Dendrogyra cylindrus (Pillar Coral)

Order: Scleractinia (Stony Corals)
Class: Anthozoa (Corals and Sea Anemones)
Phylum: Cnidaria (Corals, Sea Anemones and Jellyfish)

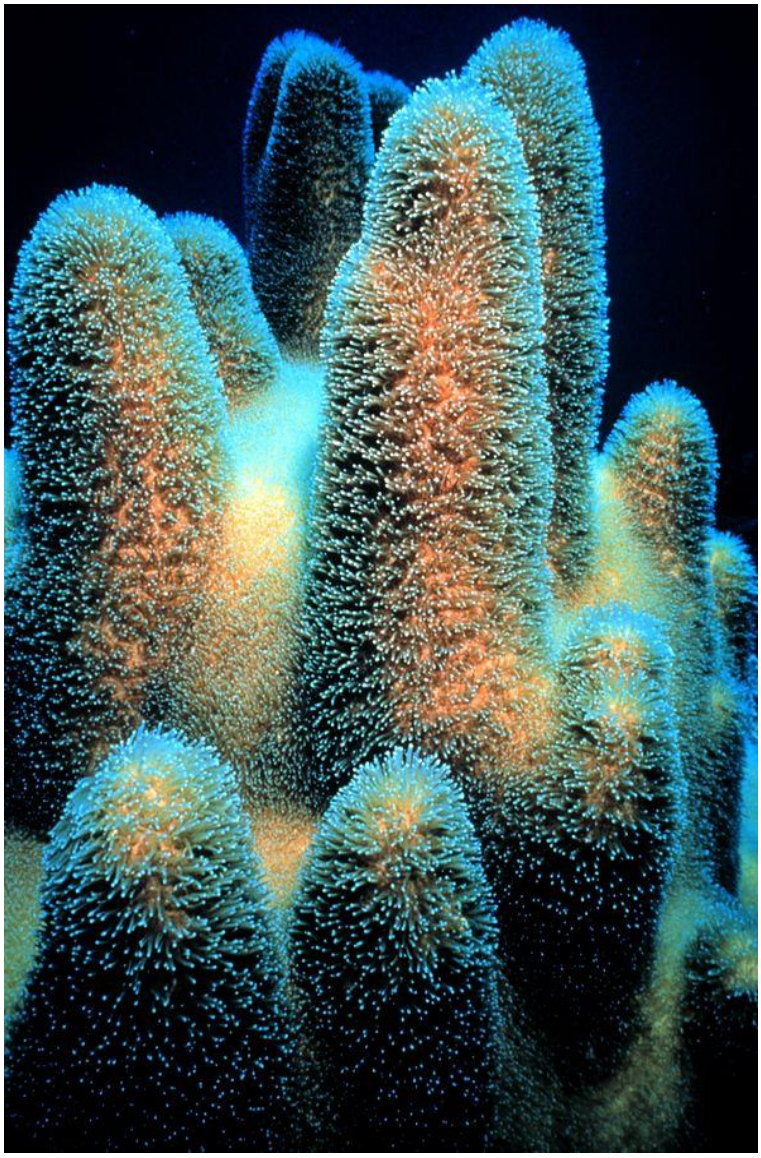

Fig. 1. Pillar coral, *Dendrogyra cylindrus.*

[https://en.wikipedia.org/wiki/Pillar_coral#/media/File:PillarCoral.jpg, downloaded 11 March 2016]

TRAITS. The pillar coral grows vertically in a column-like fashion from an encrusted base. There is no secondary branching (DCNA, 2014). It may reach heights of 3m and 10cm in width. During the day, unlike most coral species, the polys are visible making the skeleton of the coral impossible to see (Fig. 1). Its many tentacles from the polys gives it its furry appearance and it is grey-brown or olive in colour (Wikipedia, 2016).

DISTRIBUTION. It is found in the western Atlantic Ocean, surrounding most of the Caribbean islands, and the southern Gulf of Mexico in addition to being on the coast of Florida and Bahamas (Fig. 2). It was once found in Panama until it was eliminated there (IUCN, 2016), and is a native species to Trinidad and Tobago.

HABITAT AND ACTIVITY. They are marine species, typically found on a flat or slightly inclined reef (back-reef or fore-reef) environment. They can survive an upper depth limit of 1m and a lower depth limit of 25m, but are commonly found at depths of 5-15m (IUCN, 2016). They are not found in extremely exposed locations, but are resistant to heavy wave surges. Unlike most hard corals, they feed during the day (diurnal activity) (DCNA, 2014).

FOOD AND FEEDING. Pillar coral is a zooxanthellate species. This means that the coral acquires most (about 90%) of its energy through the symbiotic relationship it has with algae called zooxanthellae. The algae are found within the tissues of the coral where it provides the building blocks such as amino acids, glucose, and oxygen to the coral, which are then used to synthesize proteins, carbohydrates and other necessary substances (NOAA, 2008). The remaining energy requirement is obtained from the coral polyps using its tentacles to capture plankton, which are ingested through the mouths of the polyps and digested (Bernice Pauahi Bishop Museum, 2016).

POPULATION ECOLOGY. They are a colonial species and have a slow growth rate. Pillar coral are low in abundance globally, but are generally abundant in local shallow and well-circulated areas such as those stated above. Little is known about its total life expectancy but it is likely to be greater than 10 years (IUCN, 2016).

REPRODUCTION. *Dendrogyra cylindrus* can reproduce both sexually and asexually. Asexual reproduction takes place by the process of fragmentation. It occurs when pillar colonies topple, due to bioerosion occurring at the base of the pillar. When the threshold of erosion is reached, the pillar topples horizontally on the sea bed where new pillars grow vertically along the fallen base of the pillar (EDGE, 2016). Unlike most hard coral species which are hermaphrodites, the pillar colonies are made up entirely of either male or female polyps. Both sexes release their gametes (sperm and eggs) into the ocean where fertilisation occurs. Males and females release their gametes at the same time to ensure a greater chance of fertilisation (WildscreenArkive, 2016). The larvae are then picked up by the ocean current before settling on the see bed (Wikipedia, 2016). Due to competition for light and space, along with predators, juveniles usually have a low chance of survival (EDGE, 2016).

APPLIED ECOLOGY. *Dendrogyra cylindrus* is listed in the IUCN as Vulnerable. The pillar coral is very susceptible to certain diseases. One example is the white plague which leads colonies to near extinction. On a regional scale, adverse effects on the pillar coral population is mainly due to abiotic stressors like hurricanes which create turbulent waves that plough away the individual corals. Other areas of adverse impact include a range of other diseases, predation by fish, and bioerosion processes brought on by sponges. The most threatening event to pillar corals is global climate change. This phenomenon involves extreme changes in sea temperatures that would cause bleaching leading to its increased disease susceptibility. Other regional threats to corals include development activities like tourism, sea-faring transportation, and invasive species that act as competitors for its food source or as predators and parasites that would negatively affect its

survival. As a result, the United States including conservation foundations like Florida Keys National Marine Sanctuary have laws that makes it an illegal activity to harvest corals for commercial purposes. They recommended recovery management and disease, pathogen and parasite management, which all involve the maintenance of a specific amount of the coral or pathogens respectively, that would allow for the best environment for its growth (IUCN, 2016).

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Fig. 2. Distribution of pillar coral.

[http://www.edgeofexistence.org/coral_reef/species_info.php?id=1838#distribution, downloaded 1 March 2016]