Records of the Western Australian Museum Supplement No. 59: 15–19 (2000).

SCLERACTINIAN CORALS OF THE MONTEBELLO ISLANDS

L.M. Marsh

Western Australian Museum, Francis Street, Perth, Western Australia 6000, Australia

Summary

The present report lists the first extensive collection of corals from the Montebello Islands; it is likely that many species remain to be found. A total of 141 species of 54 genera are recorded from the present survey and a further 9 species are added from previous records. The coral fauna includes a suite of five genera characteristic of turbid inshore waters but most of the corals are characteristic of moderately clear water conditions. The coral fauna overall is most similar to that of the Dampier Archipelago.

Introduction

The first published record of a coral from the Montebello Islands is by Totton (1952) who figured a specimen of *Moseleya latistellata* collected by Mr T.H. Haynes, "a gentleman engaged in experimenting upon the artificial cultivation of Pearl Oysters, and in his leisure collected various zoological specimens, which he sent to the British and West Australian Museums". These collections were made some time prior to 1912 when Montague collected at the islands (Montague, 1914). Totton's note is apparently the only published record of a coral from Hayne's collection. Corals are not reported from Montague's expedition. Veron and Marsh (1988) recorded 70 species of 29 genera of hermatypic (reef-building) corals from the Montebellos, mainly from specimens collected by Marsh during a brief visit to the islands in 1979.

Methods

The present collections were made by SCUBA diving, dredging, snorkelling and low tide collecting at 45 sites around the Montebello Islands and in the lagoons. Where species could be readily identified underwater they were recorded but not collected and appear in the species list as visual records (V). Specimens in the Western Australian Museum collection, not recorded in 1993, are indicated by M. The nomenclature, follows Veron (1986) and Hoeksema (1989).

Results and Discussion

A total of 141 species in 54 genera of hermatypic corals is recorded from the present survey of the Montebellos and a further nine from previous records, giving a total of 150 species identified (Table 4). Several species of *Montipora, Acropora, Favia* and *Favites* remain unidentified and the coral fauna is probably still far from completely known, perhaps another 20-30% remains to be discovered. Seven species of ahermatypic (non zooxanthellate) corals were also collected.

It is probable that many more species will be found at the Montebellos when the reefs are more completely surveyed as many uncommon species may not have been encountered. The species richness of *Acropora* and *Montipora* is likely to be under-recorded because of their great diversity, polymorphism and taxonomic difficulty.

A suite of species characteristic of upper reef fronts exposed to strong wave action (*Pocillopora eydouxi, Acropora palifera* and *Pavona minuta*) should be found at the Montebellos but this habitat was not able to be sampled and only *P. eydouxi* was found.

The highest diversity of corals was found in back reef areas where huge *Porites* colonies have a rich coral fauna around them, and on the chain of reefs to the south-east of Hermite Island (stations 24, 30, 31, 34 and 35). Tabular and corymbose *Acropora* species dominated the reef flats at stations 46 and 20 which had c. 50% live coral cover. The reef top at station 1 consisted of coarse staghorn *Acropora* rubble being recolonised by small corymbose *Acropora* colonies (c. 30% live coral cover) while the back reef slope supported a diverse coral fauna. Complete coral cover was only seen at a few sites

Table 3 Comparison of the faunal richness of hermatypic corals at various coral reefs off Western Australia.

Locality	Genera	Species	Source
Montebello Islands	54	150	Present study
Ashmore Reef	56	255	Veron, 1993b
Scott Reef/ Rowley Shoals	56	233	Veron, 1986
Barrow Island	38	117	Marsh, 1997
Dampier Archipelago	57	216	Simpson, 1988; Veron and Marsh, 1988
Ningaloo Reef	54	217	Marsh, unpublished
Abrolhos Islands	46	201	Veron, 1993a

e.g. on reef slopes near station 6, where tabular *Acropora* spp. gave 100% cover.

The coral fauna of the Montebellos is most clearly allied to that of the Dampier Archipelago where a shared suite of turbid water corals is characteristic of inshore waters. These belong to the genera *Caulastrea, Moseleya, Trachyphyllia, Catalaphyllia* and *Duncanopsammia* while *Euphyllia* and *Turbinaria* spp., although not confined to turbid water, are more abundant in such conditions.

Comparative records from Barrow Island (Table 3) are based on a collection, made by Dr L. Hammond in 1974, and surveys of the intertidal reefs (Marsh, 1997) which do not fully represent the coral fauna of the island since no diving was carried out. There are no records of corals from the Lowendal Islands. In contrast the coral fauna of the Dampier Archipelago (Table 3) is well known from collections made by Marsh, Simpson and Veron, over many years (Simpson, 1988, Veron and Marsh, 1988).

Management and Conservation

The coral reefs of the Montebello Islands, like those of the Dampier Archipelago are subject to denudation by cyclones and, therefore, may be seen at different stages at different times. In August 1993 they appeared to be in a fairly advanced recovery stage with some very large tabular *Acropora* plates in back-reef areas. As noted above, at Station 1 the reef crest appeared to be in an earlier recovery phase with small *Acropora* colonies. Fast growing *Acropora* species can recover from severe damage in a few years while slow growing massive species may take 30 years to recover from major damage.

Anecdotal evidence suggests that the western reef was heavily predated by the crown-of-thorns starfish (*Acanthaster planci*), probably in the early 1970s. This species is discussed by Marsh (2000).

Human impact by divers and snorkellers on the coral reefs is likely to be of minor significance compared with the damage from cyclones. However the assemblage of turbid water corals found in the lagoons would be very vulnerable to trawling.

REFERENCES

Hoeksema, B.W. (1989). Taxonomy, phylogeny and biogeography of mushroom corals (Scleractinia: Fungiidae). *Zoologische Verhandelingen* **254**: 1–295.

Marsh, L.M. (1997). 5.0 Corals and other cnidarians. In: Bowman Bishaw Gorham and Murex Consultants (1997). *Survey of the intertidal shores of the eastern side of Barrow Island.* Unpublished report for West Australian Petroleum Pty Ltd, Perth, Western Australia. Bowman Bishaw Gorham Report No: R16335. Pages 33–35.

Marsh, L.M. (2000). Echinoderms of the Montebello Islands. In: Berry, P.F. and Wells, F.E. (Eds). Survey of the marine fauna and habitats of the Montebello Islands. *Records of the Western Australian Museum,* Supplement No. **59**: 21–27.

Montague, P.D. (1914). A report on the fauna of the Montebello Islands. *Proceedings of the Zoological Society of London* **1914**: 625–652.

Simpson, C.J. (1988). Ecology of scleractinian corals in the Dampier Archipelago, Western Australia. *Environmental Protection Authority Technical Series* **23**: 1–238.

Totton, A.K. (1952). Notes on some little known corals from North West and South Australia. *Annals and Magazine of Natural History* **(12)5**: 975–979.

Veron, J.E.N. (1986). Part II Reef-building corals. In: Berry, P.F. (ed.). Faunal surveys of the Rowley Shoals, Scott Reef and Seringapatam Reef. *Records of the Western Australian Museum* Supplement No. **25**: 27–35.

Veron, J.E.N. (1993a). *A biogeographic database of hermatypic corals: Species of the Central Indo-Pacific, genera of the world.* Australian Institute of Marine Science Monograph Series Vol. **10:** 1–433.

Veron, J.E.N. (1993b). Hermatypic corals of Ashmore Reef and Cartier Island. In: Berry, P.F. (ed). Marine Faunal Surveys of Ashmore Reef and Cartier Island, North-west Australia. *Records of the Western Australian Museum Supplement* No. **44**: 13–20.

Veron, J.E.N. and Marsh, L.M. (1988). Hermatypic corals of Western Australia, records and annotated species list. *Records of the Western Australian Museum,* Supplement No. **29**: 1–136.

Table 4 List of corals collected at the Montebello Islands.

Species	Station Number
Order SCLERACTINIA	
POCILLOPORIDAE	
Pocillopora verrucosa Ellis and Solander, 1786	4bV,20,25V
Pocillopora meandrina Dana, 1846	35
Pocillopora eydouxi Edwards and Haime, 1860	1V,3,4bV,27,35V
Pocillopora damicornis Linnaeus,1758	1V,2V,4bV,5V,6V,7V,17V,20V,24,25V,27V, 29V,30V,35V
Seriatopora hystrix Dana, 1846	19V,20V,24V,27V
Seriatopora caliendrum Ehrenberg, 1834	1V,30V,33,35V
Stylophora pistillata Esper, 1797	1V,2,6V,20V,23,30V,35V
ACROPORIDAE	
Acropora samoensis (Brook, 1891)	4b,29
Acropora digitifera (Dana, 1846)	4b,20
Acropora robusta (Dana, 1846)	4b,19V,20V,30V,35V
Acropora nobilis (Dana, 1846)	6
Acropora glauca (Brook, 1893)	2,6
Acropora abrolhosensis Veron, 1985	17
Acropora aspera (Dana, 1846)	1,20
Acropora paniculata Verrill, 1902	1,30,35
Acropora hyacinthus (Dana, 1846)	3,4b,6,17V,20V,23
Acropora latistella (Brook, 1892)	2,6,17
Acropora subulata (Dana, 1846)	24
Acropora nana (Studer, 1878)	6
Acropora nasuta (Dana, 1846)	1,17,20
Acropora valida (Dana, 1846)	6
Acropora solitaryensis Veron and Wallace, 1984	1,2
Acropora verweyi Veron and Wallace, 1984	6,17,19,20
Acropora millepora (Ehrenberg, 1834)	1,6
Acropora tenuis (Dana, 1846)	4b,6
Acropora cytherea (Dana, 1846)	1
Acropora microclados (Ehrenberg, 1834)	1,17
Acropora grandis (Brook, 1892)	1,17,30
Acropora divaricata (Dana, 1846)	9
Acropora florida (Dana, 1846)	1,2V,5,6V,7,17,19,27,29,30V
Acropora dendrum (Bassett-Smith, 1890)	3
Acropora cf. *kirstyae* Veron and Wallace, 1984	2,27,30
Acropora spp.	1,4b,6,7,9,16,20,27
Astreopora myriophthalma (Lamarck, 1816)	2V,6V,7,17V,30V,35
Astreopora listeri Bernard, 1896	27
Astreopora ocellata Bernard, 1896	M
Montipora turtlensis Veron and Wallace, 1984	M
Montipora angulata (Lamarck, 1816)	4b,6,7,20
Montipora hispida (Dana, 1846)	2,3
Montipora incrassata (Dana, 1846)	M
Montipora turgescens Bernard, 1897	2,20
Montipora spumosa (Lamarck, 1816)	17
Montipora undata Bernard, 1897	M
Montipora danae (Edwards and Haime, 1851)	1V,6,17V,29
Montipora venosa (Ehrenberg, 1834)	4b,6
Montipora informis Bernard, 1897	2,17,19
Montipora aequituberculata Bernard, 1897	6
Montipora stellata Bernard, 1897	M
Montipora crassituberculata Bernard, 1897	6,19,20
Montipora caliculata (Dana, 1846)	29
Montipora spongodes Bernard, 1897	23
Montipora nodosa (Dana, 1846)	M
Montipora spp.	1V,3V,4bV,6V,7V,17V,19V,20V,25V,30V,35V
AGARICIIDAE	
Pavona decussata(Dana, 1846)	1,2,6V,17,19V,30V,35V
Pavona explanulata (Lamarck, 1816)	2,19,35
Pavona varians Verrill, 1864	6
Pavona venosa (Ehrenberg, 1834)	6,17

Table 4 (cont.)

Species	Station Number
Pavona sp.	17
Leptoseris foliosa Dineson, 1980	35
Gardineroseris planulata (Dana, 1846)	1,2V,6V,27
Pachyseris rugosa (Lamarck, 1801)	2V,4aV,6V,17V,19V,35V
Pachyseris speciosa (Dana, 1846)	1,2V,19V,30V,35V
SIDERASTREIDAE	
Psammocora superficialis Gardiner, 1898	32b
Psammocora contigua (Esper, 1797)	2,6V,19,20V
Psammocora digitata Edwards and Haime, 1851	6
FUNGIIDAE	
Cycloseris cyclolites (Lamarck, 1801)	8,12,33
Fungia fungites (Linnaeus, 1758)	1V,2V,6,17V,20
Ctenactis echinata (Pallas, 1766)	1,6V,17V
Herpolitha limax (Houttuyn, 1772)	1V,6,17V,19V,24V
Polyphyllia talpina (Lamarck, 1801)	4a,6V,19,30V,35V
Podabacia crustacea (Pallas, 1766)	6,19,24,30V
PORITIDAE	
Porites lobata Dana, 1846	16,17V,25V,27V
Porites lutea Edwards and Haime, 1860	1V,2V,4b,6,20,24V,27,29,30V,31V,35V
Porites cylindrica Dana, 1846	2V,6,17,29V,30V
Porites nigrescens Dana, 1848	6,7,19,20V,30V,35
Goniopora djiboutiensis Vaughan, 1907	2
Goniopora columna Dana, 1846	M,2V
Goniopora tenuidens Quelch, 1886	17
Goniopora palmensis Veron and Pichon, 1982	2
Goniopora stutchburyi Wells, 1955	11,16
Alveopora fenestrata (Lamarck, 1816)	6
Alveopora verrilliana Dana, 1872	20
FAVIIDAE	
Barabattoia amicorum (Edwards & Haime, 1850)	24
Caulastrea tumida Matthai, 1928	19
Favia stelligera (Dana, 1846)	M,1V,6V
Favia favus (Forskål, 1775)	M,1V,2V,5V,6V
Favia pallida (Dana, 1846)	2V,4bV,6,20V,29V,30V,35V
Favia matthaii Vaughan, 1918	7,19
Favia rotumana (Gardiner, 1899)	5,17
Favia speciosa (Dana, 1846)	27
Favia sp. 1	6
Favia sp. 2	27
Favites halicora (Ehrenberg, 1834)	4bV,29V
Favites flexuosa (Dana, 1846)	33
Favites pentagona (Esper, 1794)	1V,2,6V,27,35
Favites complanata (Ehrenberg, 1834)	25
Favites abdita (Ellis and Solander, 1786)	1V,2V,4bV,6V,7,17V,19,20V,27V,29,30V,33
Favites sp. 1	27
Favites sp. 2	27
Goniastrea retiformis (Lamarck, 1816)	1V,2V,4bV,6V,17V,20V,25V,29V
Goniastrea edwardsi Chevalier, 1971	2,6V,35V
Goniastrea pectinata (Ehrenberg, 1834)	1,2V,6V,17V,27,30V,35V
Goniastrea aspera Verrill, 1865	M,4b,20V,25V
Goniastrea favulus (Dana, 1846)	17
Goniastrea australensis (Edwards & Haime, 1857)	4bV
Platygyra daedalea (Ellis and Solander, 1786)	7
Platygyra lamellina (Ehrenberg, 1834)	M
Platygyra sinensis (Edward and Haime, 1849)	4b,7,14d,29
Platygyra pini Chevalier, 1975	1
Platygyra verweyi Wijsman-Best, 1976	29
Leptoria phrygia (Ellis and Solander, 1786)	M,1V,2V,6V,17V,20V,25V,30V,35V,
Oulophyllia crispa (Lamarck, 1816)	2V,24,35
Montastrea curta (Dana, 1846)	M,1V,2V,4bV,6V,7V,17V,20V,35V
Montastrea magnistellata Chevalier, 1971	M

Table 4 (cont.)

Species	Station Number
Montastrea valenciennesi (Edwards and Haime, 1848)	1V,2V,6,17,20V,35V
Plesiastrea versipora (Lamarck, 1816)	14c,14d
Leptastrea purpurea (Dana, 1846)	1,35V
Cyphastrea serailia (Forskål, 1775)	1V,2,4bV,6V,16,17V,20V,25V,29V,30V
Cyphastrea microphthalma (Lamarck, 1816)	1V,2V,4bV,6V,7,17V,20V,25V,35V
Echinopora lamellosa (Esper, 1795)	1,2V,6V,17,19,30V,31V,35V
Moseleya latistellata Quelch, 1884	7,17,19,33V
TRACHYPHYLLIIDAE	
Trachyphyllia geoffroyi Audouin, 1826	16,33
OCULINIDAE	
Galaxea astreata (Lamarck, 1816)	1V,2V,6V,17V,19V,20V,30V,31
Galaxea fascicularis (Linnaeus, 1767)	1V,2V,6V,17V,19,20V,27V,29V,35
MERULINIDAE	
Hydnophora exesa (Pallas, 1766)	4bV,6,7V,17V,24,25V,29,30V
Hydnophora microconos (Lamarck, 1816)	4bV,20,27V,35V
Hydnophora rigida (Dana, 1846)	4bV,6,31
Merulina ampliata (Ellis and Solander, 1786)	1,2V,6V,7V,17V,25V,30V,35V
Scapophyllia cylindrica (Edwards and Haime, 1848)	27
MUSSIDAE	
Australomussa rowleyensis Veron, 1985	
Acanthastrea echinata (Dana, 1846)	25
Acanthastrea hillae Wells, 1955	24
Lobophyllia hemprichii (Ehrenberg, 1834)	2V,6V,7,14d,19,24,25V,30V,33V,35V
Lobophyllia corymbosa (Forskål, 1775)	6,24
Lobophyllia hataii Yabe, Sugiyama and Eguchi, 1936	19,27,33
Symphyllia radians Edwards and Haime, 1849	1V,2V,6V,35V
Scolymia cf. *vitiensis* Brüggemann, 1877	32a
Cynarina lacrymalis (Edwards and Haime, 1848)	19
PECTINIIDAE	
Echinophyllia aspera (Ellis and Solander, 1786)	6,14e,17V,24,30V,35V
Echinophyllia echinata (Saville-Kent, 1871)	23,24
Oxypora lacera (Verrill, 1864)	1,2,6,19,24,31
Mycedium elephantotus (Pallas, 1766)	1,2V,19,24,30V,35V
Pectinia paeonia (Dana, 1846)	2V,6V,17,19V,24V
cf. *Pectinia* sp.	17
CARYOPHYLLIIDAE	
Catalaphyllia jardinei (Saville-Kent, 1893)	32a
Euphyllia ancora Veron and Pichon, 1980	19V,24,31V
Plerogyra sinuosa (Dana, 1846)	13,30
DENDROPHYLLIIDAE	
Duncanopsammia axifuga (Edwards and Haime, 1848)	32a
Heteropsammia cochlea (Spengler, 1781)	5,8,12,15,18,22,36a
Turbinaria mesenterina (Lamarck, 1816)	2,5,6V,19,33,35V
Turbinaria stellulata (Lamarck, 1816)	2V,6V,24,30,35V
Turbinaria peltata (Esper, 1794)	7,24,35V
Turbinaria frondens (Dana, 1846)	6,17,19
Turbinaria reniformis Bernard, 1896	2V,6V,23,24,30V,33V
Turbinaria bifrons Brüggemann, 1877	5,14d,25
Ahermatypic corals	
RHIZANGIIDAE	
Culicia sp. cf *australiensis* Hoffmeister,1933	12
DENDROPHYLLIIDAE	
Dendrophyllia sp.	1
Tubastrea coccinea Lesson,1829	4b,25
Tubastrea diaphana Dana, 1846	1,4b,20,25
Tubastrea micrantha Ehrenberg, 1834	4,24,27