, 2006). These corals maintain a very high ecological importance in allowing a vast species diversity and ecological home to hundreds of species which aids in biodiversity. *Orbicella faveolata* is key to coral reef building especially in fringing reefs which also protects coastal areas from direct coastal degradation (EDGE, 2017).

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Author: Vanoi Wilkinson

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Fig. 2. A close-up of the corallites of *Orbicella faveolata*.

[https://upload.wikimedia.org/wikipedia/commons/3/35/Montastraea_faveolata.jpg, downloaded 8 March 2017]



Fig. 3. An island surrounded by a fringing reef, common location of *Orbicella faveolata*.

[<http://www.uwgb.edu/dutchs/geophoto/coastal/TAHITI.jpg>, downloaded 8 March 2017]

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