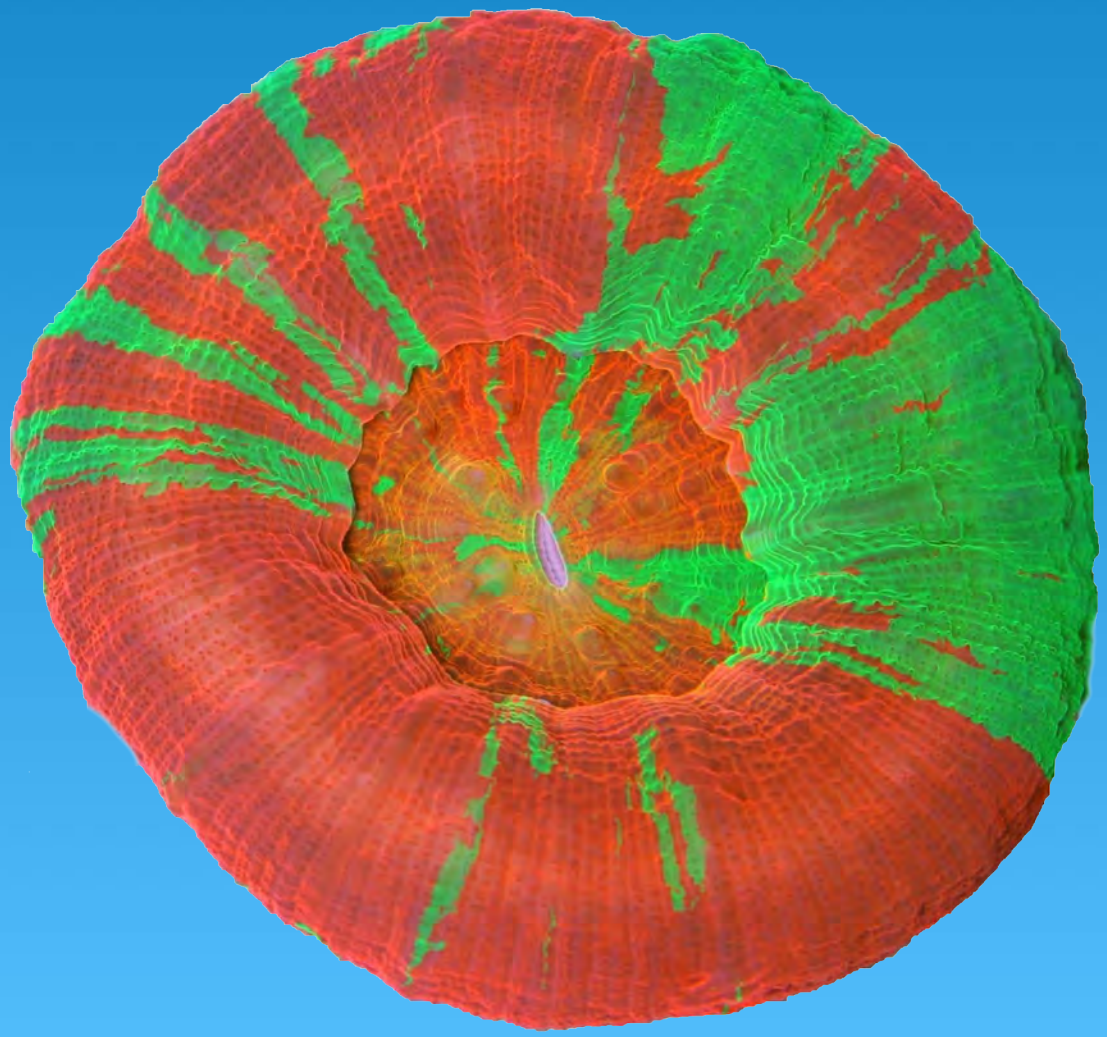
Guide to some harvested aquarium corals

Version 1.3



Guide to some harvested aquarium corals Version 1.3

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Contents

Acknowledgements

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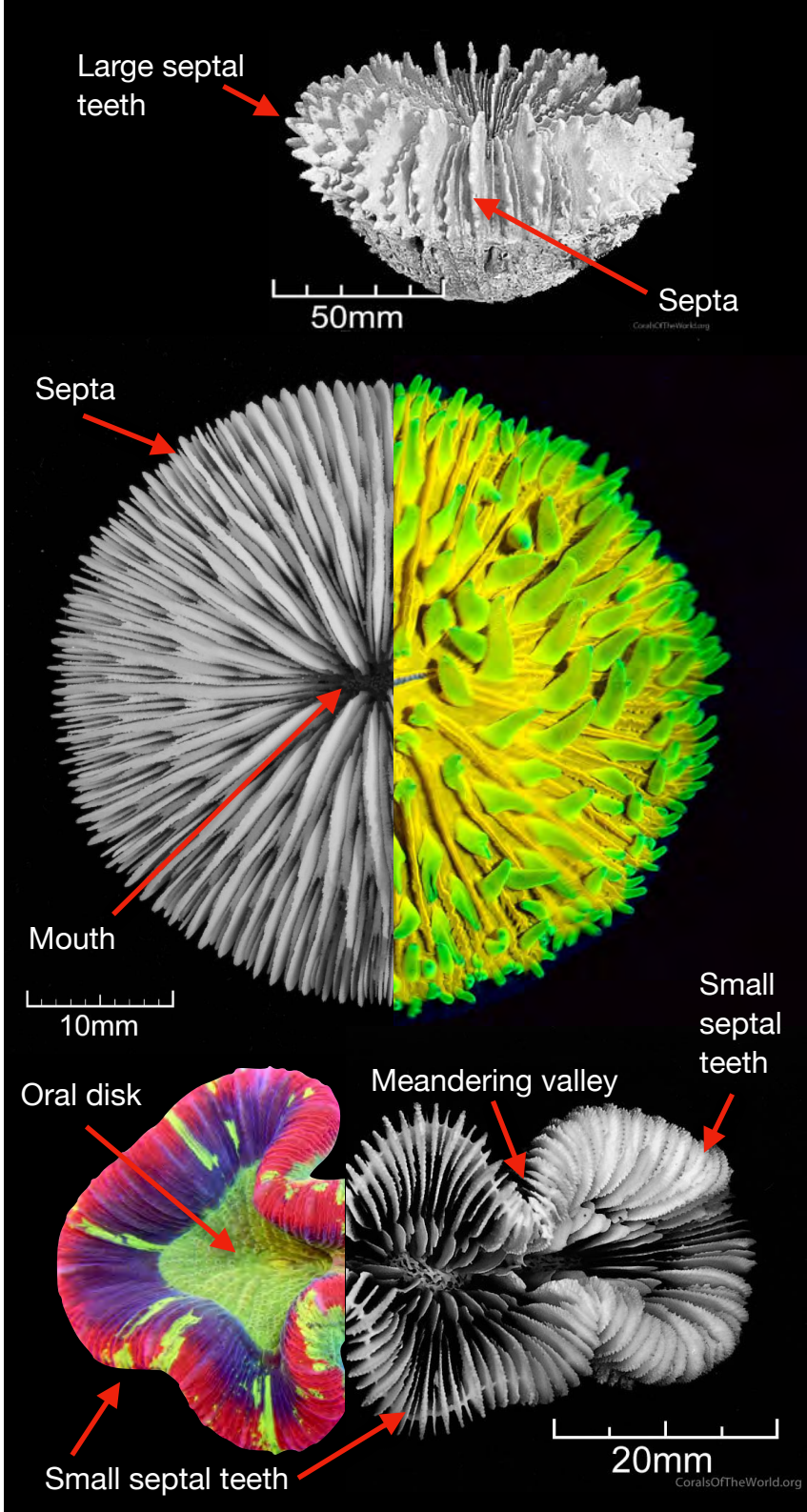


Overview in life...

SOLID DISKS WITH FLESHY POLYPS AND PROMINENT SEPTAL TEETH

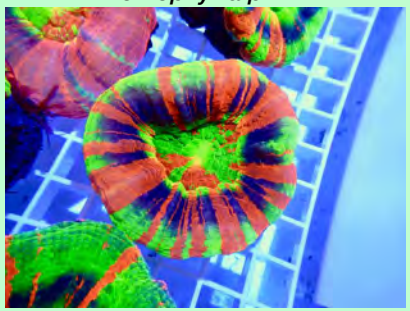
Cynarina p5

5cm disc, 1-2cm deep, large, thick, white septal teeth usually visible through tissue. In Australia usually translucent green or red.

Acanthophyllia p6

5-10cm disc at top of 10cm curved horn. Tissue conceals septa. In Australia usually brown with blue / green trim.

Homophyllia p7

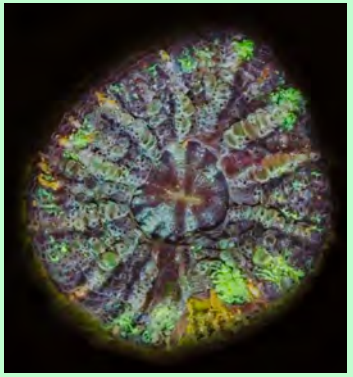


5cm disc, 1-2cm deep. Cycles of septa strongly unequal. Large, tall teeth at inner marigns of primary septa. In Australia traded specimens are typically variegated green / red / orange.

Micromussa p8

<5cm disc, 1-2cm deep. Cycles of septa slightly unequal. Teeth of primary septa less large / tall at inner margins.

Unidentified Lobophylliid p9



2-3cm disc, 1-2cm deep. Undescribed species traded as Homophyllia australis in West Australia and Northern Territory but now recognised as distinct on genetic and morphological grounds. Awaiting further work and formal description.

SMALL CORALS (USUALLY <6CM) NOT FLESHY, SMALL SEPTAL TEETH

Heterocyathus & Heteropsammia p13

Small 1-3cm oval / sub-circular. Heteropsammia has 2mm hole at one end and smooth sides. Heterocyathus has 2mm hole on underside and vertical ribs on sides. Heteropsammia may have multiple polyps centres. See page 13

Cycloseris p14

Small 2-4cm, circular, with raised central disc. Underside is concave. Septal teeth small. Several species in Australia - industry favours green forms of Cycloseris cyclolites. See page 14

Diaseris p15

Typically 2-6cm, sub-circular, thin / flat. Colony usually in the process of fragmenting asexually into pie-slice shaped daughter fragments. See p15

Truncatoflabellum p16

Typically 4-6cm, flattened fan shape, with one or more pairs of root-like spines from sides. Base is a flattened 'scar' from budding of daughter polyps. See p16

Lobophyllia p10

5-10cm disc, 1-2cm deep. Sometimes with more than one polyp. Septa cross a subtle raised rim - and fall away. Neater, smoother than others in this group. Australian traded specimens are typically green or brown. See p10

MEANDERING CORALLITES / POLYPS LIVE IN CURVED VALLEYS

Catalaphyllia p11

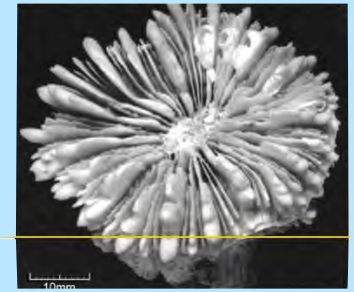
10-20cm base, 1-2cm deep. Anemone like, covered with pink / purple tipped tentacles emerging from striated green background. Meandering valleys (skeleton) concealed - may form short cone. See p11

Trachyphyllia p12

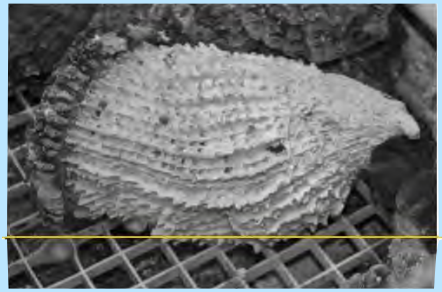
Typically 6-10cm, but can grow larger. Single polyp valleys start as simple figure '8' and become increasingly convoluted with size / age. Septal teeth small. Traded specimens usually bright green or variegated red, green and blue. See p12

Overview of skeletons...

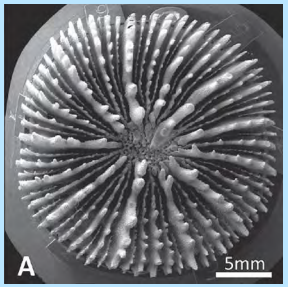
Cynarina p5



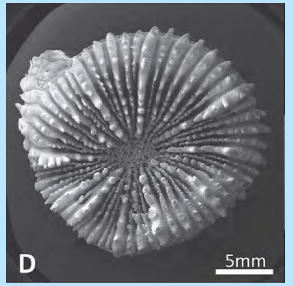
Acanthophyllia p6



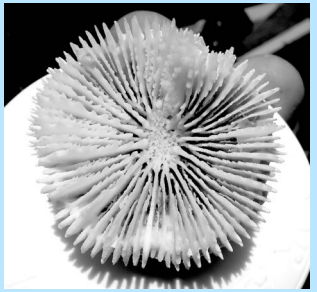
Homophyllia p7



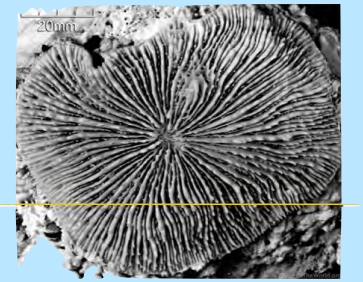
Micromussa p8



Unidentified Lobophylliid p9

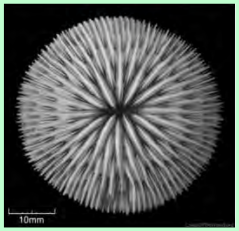


Lobophyllia p10

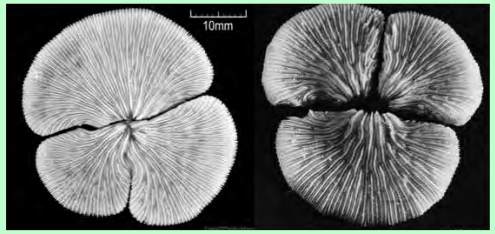


Heteropsammia p13 ***Heterocyathus p13***

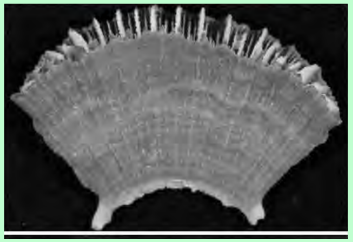
Cycloseris p14



Diaseris p15

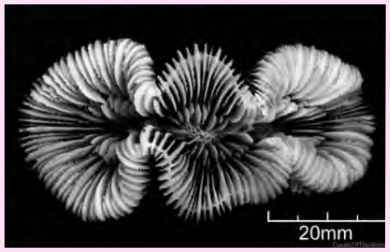


Truncatoflabellum p16



Catalaphyllia p11

Trachyphyllia p12



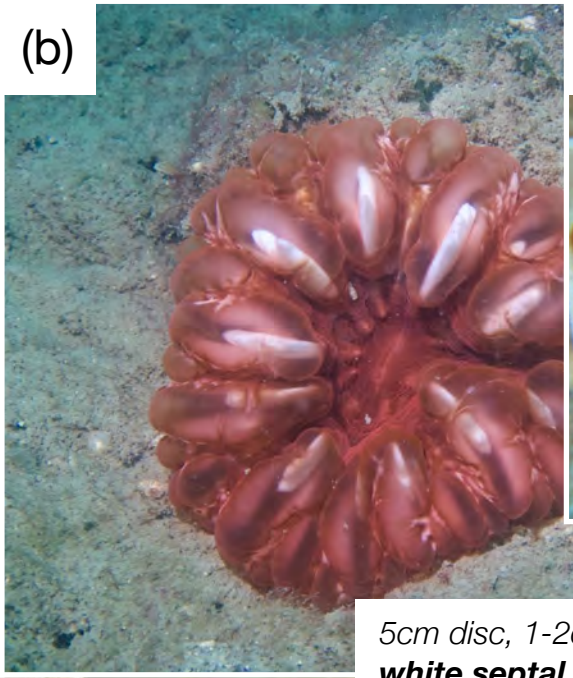
Species Account

Cynarina lacrymalis

Field images: a, b, d, e; in captivity c, f

(a)

(b)

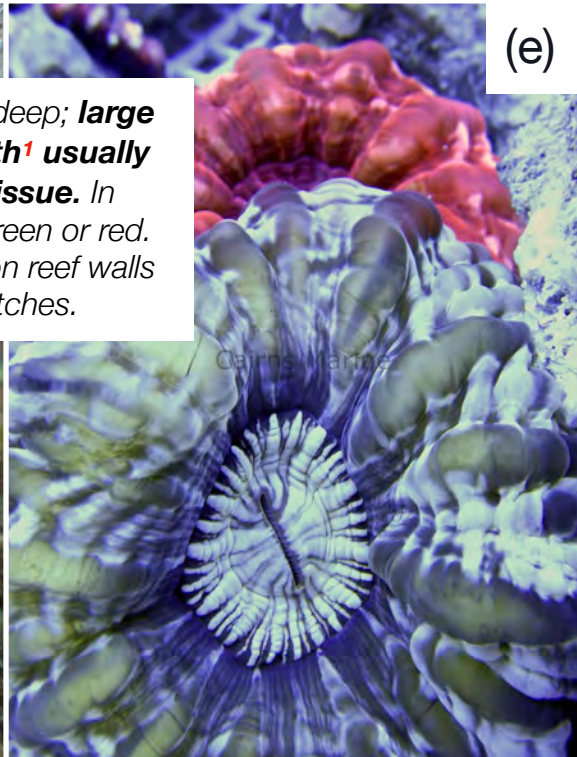


(c)

(d)

(e)

(e)

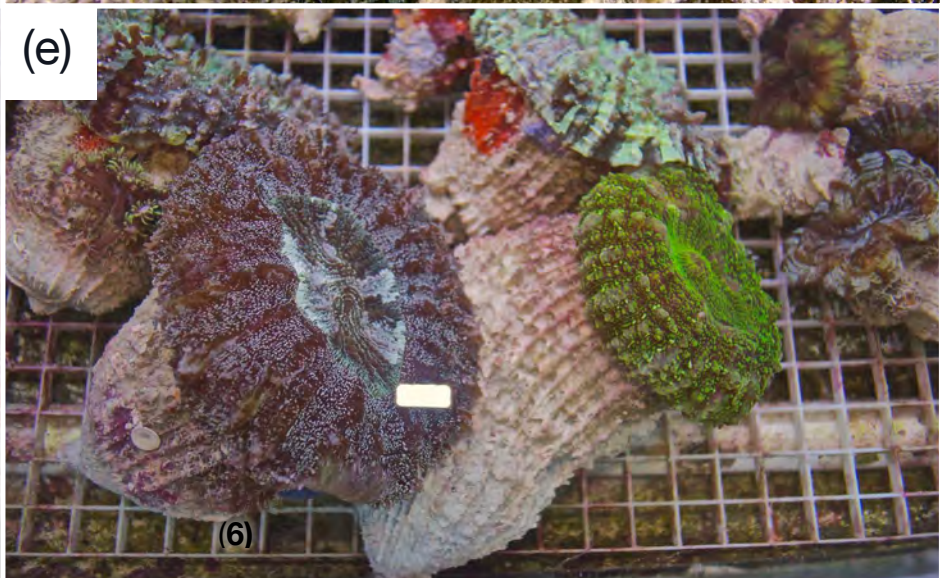


5cm disc, 1-2cm deep; ***large white septal teeth[1] usually visible through tissue.*** *In Australia usually green or red. Usually attached on reef walls and inter-reefal patches.*

Species Account

Acanthophyllia deshayesiana

Field images: a, b; in captivity c, d, e

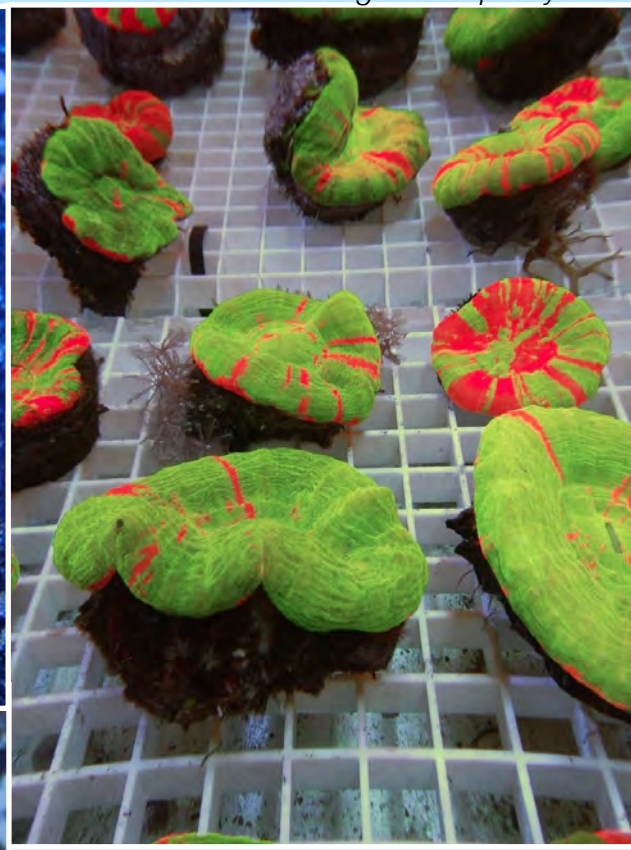


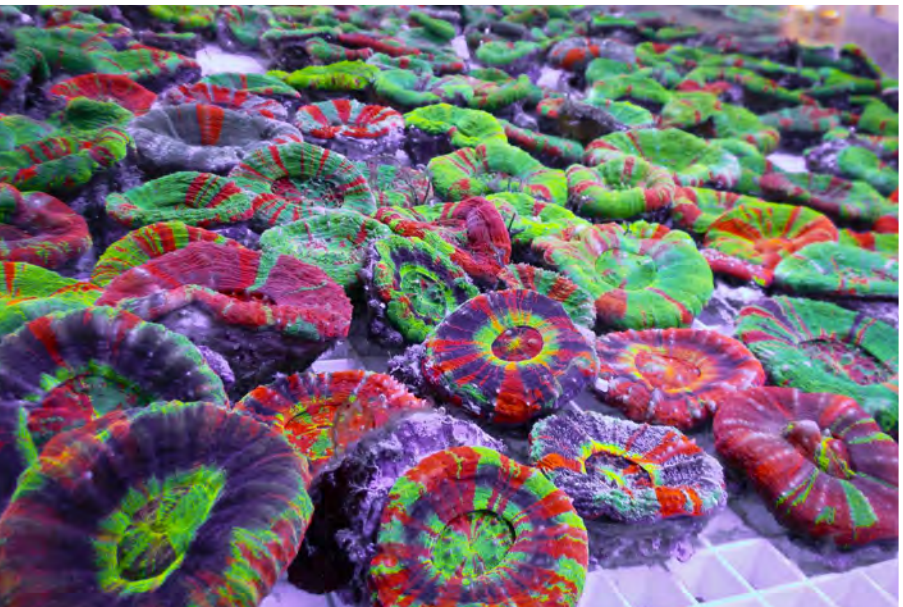
*5-10cm disc, 10-15 cm deep**;*** ***conical, horn-like skeleton. Fleshy tissue obscures skeleton.*** *In Australia usually a mixture of* ***cream, blue, green & brown.*** *Free-living cone buried in inter-reefal soft sediment.*

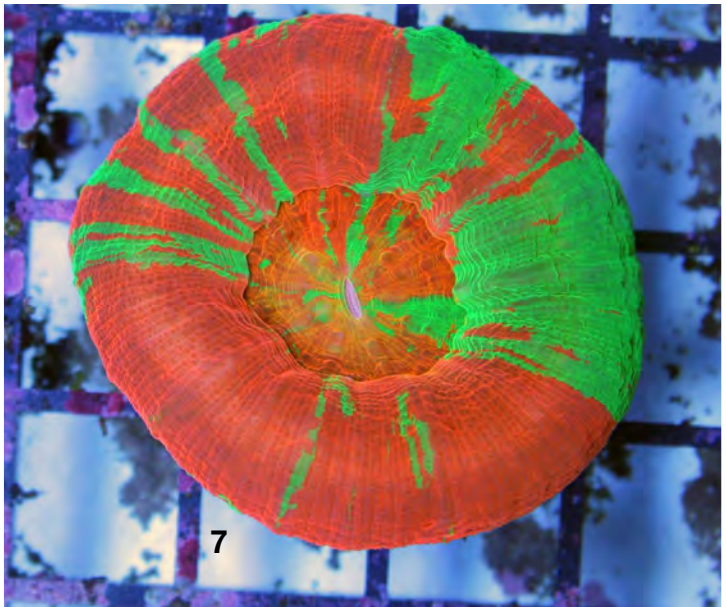
Species Account

Homophyllia australis

All images in captivity.







Typically ~5cm disc, 2-3 cm deep; sub-circular. Fleshy tissue obscures skeleton. Usually attached to lower reef slope or inter-reefal patches. Occurs throughout Great Barrier Reef, once abundant nearshore Mackay. Easily confused with Micromussa pacifica - see page 7 for explanation of distinctive characters. ***In Australia traded specimens are usually variegated patterns of red, orange, green & other colours.***

Species Account

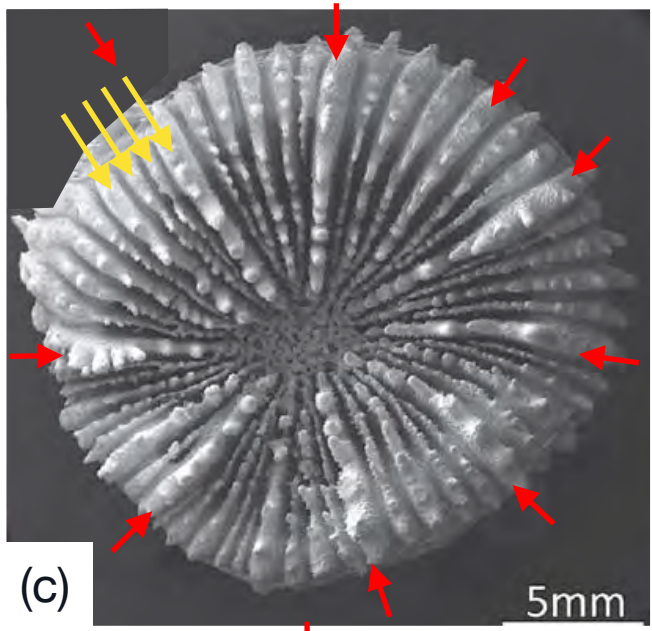
Micromussa pacifica

*Like Homophyllia australis but slightly smaller with **more regular / evenly sized cycles of septa** (yellow arrows). Homophyllia australis has septa that **alternate in size more clearly** (green arrows) with **higher, more widely space septal teeth** (orange arrows) at the **inner margins of the first / second cycle of septa** (red arrows). Widely distributed in Australia often traded as Homophyllia australis - can be distinguished underwater by size of alternating septa.*

Micromussa pacifica

(a)

(b)

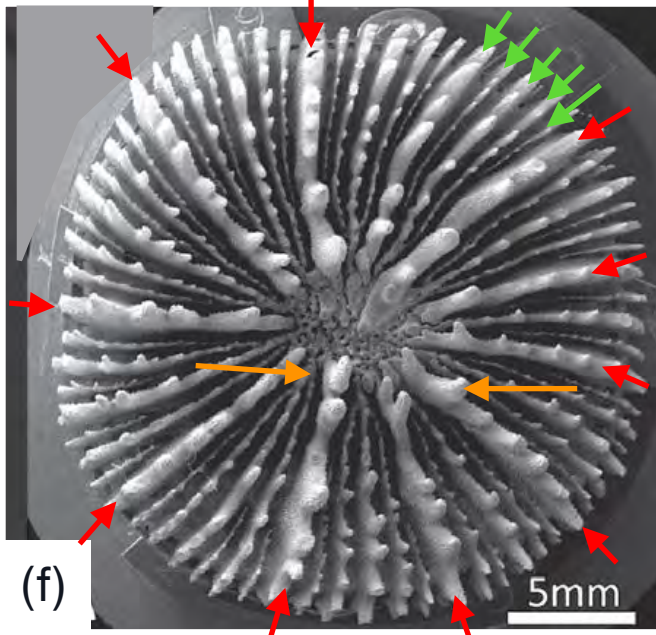


(c)

Homophyllia australis

(d)

(e)



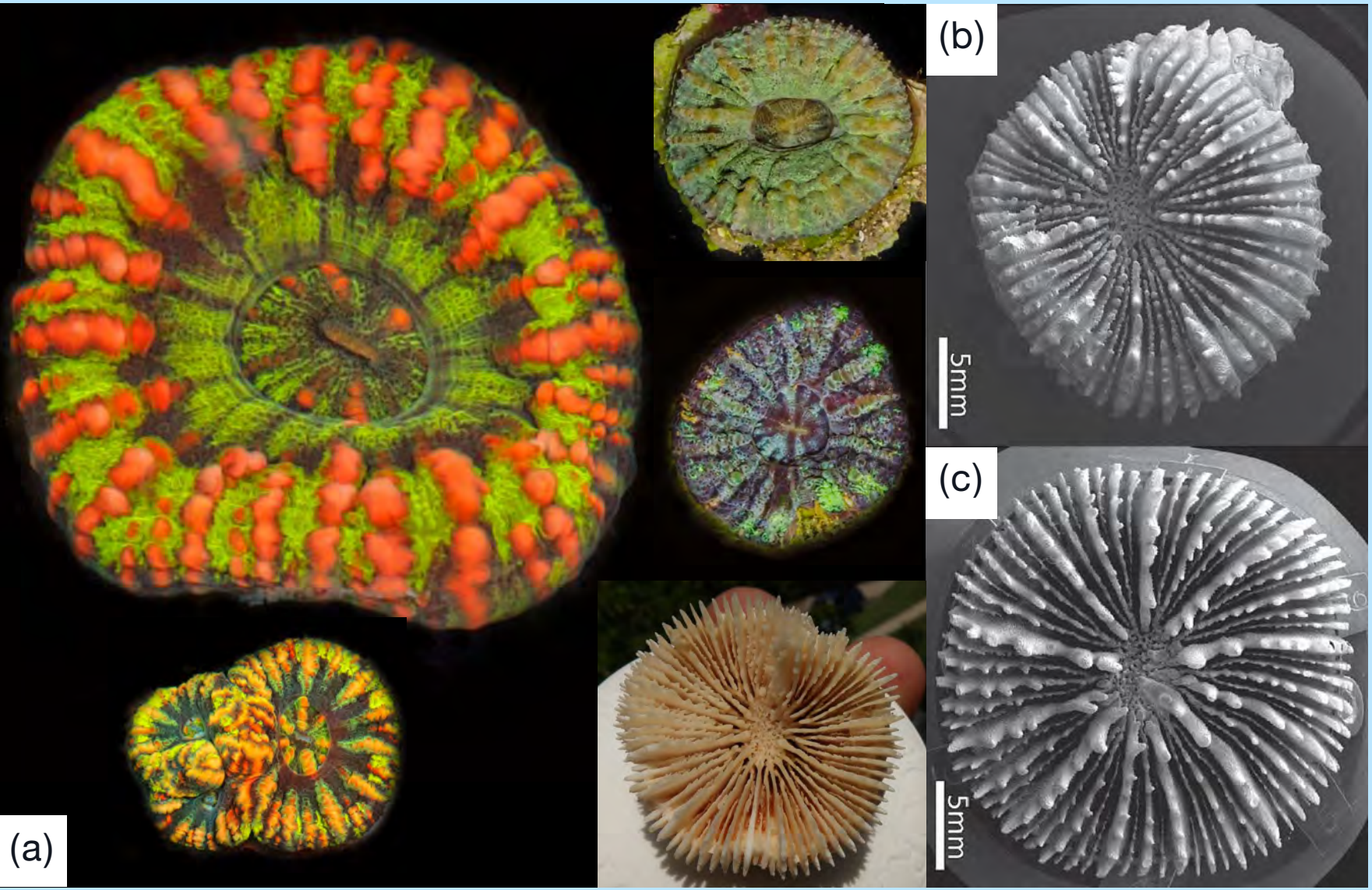
(f)

Images a,b & c - Micromussa pacifica; images d, e & f - Homophyllia australis

Species Account

Unidentified Lobophylliid

Undescribed Lobophylliid best known from West Australian and Northern Territory coral fisheries. Differentiated from both Homophyllia australis and Micromussa pacifica based on ITS2 molecular marker and the shape / size of septal teeth.



Initial genetic sequencing shows that this coral (which has been collected in both Western Australia and Northern Territory, but not Queensland) is distinct from both Homophyllia australis and Micromussa pacifica, though it's appearance is very similar to that of Micromussa pacifica.

These corals are generally small (<3.5 cm diameter) with ***3-4 cycles of septa with strongly alternating sizes****. Underwater, the* ***larger septa*** *with pronounced septal teeth* ***along their entire length are visible as ragged lines radiating out from the mouth and beyond the polyp wall.***

Image a - unidentified Lobophylliid
image b - Micromussa pacifica
image c - Homophyllia australis

Species Account

Lobophyllia vitiensis

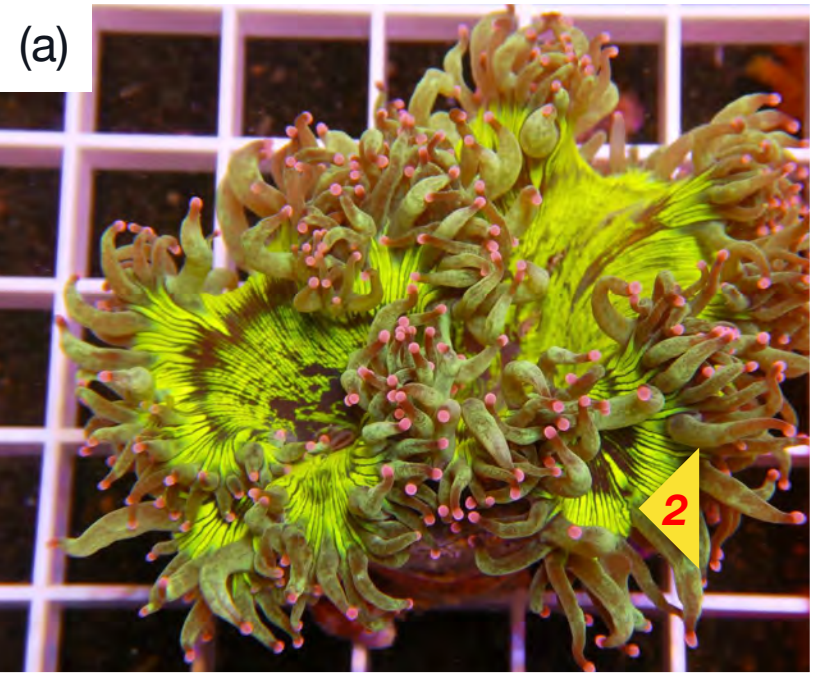
All field images

Typically 5-10cm oval or irregular discs, 1-2 cm deep; fleshy tissue obscures skeleton. ***Slightly raised central rim***[1] *on flat specimens. Occasionally polyps may have* ***more than one mouth or secondary centres*** *at periphery.* ***In Australia traded specimens are usually green.*** *Widespread, usually* ***attached*** *to reef walls or inter-reefal patches. See Huang et.al. 2016 for history of taxonomic name changes.*

Species Account

Catalaphyllia jardinei

Field images: b, c, d & e; in captivity: a.



Typically 10-20cm across, may have deep base[1] buried in sediment; covered with ***pink / purple tipped anemone-like tentacles*** *that conceal meandering valleys of the colony skeleton. Tentacles emerge from a* ***fleshy oral disk with a striated[2] green / cream colour****. Found on soft sediment in inter-reef, back reef and protected reef flat habitats.*

Species Account

Trachyphyllia geoffroyi

Field images: a, b, c; in captivity: d & e.

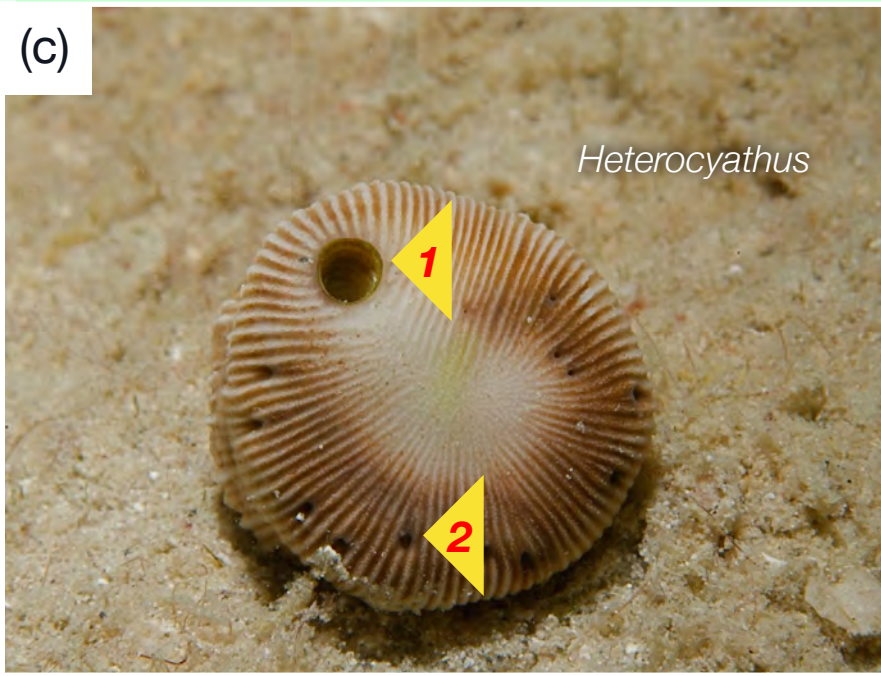
Typically 6-10cm, but can grow larger. Start as simple ***figure '8'*** *that become increasingly* ***convoluted***[1] *with size / age.* ***Septal teeth small****. Traded specimens usually* ***bright green or variegated red, green and blue****.*

Found on soft sediment in inter-reefal or protected reef habitats.

Species Account

Heterocyathus aequicostatus & *Heteropsammia cochlea*

Field images: a, b, c; in captivity: d & e.



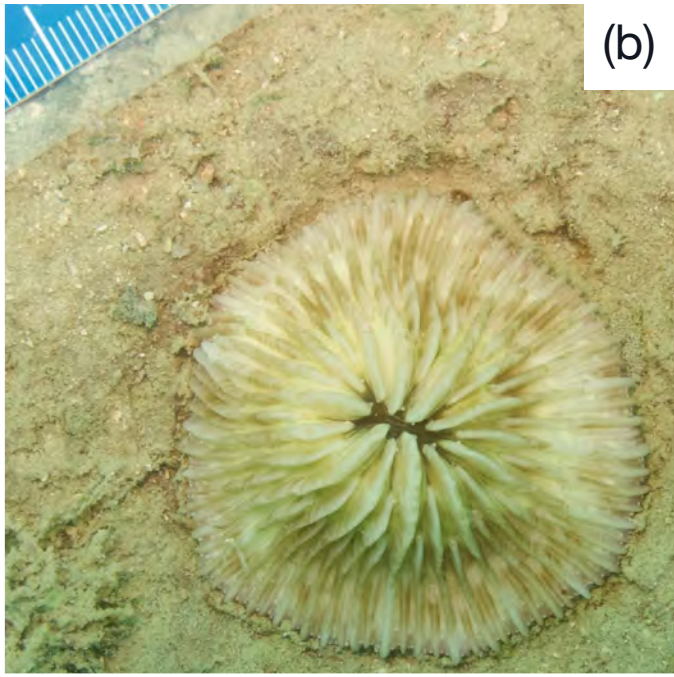
*Small 1-3cm oval / sub-circular, solitary polyps. Heteropsammia has **smooth sides**. Heterocyathus has **vertical ribs on sides**. These corals have a commensal relationship with a worm which moves the coral across the substrate by extending a proboscis through a large hole[1]. Heterocyathus has respiration holes on the **underside**[2]. Heteropsammia has respiration holes on the **sides**[3]. Heteropsammia may have multiple polyps centres.*

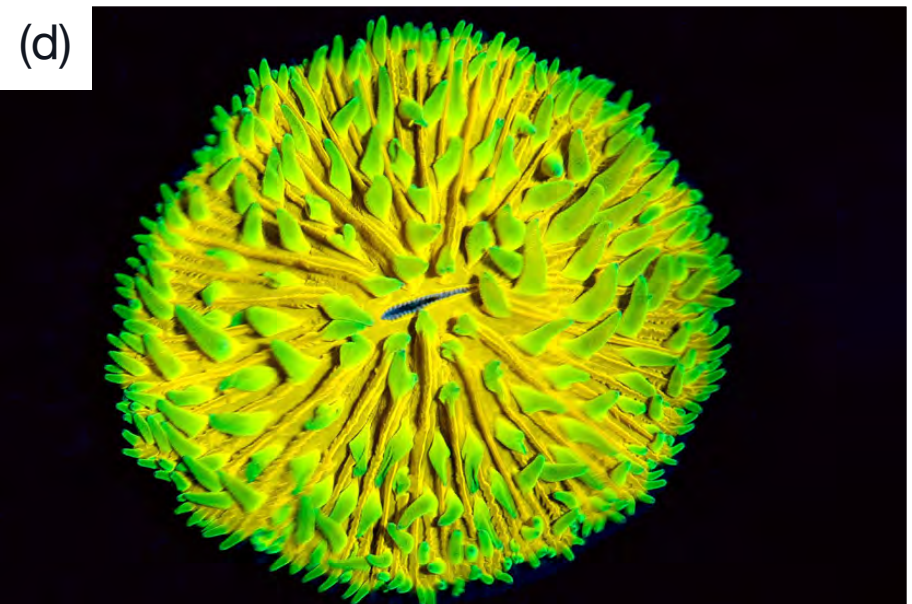
Typically found in soft sediment inter-reefally or in protected reef habitats.

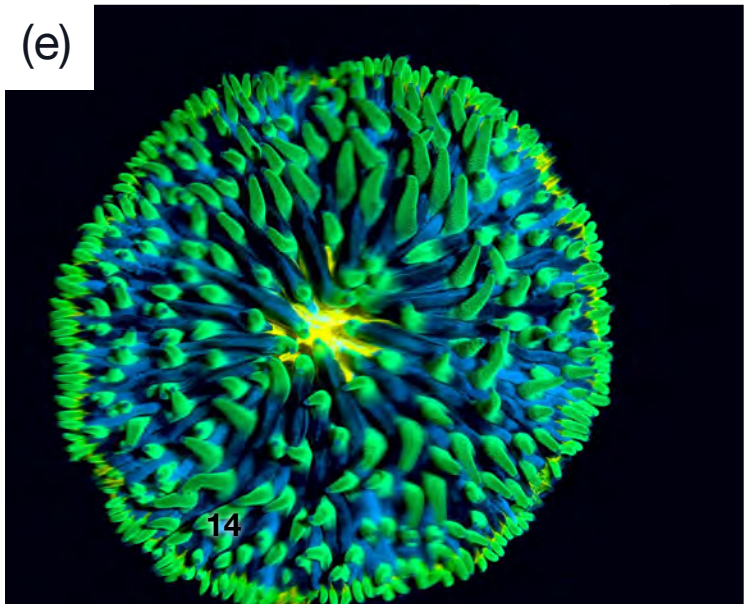
Species Account

Cycloseris spp.

Field images: a, b, c; in captivity: d & e.







Free living discs. *Small 3-6cm* ***circular / sub-circular -*** *some species* ***subtly faceted.*** *Usually with* ***raised central disc****. Underside is concave. Septal teeth small. Several species in Australian region - green morphs of Cycloseris cyclolites are commonly traded in the industry.*

Found on sediment on lower reef slopes and inter-reefally.

Species Account

Diaseris spp.

All field images.

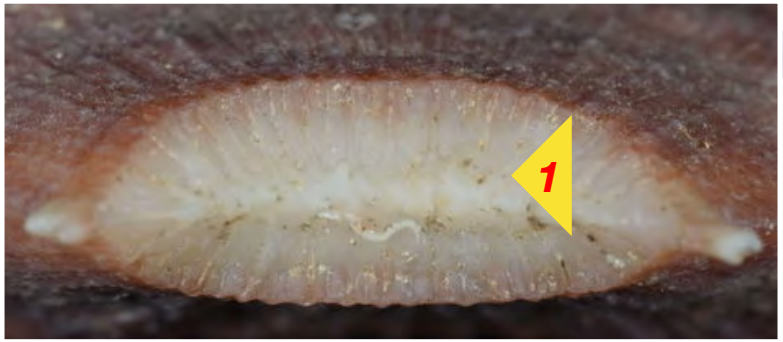
Diaseris distorta

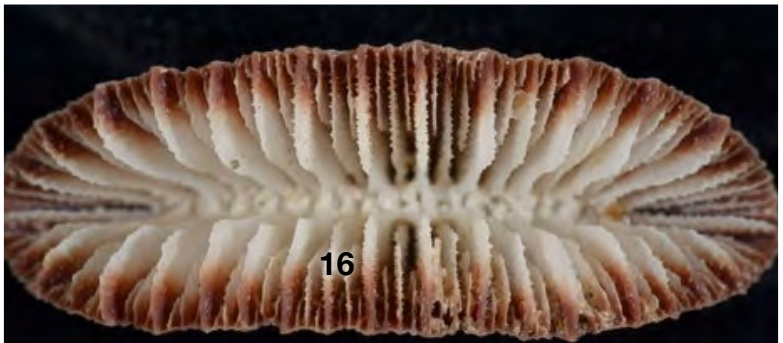
Free-living. *Typically 2-7cm, sub-circular, thin / flat. Usually in the process of* ***fragmenting asexually into pie-slice shaped daughter fragments****. Two species known from Australia - Diaseris distorta and Diaseris fragilis. Placed in the genus Cycloseris by some authors based on molecular evidence. See bibliography. Inter-reefal and protected lower reef slopes.*

Species Account

Truncatoflabellum sp.

All images in captivity.





Free-living. *Typically 4-6cm,* ***flattened*** *fan shape, with* ***one or more pairs of root-like spines*** *from sides. Base is a* ***flattened 'scar'***[1] *caused by budding of daughter polyps.*

Inter-reefal.

Bibliography

Lobophyllidae (e.g., Homophyllia, Micromussa)

Budd AF, Fukami H, Smith ND, Knowlton N (2012) Taxonomic classification of the reef coral family Mussidae (Cnidaria: Anthozoa: Scleractinia). Zoological Journal of the Linnean Society 166(3):465-529.

Arrigoni R, Terraneo TI, Galli P, Benzoni F (2014a) Lobophylliidae (Cnidaria, Scleractinia) reshuffled: pervasive non-monophyly at genus level. Molecular Phylogenetics and Evolution 73:60-64

Arrigoni R, Richards Z, Chen C, Baird A, Benzoni F (2014b) Phylogenetic relationships and taxonomy of the coral genera Australomussa and Parascolymia (Scleractinia, Lobophylliidae). Contributions to Zoology 83(3):195-215

Arrigoni R, Benzoni F, Huang D, Fukami H, Chen CA, Berumen ML, Hoogenboom M, Thomson DP, Hoeksema BW, Budd AF, Zayasu Y (2016) When forms meet genes: revision of the scleractinian genera Micromussa and Homophyllia (Lobophylliidae) with a description of two new species and one new genus. Contributions to Zoology 85(4):387-422.

Huang D, Arrigoni R, Benzoni F, Fukami H, Knowlton N, Smith ND, Stolarski J, Chou LM, Budd AF (2016) Taxonomic classification of the reef coral family Lobophylliidae (Cnidaria: Anthozoa: Scleractinia). Zoological Journal of the Linnean Society 178(3):436-481.

Trachyphyllia

Huang D, Benzoni F, Fukami H, Knowlton N, Smith ND, Budd AF (2014) Taxonomic classification of the reef coral families Merulinidae, Montastraeidae, and Diploastraeidae (Cnidaria: Anthozoa: Scleractinia). Zoological Journal of the Linnean Society. 171(2):277-355.

Huang D, Licuanan WY, Baird AH, Fukami H (2011) Cleaning up the 'Bigmessidae': Molecular phylogeny of scleractinian corals from Faviidae, Merulinidae, Pectiniidae and Trachyphylliidae. BMC Evolutionary Biology. 11(1):37.

Acanthophyllia

Darus RF, Zamani NP, Solihin DD (2016) Acanthophyllia deshayesiana (Michelin, 1850) coral species is not synonym with Cynarina lacrymalis (Milne Edwards & Haime, 1848). Indonesian Journal of Marine Sciences 21(3)107-116

Euphyllidae

Luzon KS, Lin M, Ablan Lagman MCA, Licuanan WRY, Chen CA. 2017. Resurrecting a subgenus to genus: molecular phylogeny of Euphyllia and Fimbriaphyllia (order Scleractinia; family Euphylliidae; clade V) PeerJ 5:e4074