

## 6.2 Genus *Mycetophyllia* (Family Mussidae)

### 6.2.1 *Mycetophyllia ferox* Wells, 1973

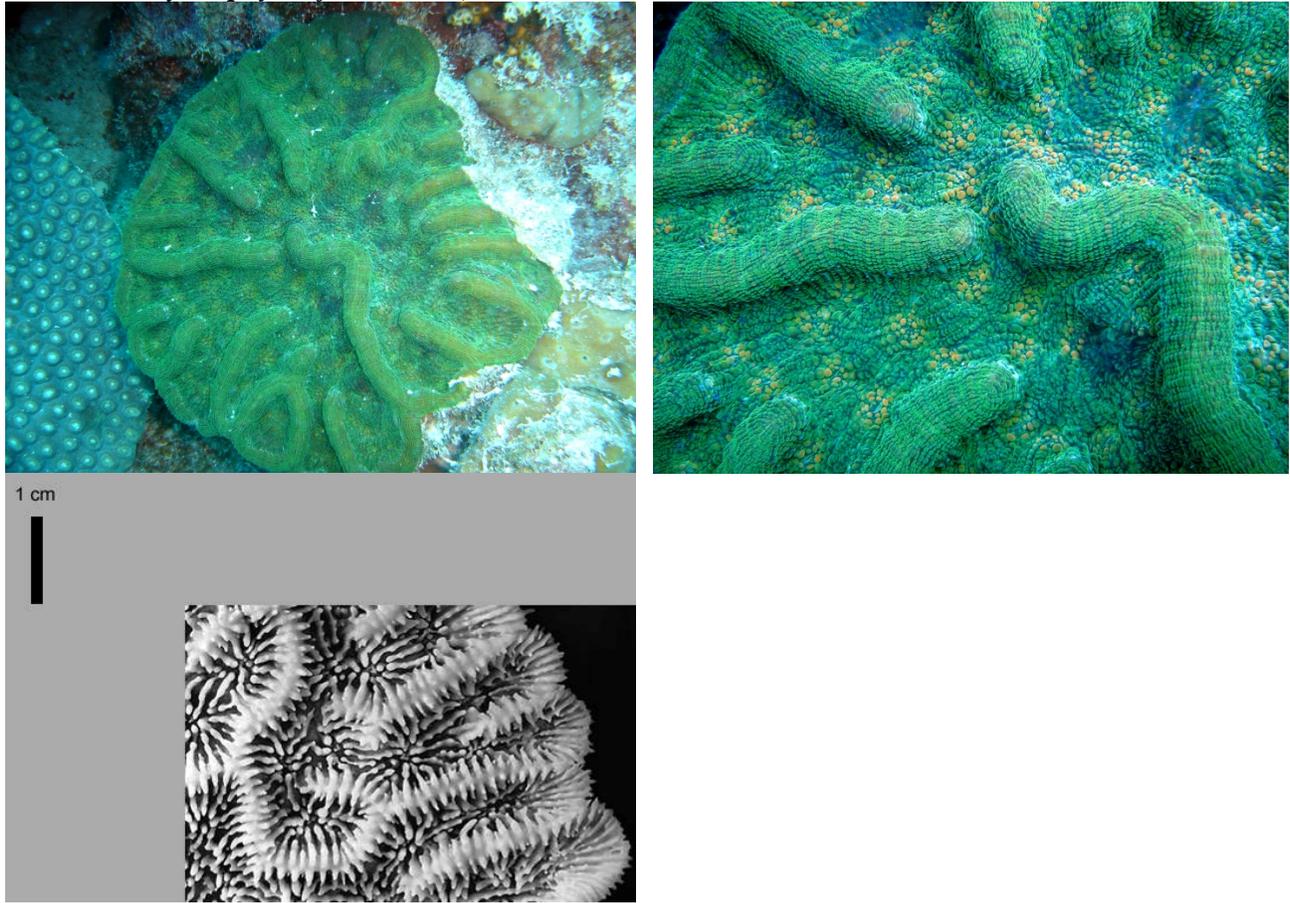


Figure 6.2.1. *Mycetophyllia ferox* photos from National Park Service and corallite plan from Veron and Stafford-Smith (2002).

#### Characteristics

*Mycetophyllia ferox* consists of encrusting laminar plates. Colonies are thin, weakly attached plates with interconnecting, slightly sinuous narrow valleys. Corallite centers are usually in single rows. Columellae are rudimentary or absent. Colonies are most commonly greys and browns in color with valleys and walls of contrasting colors (Veron, 2000). Maximum colony size is 50 cm (Veron, 2000).

#### Taxonomy

**Taxonomic issues:** None. *Mycetophyllia ferox* is similar to *Mycetophyllia danaana*, which has longer, wider, and more widely spaced valleys (Veron, 2000).

**Family:** Mussidae.

**Evolutionary and geologic history:** *Mycetophyllia ferox* has been dated to at least the late Pleistocene in fossil records in Grand Cayman (Hunter and Jones, 1996).

#### Global Distribution

The range of *Mycetophyllia ferox* is restricted to the west Atlantic. There it has been reported to occur throughout most of the Caribbean, including the Bahamas, but it is not present in the Flower Garden Banks or around the waters of Bermuda. E-mail correspondence with S. dePutron (Bermuda Institute of Ocean Sciences, St. George's. pers. comm.,

May 2010) and T. Murdoch (Bermuda Zoological Society, Flatts. pers. comm., May 2010) confirmed the absence of *Mycetophyllia ferox* in Bermuda.



Figure 6.2.2. *Mycetophyllia ferox* distribution from IUCN copied from <http://www.iucnredlist.org>.



Figure 6.2.3. *Mycetophyllia ferox* distribution from Veron and Stafford-Smith (2002).

## U.S. Distribution

According to both the IUCN Species Account and the CITES species database, *Mycetophyllia ferox* occurs throughout the U.S. waters of the western Atlantic but has not been reported from Flower Garden Banks (Hickerson et al., 2008).

Within federally protected waters, *Mycetophyllia ferox* has been recorded from the following areas:

- Dry Tortugas National Park
- Virgin Island National Park/Monument
- Florida Keys National Marine Sanctuary
- Navassa Island National Wildlife Refuge
- Biscayne National Park
- Buck Island Reef National Monument

## Habitat

**Habitat:** *Mycetophyllia ferox* has been reported to occur in shallow reef environments (Veron, 2000).

**Depth range:** *Mycetophyllia ferox* has been reported in water depths ranging from 5 to 30 m (Carpenter et al., 2008).

## Abundance

*Mycetophyllia ferox* is usually uncommon (Veron, 2000) or rare according to published and unpublished records, indicating that it constitutes < 0.1% species contribution (percent of all colonies censused) and occurs at densities < 0.8 colonies per 10 m<sup>2</sup> in Florida (Wagner et al., 2010) and at 0.8 colonies per 100 m transect in Puerto Rico sites sampled by the Atlantic and Gulf Rapid Reef Assessment (AGRR database online at <http://www.agrra.org>). Recent monitoring data (e.g., since 2000) from Florida (National Park Service permanent monitoring stations), La Parguera Puerto Rico, and St. Croix (USVI/NOAA Center for Coastal Monitoring and Assessment randomized monitoring stations) show

*Mycetophyllia ferox* cover to be consistently less than 1%, with occasional observations up to 2% and no apparent temporal trend (available online at [http://www8.nos.noaa.gov/bioge\\_public/query\\_habitat.aspx](http://www8.nos.noaa.gov/bioge_public/query_habitat.aspx)).

Dustan (1977) suggests that *Mycetophyllia ferox* was much more abundant in the upper Florida Keys in the early mid-1970s (the methods are not well described for that study) than current observations, but that it was highly affected by disease. This could be interpreted as a substantial decline. Long-term CREMP monitoring data in Florida on species presence/absence from fixed sites (stations) show a dramatic decline; for 97 stations in the main Florida Keys, occurrence had declined from 20 stations in 1996 to 4 stations in 2009; in Dry Tortugas occurrence had declined from 8 out of 21 stations in 2004 to 3 stations in 2009 (R. Ruzicka and M. Colella, Florida Marine Research Institute, St. Petersburg, FL. pers. comm., Oct 2010).

### Life History

*Mycetophyllia ferox* is hermaphroditic and a brooder. Egg size has been estimated in Puerto Rico to be 300 µm, and polyps produce 96 eggs per cycle on average (Szmant, 1986). Their larvae contain zooxanthellae that can supplement maternal provisioning with energy sources provided by their photosynthesis (Baird et al. 2009), i.e., they are autotrophic. Colony size at first reproduction is > 100 cm<sup>2</sup> (Szmant, 1986). Recruitment of this species appears to be very low, even in studies from the 1970s (Dustan, 1977, reported zero settlement).

### Threats

**Temperature stress:** No bleached *Mycetophyllia ferox* colonies were observed in wide-scale surveys during the 2005 mass coral bleaching event in Florida (Wagner et al., 2010) or Barbados (Oxenford et al., 2008), although the number of colonies was small (two in Barbados; Oxenford et al., 2008).

**Acidification:** No specific research has addressed the effects of acidification on the genus *Mycetophyllia*. However, most corals studied have shown negative relationships between acidification and growth (Table 3.2.2), and acidification is likely to contribute to reef destruction in the future (Hoegh-Guldberg et al. 2007, Silverman et al. 2009). While ocean acidification has not been demonstrated to have caused appreciable declines in coral populations so far, the BRT considers it to be a significant threat to corals by 2100 (Albright et al., 2010; Hoegh-Guldberg et al., 2007; Langdon and Atkinson, 2005; Manzello, 2010; Silverman et al., 2009).

**Disease:** *Mycetophyllia ferox* has been reported to be susceptible to acute and subacute white plague and Dustan (1977) reported dramatic impacts from this disease to the population in the upper Florida Keys in the mid-1970s. He also reported that the rate of disease progression was positively correlated with water temperature and measured rates of disease progression up to 3 mm per day.

**Predation:** *Mycetophyllia ferox* has not been susceptible to predation (E. Peters, George Mason University, Fairfax, VI. pers. comm., July 2010).

**Land-based sources of pollution:** *Mycetophyllia ferox* appeared to be absent at fringing reef sites impacted by sewage pollution (Tomascik and Sander, 1987a). LBSP-related stresses (nutrients, sediment, toxins, and salinity) often act in concert rather than individually and are influenced by other biological (e.g., herbivory) and hydrological factors. Collectively, LBSP stresses are unlikely to produce extinction at a global scale; however, they may pose significant threats at local scales and reduce the resilience of corals to bleaching (Carilli et al., 2009a; Wooldridge, 2009b).

**Collection/Trade:** *Mycetophyllia ferox* is not reported to be an important species for trade. In 2000, 10 pieces of *Mycetophyllia ferox* were exported; only 2 in 2003; and 5 in 2007, according to CITES Trade Database, UNEP World Conservation Monitoring Centre, Cambridge, UK (CITES, 2010).