

Part II

Reef-building corals

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Abstract

The Rowley Shoals, Scott and Seringapatam Reefs off north-western Australia are characterised by clear, deep, oceanic water and a wide tidal range. Hermatypic corals were sampled from reef flat zones, outer slopes with differing exposures to wave action, lagoon pinnacles and soft substrates. A total of 233 species in 56 genera is here recorded, 213 species in 56 genera from Scott and Seringapatam Reefs and 184 species in 52 genera from the Rowley Shoals.

The two reef areas have a very similar coral fauna, apparently slightly richer in species at Scott Reef, but considerably different from the coral fauna of near-shore localities.

Background and discussion

Scleractinian corals were initially identified *in situ*, then all specimens requiring laboratory confirmation or further study were collected and later sent to the Australian Institute of Marine Science. Most of the field work was undertaken using SCUBA and this was supplemented by walking on reef flats during low tide.

Study sites at Scott Reef (Part I, Figure 7) were selected to encompass a full range of habitats including all reef flat zones, a range of outer slopes with differing exposures to wave action, the inner (northern) slope of south reef and a wide range of lagoonal habitats including pinnacles and areas of soft substrate. Within these areas, the range of habitats was generally similar to that experienced at Rowley Shoals (Part I, Figures 3, 4) during the expedition of July 1982 except that (1) Scott Reef does not have an enclosed lagoon that retains ponded water well above low tide level (thereby providing inner reef flat habitats with a small

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tidal range), and (2) only Mermaid Reef lagoon of Rowley Shoals (which was only briefly studied) has an extensive deep lagoon comparable to the open lagoon of South Scott Reef. Two sites only were sampled at Seringapatam Reef (Part I, Figure 8).

Both Rowley Shoals and Scott Reef coral communities are primarily characterised by environments produced by clear deep offshore water, strong wave action on exposed outer slopes and a wide tidal range (described in Part I). The clear water allows coral communities to exist over a great (and as yet unknown) depth range, the strong wave action on outer slopes and the wide tidal range cause them to be strongly zoned. This zonation probably reaches an extreme for any Australian reef at Seringapatam Reef to the north of Scott Reef with the development of an extensive algal terrace in the intertidal zone.

A list of 233 species in 56 genera recorded from Rowley Shoals and Scott/Seringapatam Reefs is given below. The two reef areas have very similar coral faunas which differ greatly from those of coastal localities. Scott and Seringapatam Reefs appear to be richer in coral genera and species than the Rowley Shoals with 213 species in 56 genera at the former compared with 184 species in 52 genera at the latter. The genera *Anacropora*, *Caulastrea*, *Heliofungia* and *Lithophyllum* were found at Scott Reef but not at the Rowley Shoals. Whether this is due to collecting bias or to a real faunal difference is impossible to determine. A detailed comparison between the corals of these and other Western Australian reefs is in preparation (Veron, Marsh and Lovell). Some of the new species recorded during these studies have already been described (Veron 1985). Unidentified species are not included: they belong to genus *Acropora* (five species), *Montipora* (two species), *?Leptoseris* (one species), *?Polyphyllia* (one species) and *Cyphastrea* (one species).

The nomenclature used follows Veron and Pichon (1976), Veron, Pichon and Wijsman-Best (1977), Veron and Pichon (1979, 1982) and Veron and Wallace (1984).

List of reef-building corals

Key to symbols

Numbers = sampling stations (see Part I, Figures 3, 4, 5, 7 and 8; Appendix Tables 1 and 3)

v = visual records

x = specimens without precise locality

B = specimens collected by the R.V. *Bogorov* Expedition

	Rowley Shoals	Scott/Seringapatam Reefs
ASTROCOENIIDAE		
<i>Stylocoeniella armata</i> Ehrenberg, 1834		5
<i>S. guentheri</i> Bassett-Smith, 1890	1, 9	3, 4, 5, 12
POCILLOPORIDAE		
<i>Pocillopora verrucosa</i> Ellis and Solander, 1786	1, 14	x, 3v
<i>P. eydouxi</i> Edwards and Haime, 1860	1, 2v, 11v, 14	v
<i>P. damicornis</i> Linnaeus, 1758	12v	v
<i>P. woodjonesi</i> Vaughan, 1918	-	v
<i>Seriatopora hystrix</i> Dana, 1846	v	1v, 5v, B
<i>Stylophora pistillata</i> Esper, 1797	v	v
ACROPORIDAE		
<i>Acropora palifera</i> (Lamarck, 1816)	2, 4, 6, 14	1v
<i>A. brueggemannii</i> (Brook, 1893)	6, 14	1, 12
<i>A. humilis</i> (Dana, 1846)	5	v
<i>A. gemmifera</i> (Brook, 1892)	4	v
<i>A. monticulosa</i> (Brüggemann, 1879)	v	v
<i>A. samoensis</i> (Brook, 1891)	v	v
<i>A. digitifera</i> (Dana, 1846)	v	v
<i>A. robusta</i> (Dana, 1846)	5	v
<i>A. danai</i> (Edwards and Haime, 1860)	v	v
<i>A. nobilis</i> (Dana, 1846)	5	v
<i>A. formosa</i> (Dana, 1846)	v	20
<i>A. microphthalmia</i> (Verrill, 1869)	8	1, 12, 16
<i>A. horrida</i> (Dana, 1846)	1, 9	8
<i>A. vaughani</i> Wells, 1954	6	1, 3, 20
<i>A. aculeus</i> (Dana, 1846)	4	-
<i>A. glauca</i> (Brook, 1893)	4	-
<i>A. austera</i> (Dana, 1846)	6, 14	v
<i>A. abrolhosensis</i> Veron, 1985	3	1
<i>A. pulchra</i> (Brook, 1891)	v	1, 19
<i>A. elseyi</i> (Brook, 1892)	-	1, 4

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	Rowley Shoals	Scott/Seringapatam Reefs
<i>A. millepora</i> (Ehrenberg, 1834)	5	v
<i>A. tenuis</i> (Dana, 1846)	v	v
<i>A. donei</i> Veron and Wallace, 1984	3, 4, 6	v
<i>A. cytherea</i> (Dana, 1846)	1, 4, 6	3, 12
<i>A. microclados</i> (Ehrenberg, 1834)	4, 6	-
<i>A. grandis</i> (Brook, 1892)	6	v
<i>A. selago</i> (Studer, 1878)	-	1, 3, 12
<i>A. valenciennesi</i> (Edwards and Haime, 1860)	-	12
<i>A. yongei</i> Veron and Wallace, 1984	4, 9	v
<i>A. anthocercis</i> (Brook, 1893)	-	v
<i>A. divaricata</i> (Dana, 1846)	-	v
<i>A. longicyathus</i> (Edwards and Haime, 1860)	1	v
<i>A. florida</i> (Dana, 1846)	1	v
<i>Astreopora myriophthalma</i> (Lamarck, 1816)	3, 9	5
<i>A. gracilis</i> Bernard, 1896	-	1
<i>A. explanata</i> Veron, 1985	6, 9	15
<i>Montipora monasteriata</i> (Forskål, 1775)	1, 3, 4, 5, 6	1, 3
<i>M. hoffmeisteri</i> Wells, 1954	1, 6, 8	3, 4
<i>M. floweri</i> Wells, 1954	6	3
<i>M. mollis</i> Bernard, 1897	6, 8	-
<i>M. millepora</i> Crossland, 1952	v	-
<i>M. turtlensis</i> Veron and Wallace, 1984	6, 14	-
<i>M. angulata</i> (Lamarck, 1816)	-	19
<i>M. hispida</i> (Dana, 1846)	-	4, 12
<i>M. incrassata</i> (Dana, 1846)	-	1
<i>M. peltiformis</i> Bernard, 1897	9	-
<i>M. turgescens</i> Bernard, 1897	1	5, 8
<i>M. spumosa</i> (Lamarck, 1816)	1, 9, 14	v
<i>M. undata</i> Bernard, 1897	6, 8, 14	4
<i>M. danae</i> (Edwards and Haime, 1851)	1, 6, 9, 14	3, 5, 8
<i>M. venosa</i> (Ehrenberg, 1834)	-	3, 19
<i>M. verrucosa</i> (Lamarck, 1816)	3	v
<i>M. foveolata</i> (Dana, 1846)	3, 6	5
<i>M. efflorescens</i> Bernard, 1897	1, 6, 9	4
<i>M. grisea</i> Bernard, 1897	4, 6	3, 4
<i>M. informis</i> Bernard, 1897	1, 6, 9	3
<i>M. foliosa</i> (Pallas, 1766)	6, 14	v
<i>M. aequituberculata</i> Bernard, 1897	8, 9	5
<i>M. tuberculosa</i> (Lamarck, 1816)	-	1, 4, 5

	Rowley Shoals	Scott/Seringapatam Reefs
<i>M. nodosa</i> (Dana, 1846)	v	v
<i>Anacropora puertogalerae</i> Nemenzo, 1964	-	1, 3
AGARICIIDAE		
<i>Pavona cactus</i> (Forskål, 1775)	v	1, 16, B
<i>P. decussata</i> (Dana, 1846)	1	8
<i>P. explanulata</i> (Lamarck, 1816)	1, 6	v
<i>P. clavus</i> (Dana, 1846)	v	v
<i>P. minuta</i> Wells, 1954	9	v
<i>P. varians</i> Verrill, 1864	v	v
<i>P. venosa</i> (Ehrenberg, 1834)	4	v
<i>P. maldivensis</i> (Gardiner, 1905)	v	v
<i>Leptoseris explanata</i> Yabe and Sugiyama, 1941	14	B
<i>L. glabra</i> Dineson, 1980	-	12, B
<i>L. hawaiiensis</i> Vaughan, 1907	6, 8, 9, 14	12, 15, B
<i>L. myctoserooides</i> Wells, 1954	6	3, 15
<i>L. yabei</i> (Pillai and Scheer, 1976)	9	1
<i>L. papyracea</i> (Dana, 1846)	-	20
<i>L. scabra</i> Vaughan, 1907	x	12, 20
<i>Gardineroseris planulata</i> (Dana, 1846)	v	v
<i>Coeloseris mayeri</i> Vaughan, 1918	1, 7	5
<i>Pachyseris rugosa</i> (Lamarck, 1801)	1	5, 16v
<i>P. speciosa</i> (Dana, 1846)	1v, 8v, 9	16v
SIDERASTREIDAE		
<i>Coscinarea exesa</i> (Dana, 1846)	5	-
<i>C. columna</i> (Dana, 1846)	-	v
<i>Psammocora superficialis</i> Gardiner, 1898	6	20
<i>P. contigua</i> (Esper, 1797)	6, 14	19
<i>P. digitata</i> Edwards and Haime, 1851	-	19
<i>P. haimeana</i> Edwards and Haime, 1851	4, 8	4
FUNGIIDAE		
<i>Cycloseris costulata</i> (Ortmann, 1889)	3, 9	v
<i>C. noumeae</i> Hoeksema and Borel Best, 1984	x	-
<i>C. vaughnai</i> (Boschma, 1923)	3	20
<i>Heliofungia actiniformis</i> (Quoy and Gaimard, 1833)	-	5, 8v
<i>Fungia fungites</i> (Linnaeus, 1758)	1, 4, 5	1, 3, B

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	Rowley Shoals	Scott/Seringapatam Reefs
<i>F. concinna</i> Verrill, 1864	-	5
<i>F. horrida</i> Dana, 1846	9	12
<i>F. echinata</i> (Pallas, 1766)	-	1, 5
<i>F. kyunzingeri</i> Döderlein, 1901	1	-
<i>F. repanda</i> Dana, 1846	9	1, 5
<i>F. scutaria</i> Lamarck, 1801	7	3, 5
<i>F. granulosa</i> Klunzinger, 1879	8	1, 4, 20
<i>F. paumotensis</i> Stutchbury, 1833	7	3, 15
<i>F. simplex</i> (Gardiner, 1905)	x	-
<i>F. scruposa</i> Klunzinger, 1879	-	x
<i>Herpolitha limax</i> (Houttuyn, 1772)	v	3
<i>H. weberi</i> (van der Horst, 1921)	9	-
<i>Polyphyllia talpina</i> (Lamarck, 1801)	3, 14	B
<i>Sandalolitha robusta</i> (Quelch, 1886)	v	5
<i>Lithophyllum edwardsi</i> Rousseau, 1854	-	5
<i>Podabacia crustacea</i> (Pallas, 1766)	6, 8	v
PORITIDAE		
<i>Porites solida</i> (Forskål, 1775)	6	3, 4
<i>P. lobata</i> Dana, 1846	x	3
<i>P. murrayensis</i> Vaughan, 1918	7, 14	16
<i>P. lutea</i> Edwards and Haime, 1860	1	1
<i>P. cylindrica</i> Dana, 1846	1, 9	16v
<i>P. nigrescens</i> Dana, 1848	1	v
<i>P. lichen</i> Dana, 1846	-	1, 5
<i>P. vaughani</i> Crossland, 1952	4	v
<i>P. rus</i> (Forskål, 1775)	-	v
<i>Goniopora djiboutiensis</i> Vaughan, 1907	9	v
<i>G. columna</i> Dana, 1846	-	8
<i>G. tenuidens</i> Quelch, 1886	3	19
<i>G. palmensis</i> Veron and Pichon, 1982	x	-
<i>G. stutchburyi</i> Wells, 1955	v	-
<i>G. minor</i> Crossland, 1952	1, 9	3, 5, 15, 20
<i>G. lobata</i> Edwards and Haime, 1860	-	5
<i>Alveopora allangi</i> Hoffmeister, 1925	9	8
<i>A. fenestrata</i> (Lamarck, 1816)	1, 4, 9, 14	-
<i>A. catalai</i> Wells, 1968	-	8
<i>A. spongiosa</i> Dana, 1846	4	1, 16
<i>A. verrilliana</i> Dana, 1872	-	16
<i>A. tizardi</i> Bassett-Smith, 1890	6, 14	-
FAVIIDAE		
<i>Caulastrea furcata</i> Dana, 1846	-	3, 20v
<i>Favia stelligera</i> (Dana, 1846)	v	v
<i>F. helianthoides</i> Wells, 1954	-	v
<i>F. laxa</i> (Klunzinger, 1879)	1	3, 5

	Rowley Shoals	Scott/Seringapatam Reefs
<i>F. favus</i> (Forskal, 1775)	1	v
<i>F. pallida</i> (Dana, 1846)	1	v
<i>F. matthaii</i> Vaughan, 1918	1, 4, 5, 6	v
<i>F. rotumana</i> (Gardiner, 1899)	7	v
<i>F. maxima</i> Veron, Pichon and Wijsman-Best, 1977	3, 9	5
<i>F. lizardensis</i> Veron, Pichon and Wijsman-Best, 1977	3	v
<i>F. speciosa</i> (Dana, 1846)	x	8
<i>F. rotundata</i> (Veron, Pichon and Wijsman-Best, 1977)	-	v
<i>Favites halicora</i> (Ehrenberg, 1834)	1, 3, 4	1
<i>F. pentagona</i> (Esper, 1794)	1, 4	v
<i>F. russelli</i> (Wells, 1954)	1, 3	1
<i>F. complanata</i> (Ehrenberg, 1834)	-	20
<i>F. abdita</i> (Ellis and Solander, 1786)	-	1
<i>Goniastrea retiformis</i> (Lamarck, 1816)	1	19
<i>G. edwardsi</i> Chevalier, 1971	1	v
<i>G. pectinata</i> (Ehrenberg, 1834)	1	1
<i>G. aspera</i> Verill, 1865	-	v
<i>G. favulus</i> (Dana, 1846)	-	v
<i>G. palauensis</i> (Yabe, Sugiyama and Eguchi, 1936)	-	v
<i>Platygyra daedalea</i> (Ellis and Solander, 1786)	4, 7	v
<i>P. lamellina</i> (Ehrenberg, 1834)	-	5
<i>P. sinensis</i> (Edward and Haime, 1849)	5, 6	v
<i>P. pini</i> Chevalier, 1975	1, 3, 6	3, 5
<i>P. verweyi</i> Wijsman-Best, 1976	6	19
<i>Leptoria phrygia</i> (Ellis and Solander, 1786)	4	5
<i>Oulophyllia crispa</i> (Lamarck, 1816)	1, 9	v
<i>O. bennettiae</i> (Veron, Pichon and Wijsman- Best, 1977)	v	v
<i>Montastrea curta</i> (Dana, 1846)	14	v
<i>M. magnistellata</i> Chevalier, 1971	3	v
<i>M. valenciennesi</i> (Edwards and Haime, 1848)	1	v
<i>Plesiastrea versipora</i> (Lamarck, 1816)	v	15
<i>Diploastrea heliopora</i> (Lamarck, 1816)	6v	v
<i>Leptastrea inaequalis</i> Klunzinger, 1879	v	v
<i>L. purpurea</i> (Dana, 1846)	1	3, 5
<i>L. transversa</i> Klunzinger, 1879	6	1, 3, 5
<i>L. pruinosa</i> Crossland, 1952	1, 6	1, 5, 20

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	Rowley Shoals	Scott/Seringapatam Reefs
<i>Cyphastrea serailia</i> (Forskål, 1775)	9	3, 4, 5, 19
<i>C. chalcidicum</i> (Forskål, 1775)	1, 6	5
<i>C. microphthalmia</i> (Lamarck, 1816)	1, 4, 6	3, 4, 5, 19
<i>Echinopora lamellosa</i> (Esper, 1795)	4, 8, 9	5
<i>E. horrida</i> Dana, 1846	1, 9v	v
<i>E. hirsutissima</i> Edwards and Haime, 1849	-	v
<i>E. mammiformis</i> (Nemenzo, 1959)	-	16
OCULINIDAE		
<i>Galaxea astreata</i> (Lamarck, 1816)	v	v
<i>G. fascicularis</i> (Linnaeus, 1767)	9	v
<i>Acrhelia horrescens</i> (Dana, 1846)	9	8
MERULINIDAE		
<i>Hydnophora exesa</i> (Pallas, 1766)	v	v
<i>H. rigida</i> (Dana, 1846)	v	v
<i>H. pilosa</i> Veron, 1985	-	v
<i>Merulina ampliata</i> (Ellis and Solander, 1786)	1, 3	16
<i>M. scabricula</i> Dana, 1846	1	v
<i>Scaphophyllia cylindrica</i> (Edwards and Haime, 1848)	v	v
MUSSIDAE		
<i>Australomussa rowleyensis</i> Veron, 1985	9	20
<i>Acanthastrea echinata</i> (Dana, 1846)	6, 8	v
<i>Lobophyllia hemprichii</i> (Ehrenberg, 1834)	v	v
<i>L. hataii</i> Yabe, Sugiyama and Eguchi, 1936	4	v
<i>Sympphyllia recta</i> (Dana, 1846)	1, 3	v
<i>S. agaricia</i> Edwards and Haime, 1849	14	v
<i>S. valenciennesii</i> Edwards and Haime, 1849	1	v
PECTINIIDAE		
<i>Echinophyllia aspera</i> (Ellis and Solander, 1786)	-	8, B
<i>E. orpheensis</i> Veron and Pichon, 1980	3	5
<i>Oxypora lacera</i> (Verrill, 1864)	4, 6	v
<i>O. glabra</i> Nemenzo, 1959	9	v
<i>Mycedium elephantotus</i> (Pallas, 1766)	8, 9	v
<i>Pectinia lactuca</i> (Pallas, 1766)	v	v
<i>P. alcicornis</i> (Saville-Kent, 1871)	-	B

	Rowley Shoals	Scott/Seringapatam Reefs
<i>P. teres</i> Nemenzo, 1981	1, 3, 9	5, 8, B
<i>P. paeonia</i> (Dana, 1846)	-	v
CARYOPHYLLIIDAE		
<i>Euphyllia glabrescens</i> (Chamisso and Eysenhardt, 1821)	-	15
<i>E. cristata</i> Chevalier 1971	8	-
<i>E. ancora</i> Veron and Pichon, 1980	6	v
<i>Plerogyra sinuosa</i> (Dana, 1846)	14	B
<i>Physogyra lichtensteini</i> (Edwards and Haime, 1851)	x, 6v, 8v	5v
DENDROPHYLLIIDAE		
<i>Turbinaria mesenterina</i> (Lamarck, 1816)	2	-
<i>T. stellulata</i> (Lamarck, 1816)	1, 8, 9	v
<i>T. peltata</i> (Esper, 1794)	-	v
<i>T. frondens</i> (Dana, 1846)	-	v
<i>T. reniformis</i> Bernard, 1896	-	v

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