



## The Magic of Life Butterfly House

### Conservation and Research

#### Tropical Reef Corals Phylum Cnidaria

Tropical coral reefs match tropical rain forests in their diversity and complexity. It is well known that reefs are a threatened habitat and many reefs have suffered huge set backs in recent years. The goals of our Coral collection are laid out below.

- **To introduce people to the wonder of the world of reef and corals**
- **To select certain coral groups and advance the understanding of their biology and husbandry**
- **To inform the public what are the threats to coral reefs**
- **To have dedicated species' tanks with the future aim of breeding single-polyped corals**
- **To help people understand the needs of their marine tanks**

The present collection numbers over 70 species and varieties of corals. One fifth of these are either near-threatened or vulnerable on the IUCN CITES lists. Many of the rest are yet to be assessed. We have selected various taxa to focus on notably *Montipora*, *Turbinaria*, *Micromussa*. We have avoided the popular *Acropora* as this is a popular and well-known genus albeit requiring expertise in husbandry.

Maintaining marine reef aquariums is thwart with difficulties and we have invested much time into finding the different requirements for each coral in terms of flow, light and food. Pest algae and slugs can devastate a tanks in days and even seven years into the project we are very much in a learning phase still. As we develop protocols that work, we will publish our findings in care sheets on our website or on forum. This will help contribute to the overall knowledge of what corals need and will contribute to their conservation and the marine hobbyists starting out.

Research of coral husbandry has focussed on combatting toxic Cyanobacteria, *Aiptasia* anemones that sting other corals and *Montipora*-eating Nudibranchs and whole gamut of algae species. In terms of water quality, we experiment with four quarantine tanks, with various methods of filtration, e.g.



skimmers, sand bed, gravel bed, bare-bottom. We have arranged with a local fisherman to supply us with seawater from six miles out to sea from Aberystwyth. We compare this with artificial saltwater.

Our main reef tank 400 lt. By far our most time-demanding exhibit.



The long-term aim to aim to breed single-polyped corals such as *Cynarinas*, *Scolymias* and *Indophyllias*. As these cannot be propagated through fragging they are far more vulnerable than other species, especially if wild habitat restoration were to be attempted. Almost all other corals can be fragged and grown in mariculture. Our first priority is to settle on a husbandry protocol for these genera. The giant polyps are extremely delicate being just one cell thick when inflated. In the long-term future, we would need more space and resources to attempt establishing a breeding program. A black-out growth chamber to mimic the 12 hour tropical nights would be essential for success. Corals tend to spawn on full moon around the equinox. None of these corals have been reproduced in captivity before.

In terms of conservation, we would stress the human damage done by extracting thousands of fish which takes a big proportion of the ecosystem nutrients from the reef. Removing big fish lets star



fish explode in number that are responsible for huge areas of coral destruction. Visits to Indonesia have seen how reef destruction is far worse near human habitation leading to the conclusion that global warming or even acidification is not the number one threat at least yet.

The delicate polyps of *Cynarina* (left) and the closely related *Indophyllia* (right).



*Turbinaria* (left) and *Montipora* (right)- two plating coral genera that we have chosen to specialise in.

We have found that Turbinarias are very susceptible to Cyanobacteria, despite being thought to be easy to care for. Their polyps catch and eat this toxic bacteria and then die back. So far our experiments have found that a UV steriliser can help rid small quarantine tanks of this pernicious Protist. We have also had success with removing all the sand in the tank as it seems to gain nourishment from new sand. We have concluded that Cyano is living off organics in the water and



not high phosphates that everyone touts as the cause. Ultimately the Cyanobacteria can make sugar through photosynthesis and fix nitrogen. We will carry on researching ways to combat this problem and report further solutions.

### List of Corals at the Magic of Life.

<b>GENUS</b>	<b>SPECIES</b>	<b>COMMON NAME</b>	<b>IUCN</b>
<b>Astreopora</b>	<b>Electric Green</b>	<b>Boulder Coral</b>	
<b>Blastomussa</b>	<b>wellsii 'Neon Green'</b>	<b>Blastomussa</b>	near threatened
<b>Blastomussa</b>	<b>wellsii 'Green'</b>	<b>Blastomussa</b>	near threatened
<b>Blastomussa</b>	<b>wellsii Red + Green</b>	<b>Blastomussa</b>	near threatened
<b>Catalaphyllia</b>	<b>jardinei 'Gold Tips'</b>	<b>Elegance Coral</b>	vulnerable
<b>Catalaphyllia</b>	<b>jardinei 'Gold Tips'</b>	<b>Elegance Coral</b>	vulnerable
<b>Caulastrea</b>	<b>furcata</b>	<b>Candy cane Coral</b>	least concern
<b>Cynarina</b>	<b>lacrymalis Green</b>	<b>Throne Coral</b>	near threatened
<b>Cynarina</b>	<b>lacrymalis Red</b>	<b>Throne Coral</b>	near threatened
<b>Dipsatraea</b>	<b>rosaria sp SW Marines</b>	<b>Moon Coral</b>	
<b>Euphyllia</b>	<b>parancora</b>	<b>Branching Hammer Coral</b>	vulnerable
<b>Fungia</b>	<b>sp Orange/blue</b>	<b>Plate Coral</b>	least concern
<b>Fungia</b>	<b>sp Orange WC</b>	<b>Plate Coral</b>	least concern
<b>Goniopora</b>	<b>Electric Green</b>	<b>Flowerpot Coral</b>	
<b>Goniopora</b>	<b>Purple MOC</b>	<b>Flowerpot Coral</b>	
<b>Heliofungia</b>	<b>green</b>	<b>Plate Coral</b>	
<b>Indophyllia</b>	<b>Sp Red</b>	<b>Throne Coral</b>	data deficient
<b>Leptastrea</b>	<b>Green WC</b>	<b>Boulder Coral</b>	
<b>Leptastrea</b>	<b>Green/Blue MOC</b>	<b>Boulder Coral</b>	
<b>Leptoseris</b>	<b>Electric Green MOC</b>	<b>Plating Coral</b>	
<b>Micromussa</b>	<b>Green /blue</b>	<b>Acans</b>	near threatened
<b>Micromussa</b>	<b>Green eye FM</b>	<b>Acans</b>	near threatened



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<b>Micromussa</b>	<b>Green WC</b>	<b>Acans</b>	near threatened
<b>Micromussa</b>	<b>Red + green Rainbow WC</b>	<b>Acans</b>	near threatened
<b>Micromussa</b>	<b>Red 2 WC</b>	<b>Acans</b>	near threatened
<b>Micromussa</b>	<b>Red WC</b>	<b>Acans</b>	near threatened
<b>Micromussa</b>	<b>Red/blue WC</b>	<b>Acans</b>	
<b>Montipora</b>	<b>'Apple green' FF</b>	<b>Plating Coral</b>	
<b>Montipora</b>	<b>'Electric green' RW</b>	<b>Plating Coral</b>	
<b>Montipora</b>	<b>'Marmalade' FM</b>	<b>Plating Coral</b>	
<b>Montipora</b>	<b>'Pale Green Brown polyps'</b>	<b>Plating Coral</b>	
<b>Montipora</b>	<b>Aussie Green red polyps Taunton</b>	<b>Plating Coral</b>	
<b>Montipora</b>	<b>Blue FM</b>	<b>Plating Coral</b>	vulnerable
<b>Montipora</b>	<b>delicatula green WC</b>	<b>Plating Coral</b>	vulnerable
<b>Montipora</b>	<b>delicatula purple WC</b>	<b>Plating Coral</b>	vulnerable
<b>Montipora</b>	<b>delicatula Red WC</b>	<b>Plating Coral</b>	near threatened
<b>Montipora</b>	<b>capricornis Green FM</b>	<b>Plating Coral</b>	
<b>Montipora</b>	<b>light blue/green polyps FM</b>	<b>Plating Coral</b>	
<b>Montipora</b>	<b>monaseriata Cadbury's Purple</b>	<b>Plating Coral</b>	
<b>Montipora</b>	<b>Purple WC</b>	<b>Plating Coral</b>	
<b>Montipora</b>	<b>Rainbow CD</b>	<b>Encrusting Coral</b>	
<b>Montipora</b>	<b>Sunset</b>	<b>Encrusting Coral</b>	
<b>Montipora</b>	<b>Super blue FM</b>	<b>Plating Coral</b>	
<b>Montipora</b>	<b>Super Red FM</b>	<b>Plating Coral</b>	
<b>Montipora</b>	<b>Superman MOC</b>	<b>Encrusting Coral</b>	
<b>Montipora</b>	<b>undata green red polyps CD</b>	<b>Plating Coral</b>	near threatened
<b>Montipora</b>	<b>undata light green</b>	<b>Plating Coral</b>	near threatened
<b>Moseleya</b>	<b>latistellata</b>	<b>Prism Coral</b>	vulnerable
<b>Pavona</b>	<b>decussata</b>	<b>Plating Coral</b>	vulnerable
<b>Pectinia</b>	<b>lactuca</b>	<b>Spiny Cup Coral</b>	vulnerable



<b>Platygyra</b>	<b>sp neon green</b>	<b>Maze Coral</b>	
<b>Platygyra</b>	<b>lamellina Svalbard Blue</b>	<b>Hard Brain Coral</b>	near threatened
<b>Turbinaria</b>	<b>mesenterina Green</b>	<b>Plating Coral</b>	vulnerable
<b>Turbinaria</b>	<b>mesenterina Green fine</b>	<b>Plating Coral</b>	vulnerable
<b>Turbinaria</b>	<b>peltata 'Green Bushy'</b>	<b>Plating Coral</b>	vulnerable
<b>Turbinaria</b>	<b>peltata 'Green'</b>	<b>Plating Coral</b>	vulnerable
<b>Turbinaria</b>	<b>peltata Blue w. Green polyps</b>	<b>Plating Coral</b>	vulnerable
<b>Turbinaria</b>	<b>peltata Light Blue</b>	<b>Plating Coral</b>	vulnerable
<b>Turbinaria</b>	<b>reinformis Tan</b>	<b>Plating Coral</b>	vulnerable
<b>Turbinaria</b>	<b>reinformis Yellow</b>	<b>Plating Coral</b>	vulnerable
<b>Wellsophyllia</b>	<b>pink</b>	<b>Open Brain Coral</b>	near threatened
<b>Stichodactyla</b>	<b>tapetum</b>	<b>Mini Anemone</b>	
<b>Diodogorgia</b>	<b>nodulifera</b>	<b>Red Gorgonian</b>	
<b>Pachclavularia</b>	<b>violacea</b>	<b>Green Star Polyps</b>	
<b>Sinularia</b>	<b>brassica</b>	<b>Cabbage Coral</b>	
<b>Tubipora</b>	<b>musica</b>	<b>Organ Pipe Coral</b>	
<b>Xenia</b>	<b>sp</b>	<b>Pulsing Xenia</b>	
<b>Actinodiscus</b>	<b>Blue</b>	<b>Mushroom</b>	
<b>Rhodactis</b>	<b>Green MOC</b>	<b>Mushroom</b>	
<b>Ricordea</b>	<b>florida Teal FM</b>	<b>Mushroom</b>	
<b>Parazoanthus</b>	<b>gracilis</b>	<b>Yellow Polyps</b>	
<b>Zoanthus</b>	<b>sociatus 'Blue Hornet'</b>	<b>Button Polyps</b>	
<b>Zoanthus</b>	<b>sociatus 'Orange'</b>	<b>Button Polyps</b>	
<b>Zoanthus</b>	<b>sociatus 'Purple Hornet'</b>	<b>Button Polyps</b>	
<b>Zoanthus</b>	<b>sociatus 'Radioactive'</b>	<b>Button Polyps</b>	
<b>Zoanthus</b>	<b>sociatus 'Rasta'</b>	<b>Button Polyps</b>	
<b>Zoanthus</b>	<b>sociatus 'Watermelon'</b>	<b>Button Polyps</b>	