

# Marine benthic flora of the Dampier Archipelago, Western Australia

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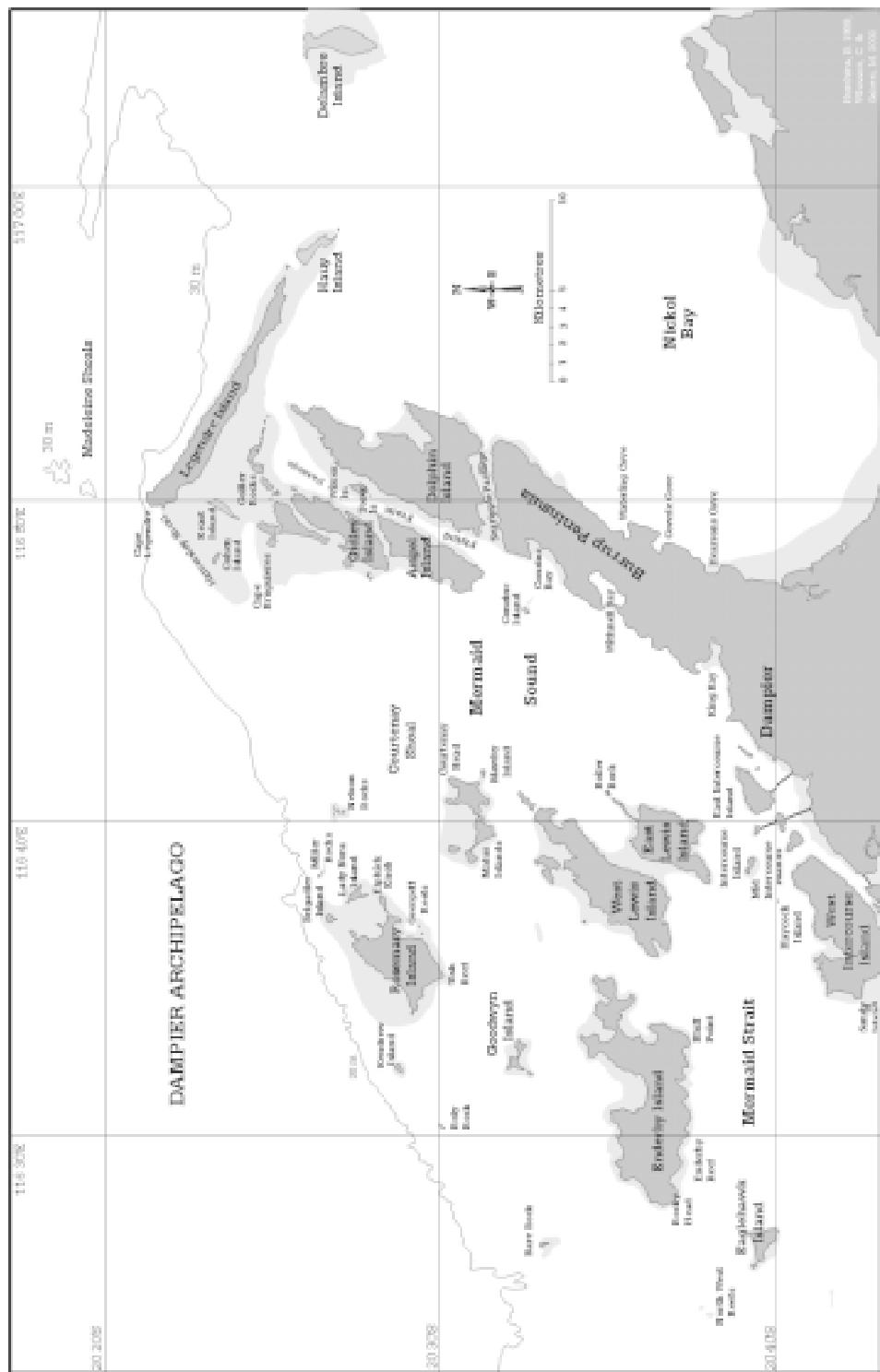
**Abstract** – Two hundred and ten species of marine algae, seagrasses and cyanobacteria are reported from the Dampier Archipelago, northwestern Western Australia. Included are 114 species of Rhodophyta, 50 species of Chlorophyta, 32 species of Phaeophyceae, 5 species of Cyanophyta and 9 species of seagrasses. This report presents the first detailed account of marine benthic algae from tropical Western Australia. Fifty-seven species are newly recorded for Western Australia, with five species (*Codium dwarkense*, *Dictyota friabilis*, *Balliella subcorticata*, *Cottoniella amamiensis*, *Polysiphonia pentamera*) also newly recorded for Australia. The algal flora of the region includes many elements common to tropical areas worldwide.

**Key words:** Algae; Australia; Biogeography; Systematics

## INTRODUCTION

Studies of the benthic marine algae of temperate regions of Australia have documented a diverse flora that is currently in the process of being collated (Womersley 1984, 1987, 1994, 1996, 1998). By comparison, the marine macroalgal flora of the continent's tropical northern and northwestern shores remains relatively poorly known, with only a handful of publications dealing with the region (e.g. Womersley 1958). This is especially true of the marine flora of northern Western Australia. A compendium of records of marine algae from northern Australia (Lewis 1984, 1985, 1987) included some 800 species, of which only 9 were attributed to the Western Australian coast north of (and including) North West Cape. Several recent publications have increased the number of species recorded for the region (e.g. Phillips *et al.* 1993; King & Puttock 1994b; Phillips & Huisman 1998), and many tropical species from the northwest were illustrated in the recent 'Marine Plants of Australia' (Huisman 2000). However, a comprehensive flora for the region has not been produced. This publication addresses that need, in part, by providing a checklist of the marine benthic flora of the Dampier Archipelago based on collections made during several expeditions to the region in the last two decades. No detailed study of the seagrass and algal flora of the Dampier Archipelago region had been undertaken previously, although a short generic list is given in North West Shelf Development Project Draft Environmental Impact Statement (Woodside 1979) based on a survey in August 1978 carried out by S.M. Slack-Smith of the Western Australian Museum. More recently, Semeniuk & Wurm (1987) have published a detailed account of the mangrove communities of the area.

In the present account 210 species are documented, comprising 50 species of Chlorophyta (green algae), 32 species of Phaeophyceae (brown algae), 114 species of Rhodophyta (red



**Figure 1** Map of the Dampier Archipelago, Western Australia, showing many of the localities mentioned in the text.

algae), 5 species of Cyanophyta (blue-green algae) and 9 species of Magnoliophyta (seagrasses). As with most similar lists, this account is probably far from comprehensive, but it does substantially increase our understanding of the marine flora of the region.

### The Study Area

The Dampier Archipelago is situated off the northwest coast of Western Australia at longitude 116°40' E and latitude 20°30' S in an area known as the Pilbara. The Archipelago and the nearby mainland towns of Karratha and Dampier are a major growth and industrial centre with shipping terminals for iron ore and salt, a solar salt works, and an LPG-LNG plant and terminal for the offshore North West Shelf gas fields. The waters of the Archipelago not only serve as shipping passages, they also serve as a major recreational resource for the populations of the towns of Dampier and Karratha. These developments have increased environmental pressures and demonstrated the need for environmental management. Such management requires an understanding of the ecology of the area and consequently also an understanding of the organisms that are present.

### The Environment

The Dampier Archipelago is essentially a drowned landmass similar to the present hinterland. A gently rising and undulating plain now occurs 5-20 m below mean sea level throughout most of the archipelago (Semeniuk *et al.* 1982). Inundated hills and ridges rise up from this plain, the lowest forming subtidal rocky reefs, the highest forming the many islands of the archipelago. Inundated valleys form the embayments, straits and channels. Much of the coastline is a Precambrian igneous basement rock covered in various places with Pleistocene limestone. This limestone occurs extensively at depth, and is found less frequently near the present sea level. Overlying the rock is a veneer of varying thickness of sand/gavel deposits and mud deposits, the latter tending to occur in nearshore embayments.

Tides within the archipelago range from 1.0 m at neap tides to 3.5 m at spring tides. These result in tidal currents that have significant effects upon turbidity and benthic contouring of the archipelago. Locally induced wind waves further affect turbidity, current speeds and direction. The prevailing winds are a land breeze from the east in winter months and a sea breeze from the west in summer. Remote tropical cyclones can also be expected to influence the marine environment on average two times a year between December and March (Osborne *et al.* 2000), with cyclones passing within 100 km of the archipelago expected about every 10 years (Coleman 1972). These bring destructive winds, substantial rainfall and storm surges. Water temperatures range from 19°C in July/August to 32°C in February/March. In the shallow areas of the bays, diurnal temperature fluctuations are of the order of 5°C.

The climate of the region is influenced by both the northern rainfall systems of tropical origin and the southern systems which bring winter rains. Although rainfall is erratic from year to year, it is still seasonal with an average of 315 mm per annum. There are two annual peaks in rainfall, the first occurring in January to March due to a combination of thunderstorm and cyclonic rains, the latter accounting for one-third to one-half of the yearly total. The second rainfall peak occurs in May to June and is due to a south-west influence in winter.

## MATERIALS AND METHODS

The majority of the collections for this study were made during two separate surveys. The first

occurred between 1982 and 1985, when the area was visited at all times of the year. Regular collections were made at three sites (Lewis Island, Conzinc Island and Nelson Flats) in conjunction with a study of the productivity and community structure of the benthic 'turf' algae (Mercer 1985; Borowitzka & Mercer, unpublished). Other sites were visited on an opportunistic basis and T. Chiffings of the then Department of Conservation and Environment also made collections. The second series of collections was made during 1998 and 1999 as part of a Western Australian Museum survey of the Archipelago. The algae and seagrasses were collected by S.C.U.B.A., snorkelling, wading, or during intertidal reef walks, then preserved in 5% formalin in seawater. After examination, specimens were either mounted on herbarium sheets or glass microscope slides, or stored in 70% ethyl alcohol with 5% glycerol added. Slide material was stained in a mixture of 1 g aniline blue powder, 70 ml Karo®, 30 ml distilled water, and 5 ml acetic acid. All specimens are housed in the herbarium of the School of Biological Sciences and Biotechnology, Murdoch University (MURU). Those from the 1982/1985 surveys are catalogued with the prefix DA, while those from the 1998/1999 surveys are catalogued with the prefix DAR.

## RESULTS AND DISCUSSION

The results of the present study are presented in the 'Taxonomic Account', which documents 210 species of marine plants from the Dampier Archipelago. A comparison with records cited by Silva *et al.* (1996) and Huisman (2000) shows that many of the species found at the Dampier Archipelago are newly recorded for either Western Australia or the whole of Australia (Table 1), which is not a surprising result given the poor state of knowledge regarding the flora of the northwest. Several new taxa have been described based on materials arising from this study, including a red algal genus, *Echinophycus* Huisman (2001). The present report thus contributes significantly to our knowledge of the marine flora of northwestern Australia. It cannot, however, be regarded as a comprehensive account, as many specimens in the collections could not be identified due to insufficient material or did not clearly match descriptions in the literature. These specimens will form the basis of future work.

**Table 1** Species newly recorded for Western Australia and Australia\*

<i>Avrainvillea obscura</i>	<i>Enteromorpha flexuosa</i> subsp. <i>paradoxa</i>	<i>Padina australis</i>
<i>Balliella subcorticata</i> *	<i>Feldmannia indica</i>	<i>Patenocarpus paraphysiferus</i>
<i>Bornetella sphaerica</i>	<i>Gelidiopsis scoparia</i>	<i>Polysiphonia ferulacea</i>
<i>Brachytrichia quoyi</i>	<i>Gracilaria salicornia</i>	<i>Polysiphonia herpa</i>
<i>Caulerpa verticillata</i>	<i>Gracilaria urvillea</i>	<i>Polysiphonia pentameria</i> *
<i>Ceramium affine</i>	<i>Griffithsia heteromorpha</i>	<i>Polysiphonia upolensis</i>
<i>Ceramium borneense</i>	<i>Griffithsia metcalpii</i>	<i>Pterocladiella caerulescens</i>
<i>Ceramium serpens</i>	<i>Halimeda discoidea</i>	<i>Rhizoclonium tortuosum</i>
<i>Chnoospora implexa</i>	<i>Halimeda velasquezii</i>	<i>Rosenvingea nhatrangensis</i>
<i>Codium arabicum</i>	<i>Halymenia durvillei</i>	<i>Sargassum oligocystum</i>
<i>Codium dwarkense</i> *	<i>Hypnea boergesenii</i>	<i>Stromatella monostromatica</i>
<i>Corallophila apiculata</i>	<i>Hypnea cornuta</i>	<i>Symploca hydnoidea</i>
<i>Cottoniella amamiensis</i> *	<i>Hypoglossum caloglossoides</i>	<i>Turbinaria conoides</i>
<i>Crownia attenuata</i>	<i>Jania adhaerens</i>	<i>Udotea glaucescens</i>
<i>Dasya baillouviana</i>	<i>Lomentaria corallicola</i>	<i>Udotea orientalis</i>
<i>Dictyota friabilis</i> *	<i>Lyngbya confervoides</i>	<i>Ulvella lens</i>
<i>Dudresnaya hawaiiensis</i>	<i>Lyngbya semiplena</i>	<i>Valonia aegagropila</i>
<i>Echinophycus minutus</i>	<i>Monosporus indicus</i>	<i>Valonia fastigiata</i>
	<i>Osmundaria melvillii</i>	<i>Valoniopsis pachynema</i>

### ACKNOWLEDGEMENTS

1982 -1985 Surveys: A significant part of the fieldwork was carried out by Mr John Mercer, to whom we are greatly indebted. Thanks also go to Dr G. Chittleborough for initiating this study, and to him and Dr J. Ottaway for the use of the DCE facilities at Dampier and other logistical support. The project could not have proceeded so well in the field without the incalculable assistance of T. Chiffings, L. Charlton, M. Forde, K. Grey, R. Lethbridge, T. Mercer, C. Simpson and W. Wood. The study was funded by grants from the Marine Sciences and Technologies Grants Scheme, the W.A. Department of Conservation and Environment and the MLB Foundation.

1998-1999 Surveys: Financial support for the expeditions was provided by Woodside Energy and the Western Australian Museum, who are gratefully acknowledged. Sincere thanks to Shirley Slack-Smith, Melissa Hewitt, Clay Bryce, Paddy Berry, Barry Hutchins (Western Australian Museum), Peter Morrison, and Mat Vanderklift (University of Western Australia), who collected some of the specimens. Professor John West (University of Melbourne) identified the *Caloglossa* and *Bostrychia* specimens. Professor John Kuo (University of Western Australia) kindly assisted with seagrass identifications and, along with Professor Mike Wynne (University of Michigan), assisted with the literature.

Financial support for the first author was provided by a Western Australian Department of Commerce and Trade Fellowship and the 'Australian Biological Resources Study'.

### TAXONOMIC ACCOUNT

Taxa are arranged into Divisions (Chlorophyta = green algae, Heterokontophyta: Phaeophyceae = brown algae, Rhodophyta = red algae, Cyanophyta = cyanobacteria = blue-green algae, Magnoliophyta = seagrasses). Divisions are subdivided into Orders, Families, Genera and Species, generally arranged according to Silva *et al.* (1996). The nomenclature also follows Silva *et al.* (1996). Species are arranged alphabetically and each entry includes nomenclatural information, a 'References' section for previously published photographs or drawings and descriptions, distribution, and a list of selected specimens. Habitat notes pertain to local collections. This format essentially follows that of Huisman (1997).

#### DIVISION CHLOROPHYTA

'The Green Algae'

Order CTENOCCLADALES

Family Ulvaceae

#### STROMATELLA

**Stromatella monostromatica** (P. Dangeard) Kornmann & Sahling, 1985: 223, footnote.

*Ulvella monostromatica* P. Dangeard, 1965: 45-46, pl. I: figs 8-13; pl. III: fig. 1. *Type Locality:* France: either Guéthary, Pyrénées-Atlantiques or Villfranche-sur-Mer, Alpes Maritimes. *Reference:* Kraft, 2000: 516-517, figs 3B,C. *Distribution:* Probably cosmopolitan. *Specimens:* Goodwyn I., intertidal on *Laurencia* sp., 31.viii.1999, J.M.Huisman (MURU DAR 2254).

#### ULVELLA

**Ulvella lens** P. Crouan & H. Crouan, 1859: 288-289, pl. 22: fig. E.

*Type Locality:* Brest, Finistère, France. *Reference:* Kraft, 2000: 514, figs 3D-G. *Distribution:*

Widespread in tropical and temperate seas. Epiphytic or epizoic. *Specimens*: Tish Point, Rosemary I., intertidal, on *Cladophora* sp., 29.viii.1999, P.Berry (MURU DAR 2253).

### Order ULVALES

#### Family Ulvaceae

### ENTEROMORPHA

**Enteromorpha compressa** (Linnaeus) Nees, 1820: Index [2].

*Ulva compressa* Linnaeus, 1753: 1163. *Type Locality*: Europe. *References*: Womersley, 1984: 158-160, figs. 50B,C, 51D-F. Kraft, 2000: 521, fig. 5. *Distribution*: Cosmopolitan.

*Specimens*: Cape Lambert, on hot water outlet at Point Sampson Power Station, 25.i.1983, M.A.Borowitzka (MURU DA42).

**Enteromorpha flexuosa** (Wulfen) J. Agardh, 1883: 126.

*Confervula flexuosa* Roth, 1800: 188-190, *nom. illeg.* *Ulva flexuosa* Wulfen, 1803: 1 *Type Locality*: Diuno, near Trieste, Italy. *References*: Womersley, 1984: 157, figs 48E, 51A. Kraft, 2000: 523, fig. 7A-E. *Distribution*: Probably cosmopolitan. *Specimens*: South side of West Lewis I., intertidal, 5.ix.1999, J.M.Huisman (MURU DAR 1835). North west of West Lewis I., intertidal, 4.ix.1999, J.M.Huisman (MURU DAR 1563).

**Enteromorpha flexuosa** (Wulfen) J. Agardh subsp. **paradoxa** (C. Agardh) Bliding, 1963: 79.

*Confervula paradoxa* Dillwyn, 1809 [1802-1809]: 70-71, suppl. pl. F, *nom. illeg.* *Ulva paradoxa* C. Agardh, 1817: XXII. *Type Localities*: Bangor, Caernarvon, Wales; Brighton, East Sussex, England. *References*: Womersley, 1984: 154, figs 48B, 49C, D (as *Enteromorpha paradoxa*). Kraft, 2000: 525, fig. 7F. *Distribution*: Probably cosmopolitan, at least in temperate seas (Womersley, 1984). *Specimens*: Enderby I., intertidal, 2.ix.1999, J.M.Huisman (MURU DAR 2244).

### ULVA

**Ulva laetevirens** Areschoug, 1854: 370-371.

*Type locality*: Port Phillip Bay, Victoria, Australia. *Reference*: Phillips, 1988: 439-445, figs 4, 21-23-144. *Distribution*: Europe, Black Sea, southern California, New Zealand, Australia.

*Specimens*: Dampier Beach, intertidal, 30.viii.1984, M.A.Borowitzka (MURU DA 359).

*Remarks*: *Ulva laetevirens* is distinctive in having outwardly tapering cells in older parts of the thallus.

### Order CLADOPHORALES

#### Family Anadyomenaceae

### ANADYOMENE

**Anadyomene brownii** (J. E.Gray) J. Agardh, 1887: 127.

*Calomena brownii* J. E. Gray, 1866: 46. *Type Locality*: Australia. *References*: Huisman, 2000: 232. Sonder, 1871: 68-69, tab. VI, figs 1-4 (as *Anadyomene muelleri* Sonder). Gray, 1866: pl. XLIV, fig. 3 (as *Calonema brownii*). *Distribution*: Known from northern Australia south to the Houtman Abrolhos on the west coast. Indonesia. Solomon Islands. Philippines. Epilithic in the intertidal and shallow subtidal. *Specimens*: Rosemary I., intertidal, 30.viii.1999, J.M.Huisman

(MURU DAR 1624). Sth of Nelson Rocks, from 6m depth, 8.ix.1999, *J.M.Huisman* (MURU DAR 2015). Enderby I., intertidal, 1.ix.1999, *J.M.Huisman* (MURU DAR 1488).

### Family Cladophoraceae

#### RHIZOCOLONIUM

**Rhizoclonium tortuosum** (Dillwyn) Kützing, 1845: 205.

*Confervula tortuosa* Dillwyn, 1805 [1802-1809]: pl. 46. *Type Locality*: Swansea, Glamorgan, Wales. *Reference*: Womersley, 1984: 178-180, figs. 56C, 57E,F (as *Chaetomorpha capillaris* (Kützing) Børgesen). *Distribution*: Widespread in most seas. *Specimens*: Cape Lambert, on hot water outlet at Point Sampson Power Station, 25.i.1983, *M.A.Borowitzka* (MURU DA 035). *Remarks*: Cell diameters of the Cape Lambert specimen can reach a larger size (to 120µm) than that reported by Womersley (1984), but generally fall within the described range. Cell proportions (L/B 1-2) are as described by Womersley (1984).

### Family Siphonocladaceae

#### BOERGESENIA

**Boergesenia forbesii** (Harvey) Feldmann, 1938: 1503.

*Valonia forbesii* Harvey, 1860: 333. *Type Locality*: Ryukyu-retto, Japan; Sri Lanka.

*References*: Jaasdund, 1976: 15, fig. 31. Huisman, 2000: 237. *Distribution*: Tropical Indo-west Pacific. Epilithic in the intertidal/shallow subtidal, often in clusters at the edges of shallow pools. *Specimens*: Flying Foam Passage, intertidal, 23.x.1998, *J.M.Huisman* (MURU DAR 2269).

#### BOODLEA

**Boodlea composita** (Harvey) Brand, 1904: 187.

*Confervula composita* Harvey, 1834: 157. *Type Locality*: Mauritius. *References*: Jaasdund, 1976: 11, fig. 23. Huisman, 2000: 238. Egerod, 1952: 362, fig. 6a; pl. 32a. Kraft, 2000: fig. 24A-C. *Distribution*: Known from tropical and subtropical Indo-Pacific. In Australia from the Houtman Abrolhos, Western Australia, around northern Australia to the Great Barrier Reef and Lord Howe I., New South Wales. Generally epilithic in the intertidal. *Specimens*: Nth side of Enderby I., from 3-6m depths, 3.ix.1999, *J.M.Huisman* (MURU DAR 1771).

#### CLADOPHOROPSIS

**Cladophoropsis herpestica** (Montagne) Howe 1914: 31.

*Confervula herpestica* Montagne 1842a: 15. *Type Locality*: Bay of Islands, New Zealand.

*References*: Womersley 1984: 184, figs 58B, 59C. Huisman 2000: 239.

*Distribution*: Houtman Abrolhos, Western Australia, to Queensland; Indo-Pacific; Japan; New Zealand. *Specimens*: South of Nelson Rocks, from 6m depth, 8.ix.1999, *J.M.Huisman* (MURU DAR 2036). South of Kendrew I., from 3-4m depths, 30.viii.1999, *J.M.Huisman* (MURU DAR 1426; 1393). Tish Point, Rosemary I., intertidal, 29.viii.1999, *P.Berry* (MURU DAR 1887). Goodwyn I., intertidal, 31.viii.1999, *J.M.Huisman* (MURU DAR 1249).

#### DICTYOSPHAERIA

**Dictyosphaeria cavernosa** (Forsskål) Børgesen, 1932: 2.

*Ulva cavernosa* Forsskål, 1775: 187. *Type Locality*: “Gomfodae” (Al-Qunfidha), Saudi Arabia;

Mokha, Yemen. *References*: Egerod, 1952: 350-351, fig. 1b-f, fig. 2f, g. Taylor, 1960: 116, pl. 7, fig. 5. Huisman, 2000: 240. *Distribution*: Widely distributed in tropical and subtropical seas. Epilithic in the intertidal and shallow subtidal, often in small clusters. *Specimens*: Tish Reef, Rosemary I., intertidal, 30.viii.1999, J.M.Huisman (MURU DAR 1662).

### **Dictyosphaeria versluysii** Weber-van Bosse, 1905: 144.

*Type Locality*: Indonesia. *Reference*: Egerod, 1952: 351-355, figs 1a, 2h-k. *Distribution*: Widely distributed in the tropical Indo-Pacific. Epilithic in the intertidal and shallow subtidal, often in small clusters. *Specimens*: Northwest side of Malus I., from 3.5m depth, 27.viii.1999, J.M.Huisman (MURU DAR 2270).

## **SIPHONOCLADUS**

**Siphonocladus tropicus** (P. Crouan & H. Crouan) J. Agardh 1887: 105.

*Apjohnia tropica* P. Crouan & H. Crouan in Schramm & Mazé 1865: 47. *Type Locality*: Guadeloupe, West Indies. *Reference*: Egerod, 1952: 356-358, pl. 30, fig 1g; fig 2l-q. *Distribution*: Tropical waters generally. Epilithic in the subtidal or intertidal pools. *Specimens*: Hamersley Shoal, 27.v.1985, J.Mercer (MURU DA 271). Goodwyn I., intertidal, 31.viii.1999, J.M.Huisman (MURU DAR 1236). Roly Rock, from 10-11 m depths, 1.ix.1999, J.M.Huisman (MURU DAR 1434).

## **VENTRICARIA**

**Ventricaria ventricosa** (J. Agardh) Olsen & J. West, 1988: 104.

*Valonia ventricosa* J. Agardh, 1887: 96. *Type Locality*: Guadeloupe, West Indies. *References*: Olsen & West, 1988. Huisman, 2000: 243. *Distribution*: Widely distributed in tropical and subtropical seas. Epilithic in the shallow subtidal. *Specimens*: Tish Reef, Rosemary I., intertidal, 30.viii.1999, J.M.Huisman (MURU DAR 1658).

## **Family Valoniaceae**

### **VALONIA**

**Valonia aegagropila** C. Agardh, 1823: 429-430.

*Type Locality*: Lagoons of Venice, Italy, Mediterranean Sea. *Reference*: Egerod, 1952: 348-349, pl. 29b. *Distribution*: Widespread in tropical seas. Forms hemispherical clumps on rocks. *Specimens*: South of Nelson Rocks, from 6m depth, 8.ix.1999, J.M.Huisman (MURU DAR 2012, 2026, 2034).

**Valonia fastigiata** Harvey ex. J. Agardh 1887: 101.

*Type locality*: Sri Lanka. *References*: Dawson 1957: 101, fig. 1. Womersley and Bailey 1970: 266. *Distribution*: Indian and Pacific Ocean tropics. *Specimens*: Nelson Flats, on back reef sand/rubble at 6m depth, 7.vi.1984, J.Mercer (MURU DA 333). *Remarks*: It is generally recognized that the branched, segmented species of *Valonia* are a confused group (Womersley & Bailey 1970). Egerod (1952) discussed the difference between *V. fastigiata* and the closely related *V. utricularis* C. Agardh. The Dampier specimens, with their regularly cylindrical vesicles and more compact form, appear more closely related to *V. fastigiata*. Given the difficulties associated with the group, we concur with Womersley & Bailey (1970) and realise that any names applied to Indo-Pacific species must be somewhat tentative.

## VALONIOPSIS

**Valoniopsis pachynema** (Martens) Børgesen, 1934: 10-16, figs. 1, 2

*Bryopsis pachynema* Martens, 1868: 24, 62-63, pl. IV: fig. 2. *Type Localities*: Benkulen [Bengkulu] and Pilau Tikus, near Bengkulu, Sumatra, Indonesia. *References*: Egerod 1974: 140, fig. 29. Kraft, 2000: fig. 27C, D. *Distribution*: Widespread in tropical seas. Forms cushion-like clumps on intertidal rocks. *Specimens*: East Lewis I., on sand with underlying limestone at 2m depth, 27.x.1983, M.A.Borowitzka (MURU DA 117A & B). Goodwyn I., intertidal, 31.viii.1999, J.M.Huisman (MURU DAR 1221, 1231).

## Order BRYOSIDALES

### Family Bryopsidaceae

## PSEUDOBRYOPSIS

**Pseudobryopsis hainanensis** Tseng, 1936: 171-174.

*Type Locality*: Kuan-nen, Wenchang, Hainan Dao, China. *References*: Norris, 1992: 10-11, figs 29-31(as *Trichosolen hainanensis* (Tseng) Taylor). Huisman, 2000: 247. Kraft, 2000: 623-624, fig. 39F-H. *Distribution*: Houtman Abrolhos to Dampier Archipelago, Western Australia; Lord Howe I., N.S.W.; southern Japan; South Africa; China. *Specimens*: Southwest of Rocky Head, Enderby I., from 14m depth, 6.ix.1999, J.M.Huisman (MURU DAR 1534).

### Family Caulerpaceae

## CAULERPA

**Caulerpa biserrulata** Sonder, 1871: 64, pl. 2, figs. 10-12.

*Type Locality*: Cape York, Qld. *Reference*: Kraft, 2000: 595, fig. 32A,B.

*Distribution*: New Guinea; Great Barrier Reef, Qld; Lord Howe I., Dampier Archipelago.

*Specimens*: South of Nelson Rocks, from 6m depth, 8.ix.1999, J.M.Huisman (MURU DAR 2039). South side of Kendrew I., from 3-4 m depths, 30.viii.1999, J.M.Huisman (MURU DAR 1422). *Remarks*: The marginal serrations of the Dampier *C. biserrulata* are minute and almost invisible to the naked eye.

**Caulerpa brachypus** Harvey, 1860: 333.

*Type Locality*: Tanega-shima, Kagoshima Prefecture, Japan. *Reference*: Huisman, 2000: 248.

*Distribution*: Usually epilithic in sandy areas of the subtidal. *Specimens*: Hamersley Shoal, on coral rubble at 6m depth, 27.v.1985, J.Mercer (MURU DA 091; MURU DA 100). Approx. 1.4 nautical miles, ESE of Tish Point, Rosemary I., dredged from 9-10m depths, 26.vii.1999, S.Slack-Smith & M.Hewitt (MURU DAR 2174). *Remarks*: This species and *Caulerpa biserrulata* are similar in appearance, but we follow Kraft (2000) in keeping them separate.

**Caulerpa constricta** Price, Huisman & Borowitzka, 1998: 10, figs 1, 2.

*Type Locality*: North of Beacon I., Wallabi Group, Houtman Abrolhos Islands, Western Australia. *References*: Price, Huisman & Borowitzka, 1998: figs 1, 2. Huisman, 2000: 250.

*Distribution*: From the Geraldton area north to the Dampier Archipelago, Western Australia.

*Specimens*: South of Nelson Rocks, from 6m depth, 8.ix.1999, J.M.Huisman (MURU DAR 2044).

**Caulerpa cupressoides** (Vahl) C. Agardh, 1817: XXIII.

*Fucus cupressoides* Vahl, 1802: 38. *Type Locality*: St. Croix, Virgin Is. *References*: Weber-van Bosse, 1898: 323, pls XXVII, XXVIII. Huisman, 2000: 250. *Distribution*: Widely distributed in tropical seas. Occurs in the shallow subtidal, associated with sandy/silty substrata. *Specimens*: East side of West Lewis I., in sand from 5m depth, 4.ix.1999, J.M.Huisman (MURU DAR 1984). South of Nelson Rocks, from 6m depth, 8.x.1999, J.M.Huisman (MURU DAR 2043).

**Caulerpa lentillifera** J. Agardh, 1837: 173.

*Type Locality*: Ethiopia. *References*: Jaasund, 1976: 25, fig. 49. Huisman, 2000: 253. *Distribution*: Widespread in the tropical Indo-Pacific. Occurs in the shallow subtidal, associated with sandy substrata. *Specimens*: Sth of Nelson Rocks, from 6m depth, 8.ix.1999, J.M.Huisman (MURU DAR 2023, 2024). Enderby I., intertidal, 3.ix.1999, J.M.Huisman (MURU DAR 2092).

**Caulerpa mexicana** Sonder ex Kützing, 1849: 496.

*Type Locality*: Mexico. *References*: Huisman, 2000: 253. Egerod, 1974:141-142, figs. 37, 38. *Distribution*: Widespread in tropical seas. *Specimens*: East Lewis I., from 2m depth, 26.x.1983, M.A.Borowitzka (MURU DA 110A & B). Eagle Hawk I., from 10-11m depths, 3.ix.1999, J.M.Huisman (MURU DAR 1940). *Remarks*: *Caulerpa mexicana* is often treated as a synonym or a form of *C. taxifolia*. Herein we are following Littler & Littler (2000) and separating the two based on the unconstricted bases of the branchlets and flat midrib of *C. mexicana*, as opposed to the constricted bases and oval (in section) midrib of *C. taxifolia*.

**Caulerpa racemosa** (Forsskål) J. Agardh, 1873: 35.

*Fucus racemosus* Forsskål, 1775: 191. *Type Locality*: Suez, Egypt. *References*: Coppejans, 1992: 401, figs 4C, D. Huisman, 2000: 254-256. *Distribution*: Widely distributed in tropical seas. Usually epilithic in the subtidal. *Specimens*: Georgeff Reef, from 4-5m depths, 29.viii.1999, J.M.Huisman (MURU DAR 1288).

**Caulerpa racemosa** (Forsskål) J. Agardh var. **lamourouxii** (Turner) Weber-van Bosse, 1898: 368.

*Fucus lamourouxi* Turner, 1819: 79, pl. 229. *Type Locality*: Red Sea. *References*: Weber-van Bosse, 1898: 368, pl. 32, figs 1-7. Huisman, 2000: 255. *Distribution*: Widely distributed in tropical seas. Generally occurs in the shallow subtidal associated with sandy substrata. *Specimens*: Lewis I., on sand and rubble at 3m depth, 28.viii.1984, M.A.Borowitzka (MURU DA 520). Enderby I., intertidal, 2.ix.1999, J.M.Huisman (MURU DAR 2083). Eagle Hawk I., from 10-11m depths, 3.ix.1999, J.M.Huisman, (MURU DAR 1926).

**Caulerpa racemosa** (Forsskål) J. Agardh var. **laetevirens** (Montagne) Weber-van Bosse, 1898: 366, 367, pl. XXXIII: figs. 16, 20.

*Caulerpa laetevirens* Montagne, 1842a: 13. *Type Locality*: Toud Island [Warrior Islet], Torres Strait, Australia. *References*: Coppejans & Prud'homme van Reine, 1992: 693, figs 16A, B, C, (as *Caulerpa racemosa* ecad. *laetevirens*). Huisman, 2000: 254. *Distribution*: Widespread in tropical and warmer seas. *Specimens*: Enderby I., intertidal, 2.ix.1999, J.M.Huisman (MURU DAR 2089). South of Nelson Rocks, from 6m depth, 8.ix.1999, J.M.Huisman (MURU DAR 2029).

**Caulerpa racemosa** (Forsskål) J. Agardh var. **peltata** (Lamouroux) Eubank in Stephenson, 1944: 349.

*Caulerpa peltata* Lamouroux, 1809b: 332. *Type Locality*: Antilles, West Indies. *Reference*: Huisman, 2000: 256. *Distribution*: Widely distributed in warm seas. Epilithic.

*Specimens*: Flying Foam Passage, from 1m depth, 16.i.1983, M.A.Borowitzka (MURU DA 111). East side of West Lewis I., from 5m depth, 4.ix.1999, J.M.Huisman (MURU DAR 1996).

*Remarks*: The present plants agree with this variety as described by Kraft (2000), who recognized two peltate entities, one corresponding to *Caulerpa peltata* in which the stolon is thin and the entire assimilator is a peltate disk, the other with *C. racemosa* var. *peltata* in which the stolon is thick and the compound assimilator has peltate ramuli. The nomenclature of these entities is yet to be clarified.

**Caulerpa serrulata** (Forsskål) J. Agardh, 1837: 174.

*Fucus serratus* Forsskål, 1775: 189. *Type Locality*: Mokha, Yemen. *References*: Taylor, 1960: 145-146, pl. 14, fig. 5. Huisman, 2000: 257. *Distribution*: Widely distributed in tropical seas. Epilithic in the intertidal and subtidal. *Specimens*: Georgeff Reefs, intertidal, 28.viii.1999, J.M.Huisman (MURU DAR 1901). Malus I., from 2 m, 22.i.1983, M.A.Borowitzka (MURU DA 032). East side of West Lewis I., from 5m depth, 4.ix.1999, J.M.Huisman (MURU DAR 1990). South side of Enderby I., intertidal, 6.ix.1999, J.M.Huisman (MURU DAR 2095).

**Caulerpa sertularioides** (S. G. Gmelin) Howe, 1905: 576.

*Fucus sertularioides* S. G. Gmelin, 1768: 151. *Type Locality*: "in coralliis americanis". *References*: Taylor, 1960: 144-145, pl. 13, figs 1-7. Huisman, 2000: 258. *Distribution*: Widely distributed in tropical seas. Epithic in the intertidal or shallow subtidal; sometimes in sandy areas. *Specimens*: Channel between Angel and Gidley Islands, from 1m depth, 26.i.1983, M.A.Borowitzka (MURU DA 023). Hamersley Shoals, from shallows, 27.v.1985, J.Mercer (MURU DA 501). Enderby I., intertidal, 2.ix.1999, J.M.Huisman (MURU DAR 2057). East side of West Lewis I., from 5m depth, 4.ix.1999, J.M.Huisman (MURU DAR 1987).

**Caulerpa taxifolia** (Vahl) C. Agardh, 1817: XXII.

*Fucus taxifolius* Vahl, 1802: 36. *Type Locality*: St. Croix, Virgin Is. *References*: Taylor, 1960: 142, pl. 12, fig. 1. Huisman, 2000: 258-259. *Distribution*: Widely distributed in tropical seas. Epilithic on rock or sand. *Specimens*: Sth side of Kendrew I., from 3-4m depths, 30.viii.1999, J.M.Huisman (MURU DAR 1406).

**Caulerpa verticillata** J. Agardh, 1847: 6.

*Type Locality*: Not specified. *Reference*: Taylor, 1960: 138-139, pl. 10, figs 1, 2. *Distribution*: Widely distributed in tropical seas. Epilithic on sand-covered rock in the shallow subtidal. *Specimens*: Sth side of Kendrew I., from 3-4 m depths, 30.viii.1999, J.M.Huisman (MURU DAR 1414).

**Caulerpa webbiana** Montagne, 1837: 354.

*Type Locality*: Arrecife, Isla Lanzarote, Islas Canarias. *Reference*: Coppejans, 1992: 406-408, fig. 9. *Distribution*: Widely distributed in warmer seas. *Specimens*: Nelson Flats, on settling panel, v.1984, J.Mercer (MURU DA #52B). Nth side of Enderby I., from 3-6m depths, 3.ix.1999, J.M.Huisman (MURU DAR 1760). Rosemary I., from 12m depth, 28.viii.1999,

*J.M.Huisman* (MURU DAR 1605). Sth side of Kendrew I. from 3-4m depths, 30.viii.1999,  
*J.M.Huisman* (MURU DAR 1395).

### Family Codiaceae

#### CODIUM

**Codium arabicum** Kützing, 1856: 35, pl. 100, fig. 2.

*Type Locality:* Tor, Sinai Peninsula, Gulf of Suez. *References:* Jones & Kraft 1984: 255-258, figs 1-2. Van den Heede & Coppejans, 1996: 391-392, figs 1, 5, 7. *Distribution:* Indo-Pacific Tropics. *Specimens:* Malus I., from 2m depth, 22.i.1983, M.A.Borowitzka (MURU DA 157). Enderby I., intertidal, 1.ix.1999, J.M.Huisman (MURU DAR 1477).

**Codium dwarkense** Børgesen, 1947: 6-8, figs. 3-5.

*Type Localities:* Dwarka and Port Okha, Gujarat, India (syntypes). *Reference:* Van den Heede & Coppejans, 1996: 397-398, figs 4, 6, 14. *Distribution:* Indian Ocean. *Specimens:* Enderby I., intertidal, 1.ix.1999, J.M.Huisman (MURU DAR 1507).

**Codium geppiorum** O. Schmidt, 1923: 50.

*Type Locality:* Kai Islands and Celebes, Indonesia (syntypes). *References:* Adams 1994: 46, pl. 12. Huisman, 2000: 260-261. *Distribution:* Warmer waters of the Indo-Pacific region. *Specimens:* East Lewis I., 26.i.1984, J.Mercer (MURU DA 338).

**Codium platyclados** Jones & Kraft, 1984: 266, figs. 8-13.

*Type Locality:* Neds Beach, Lord Howe I., N.S.W. *References:* Jones & Kraft, 1984: 266, figs. 8-13. Kraft, 2000: 588-590, fig. 31D. *Distribution:* Lord Howe I.; Coffs Harbour, N.S.W.; Great Barrier Reef, Qld; Dampier; Rottnest I., W.A.; Fiji; Philippines. *Specimens:* Dampier Beach, on rocks in intertidal, 31.viii.1984, M.A.Borowitzka (MURU DA 285, MURU DA 286).

### Family Halimedaceae

#### HALIMEDA

**Halimeda cuneata** Hering in Krauss, 1846: 214.

*Type Locality:* “Natalbai” (Durban), South Africa. *References:* Womersley, 1984: 244, figs 81C, 82E-G. Hillis-Colinvaux, 1980: figs 36, 61. Huisman, 2000: 264. *Distribution:* Indian Ocean; southwestern Pacific Ocean. Epilithic in the lower intertidal and subtidal. *Specimens:* Nelson Flats, from 7m, 16.vii.1983, M.A.Borowitzka (MURU DA 075). Hamersley Shoal, on coral rubble at 6m, 27.v.1985, J.Mercer (MURU DA 104). Malus I., from 3.5m depth, 27.viii.1999, J.M.Huisman (MURU DAR 1353). Sth of Nelson Rocks, from 6-7m depths, 7.ix.1999, J.M.Huisman (MURU DAR 1851).

**Halimeda cylindracea** Decaisne, 1842: 103.

*Type Locality:* Nosy-Bé, Madagascar. *References:* Huisman, 2000: 264. Hillis-Colinvaux, 1980: figs 4, 5, 104. *Distribution:* Warmer waters of the Indo-Pacific. Typically grows in unconsolidated substrata. *Specimens:* Flying Foam Passage, 26.i.1983, M.A.Borowitzka (MURU DA 021). Lewis I., 28.viii.1984, J.Mercer (MURU DA 072). Nth side of Enderby I., from 3-6m depth, 3.ix.1999, J.M.Huisman (MURU DAR 1775).

**Halimeda discoidea** Decaisne, 1842: 91.

*Type Locality:* stated as ‘Kamtschatka’, but true locality unknown. *Reference:* Hillis-Colinvaux, 1980: figs 20: 11, 41. *Distribution:* Widespread in tropical seas; generally grows on rock that might be partly buried. *Specimens:* Eagle Hawk I., from 10-11m depths, 3.ix.1999, J.M.Huisman (MURU DAR 1938).

**Halimeda macroloba** Decaisne, 1841: 118.

*Type Locality:* Red Sea. *Reference:* Hillis-Colinvaux, 1980: fig. 28. *Distribution:* Common in the Indian and west Pacific Oceans, generally growing in unconsolidated substrata. *Specimens:* Flying Foam Passage, 23.x.1998, J.M.Huisman & M.Vanderklift (MURU DAR 277). North side of Enderby I., from 3-6m depths, 3.ix.1999, J.M.Huisman (MURU DAR 2117). Channel north of Gidley I., 22.x.1998, J.M.Huisman & M.Vanderklift (MURU DAR 4). Enderby I., from 5m depth, 1.ix.1999, J.M.Huisman (MURU DAR 1333).

**Halimeda tuna** (Ellis & Solander) Lamouroux, 1816: 309.

*Corallina tuna* Ellis & Solander, 1786: 111, pl. 20: fig. e. *Type Locality:* Mediterranean Sea. *Reference:* Hillis-Colinvaux, 1980: fig. 35. *Distribution:* Widespread in tropical seas. *Specimens:* East Lewis I., 26.i.1984, J.Mercer (MURU DA 180).

**Halimeda velasquezii** Taylor, 1962: 177.

*Type Locality:* Santa Ana, Cagayan Province, Luzon I., Philippines. *Reference:* Hillis-Colinvaux, 1980: fig. 32. *Distribution:* In Western Australia from the North West Cape region north to (at least) the Kimberley coast. Indo-Pacific. Epilithic in the lower intertidal and shallow subtidal. *Specimens:* Nelson Flats, from 7m depth, 26.vii.1983, M.A.Borowitzka (MURU DA 074).

### Family Udoteaceae

#### AVRAINVILLEA

**Avrainvillea obscura** (C. Agardh) J. Agardh, 1887: 53.

?*Anadyomene* [‘*Anadynomene*’] *obscura* C. Agardh, 1823: 401. *Type Locality:* Guam [‘Guham’], Mariana Is. *Reference:* Olsen-Stojkovich, 1985: 19-22, figs 9, 10; pl. 2. *Distribution:* Warmer waters of the Indo-Pacific. Occurs in sandy/silty substrata, generally in the intertidal or shallow subtidal. *Specimens:* Enderby I., intertidal, 1.ix.1999, J.M.Huisman (MURU DAR 1472). Northwest Lewis I., intertidal, 4.ix.1999, J.M.Huisman (MURU DAR 1552).

### PENICILLUS

**Penicillus nodulosus** Blainville, 1834: 553.

*Type Locality:* Shark Bay, Western Australia. *References:* Harvey, 1858: pl. 22 (as *Penicillus arbuscula*); Gepp & Gepp, 1911: 86-87, figs 172-175. Huisman, 2000: 265. *Distribution:* From Rottnest Island, Western Australia, (rarely) around northern Australia to Queensland; ‘Ile Toud’, Pacific Ocean. Occurs in sand, generally in shallow water. *Specimens:* Enderby I., intertidal, 1.ix.1999, J.M.Huisman (MURU DAR 1515) North end of Lewis I., intertidal, 4.ix.1999, J.M.Huisman (MURU DAR 1546). Channel between Angel and Gidley Is, from 1m depth, 26.i.1983, M.A.Borowitzka (MURU DA 2).

## UDOTEA

**Udotea glaucescens** Harvey ex J. Agardh, 1887: 70.

*Type Locality:* Tonga. *References:* Gepp & Gepp, 1911: 113-114, figs 3, 5, 7, 8, 43. E. Coppejans & Prud'homme van Reine, 1989: pl. 10, figs 1, 2. *Distribution:* Tropical Indo-Pacific. *Specimens:* Channel between Angel and Gidley Is., from 1m depth, 26.i.1983, M.A.Borowitzka (MURU DA 521). Tidepole I., 26.x.1983, W.Wood & R.Lethbridge (MURU DA 064). Georgeff Reef, 29.viii.1999, J.M.Huisman (MURU DAR 1298).

**Udotea flabellum** (Ellis & Solander) Howe, 1904: 94.

*Corallina flabellum* Ellis & Solander, 1786: 124, pl. 24. *Type Locality:* West Indies. *References:* Littler & Littler, 1990: 226, fig. 12. Huisman, 2000: 269. *Distribution:* Widespread in tropical regions; grows in sand in the shallow subtidal. *Specimens:* Gidley I., 30.viii.1984, M.A.Borowitzka (MURU DA 358).

**Udotea argentea** Zanardini, 1858: 290.

*Type Locality:* Suez, Egypt. *References:* Gepp & Gepp, 1911: 125-127, figs 15, 21, 22c-d, 25a, 57-62. Huisman, 2000: 268. *Distribution:* Tropical Indo-Pacific. *Specimens:* Flying Foam Passage, from 1m depth, 26.i.1983, M.A.Borowitzka (MURU DA 1). Eagle Hawk I., from 10-11m depth, 3.ix.1999, J.M.Huisman (MURU DAR 1930).

**Udotea orientalis** A.Gepp & E.Gepp, 1911: 119-120, 142-143.

*Type Locality:* various in Indian and Pacific Oceans; Indonesia; Philippines. *References:* Gepp & Gepp, 1911: pl. 1: fig. 4. Coppejans & Prud'homme van Reine, 1989: pl. 10, figs 11-16. Trono, 1997: fig. 53. *Distribution:* Widespread in the Indo-west Pacific; epilithic in the subtidal. *Specimens:* South west of Rocky Head, Enderby I., from 14m depth, 6.ix.1999, J.M.Huisman (MURU DAR 1528). Eagle Hawk I., from 10-11m depth, 3.ix.1999, J.M.Huisman (MURU DAR 1931, 1934, 1935, 1936).

## Order DASYCLADALES

### Family Dasycladaceae

## BORNETELLA

**Bornetella oligospora** Solms-Laubach, 1892: 87-90, pl. 9 figs 1-4, 6-7.

*Type Locality:* Macassar, Celebes and Bari, Flores, Indonesia. *Reference:* Huisman, 2000: 271. *Distribution:* Tropical Indo-Pacific. Epilithic in the shallow subtidal and lower intertidal, often occurring in clusters. *Specimens:* East Lewis I., 26.i.1985, J.Mercer (MURU DA 155). Goodwyn I., intertidal, 31.viii.1999, J.M.Huisman (MURU DAR 1215). Malus I., from 3-5m depths, 27.viii.1999, J.M.Huisman (MURU DAR 1365). Sth side of Kendrew I., from 3-4m depths. 30.viii.1999, J.M.Huisman (MURU DAR 1377).

**Bornetella sphaerica** (Zanardini) Solms-Laubach, 1892: 80-81.

*Neomeris sphaerica* Zanardini, 1878: 38. *Type Locality:* Sorong, Irian Jaya, Indonesia. *Reference:* Berger & Kaever, 1992: figs 3.26-3.30. *Distribution:* Occurs as individual thalli or in small clusters on rock, generally in shallow water. *Specimens:* South end of Keast I., intertidal, 26.x.1998, J.M.Huisman (MURU DAR 2267).

## NEOMERIS

**Neomeris vanbosseae** Howe, 1909: 80-82.

*Type Locality:* Sikka, Flores, Indonesia. *References:* Howe, 1909: 80-82, pl. 1 figs 4,7, pl. 5 figs 17-19. Berger & Kaever, 1992: 108. Huisman, 2000: 272. *Distribution:* Tropical Indo-Pacific. Generally occurs in small clusters on rocks in the intertidal and shallow subtidal. *Specimens:* South end of Keast I., intertidal, 26.x.1998, J.M.Huisman (MURU DAR 2266).

### Family Polyphysaceae

#### ACETABULARIA

**Acetabularia calyculus** Lamouroux in Quoy & Gaimard, 1824: 621.

*Type Locality:* Shark Bay, Western Australia. *References:* Womersley, 1984: 295, figs 101B, 102B-D. Huisman, 2000: 270. Kraft, 2000: 42A. *Distribution:* Widely distributed in tropical and subtropical seas and extending into warm temperate regions. Generally occurs in dense clusters attached to rock or old bivalve shells in the shallow subtidal, often associated with sandy substrata. *Specimens:* Eagle Hawk I., from 10-11 m, 3.ix.1999, J.M.Huisman (MURU DAR 1933).

### DIVISION HETEROKONTOPHYTA

#### CLASS PHAEOPHYCEAE

#### ‘The Brown Algae’

#### Order ECTOCARPALES

##### Family Ectocarpaceae

#### FELDMANNIA

**Feldmannia indica** (Sonder) Womersley & Bailey, 1970: 288.

*Ectocarpus indicus* Sonder, 1854: 2, 3. *Type Locality:* Bima Bay, Sumbawa I. *Reference:* Clayton, 1974: fig. 10A-D. *Distribution:* Widespread in tropical seas. Epilithic, epiphytic or epizoic. *Specimens:* North west of West Lewis I., intertidal, 4.ix.1999, J.M.Huisman (MURU DAR 1561b).

#### HINCKSIA

**Hincksia mitchelliae** (Harvey) P. Silva in Silva *et al.* 1987: 73.

*Ectocarpus mitchelliae* Harvey 1852: 142, pl. XII. *Reference:* Womersley 1987: 52, figs 10D, 12E-G (as *Giffordia mitchelliae*). *Distribution:* Widespread in temperate and subtropical seas. *Specimen:* South side of West Lewis I., intertidal, 5.ix.1999, J.M.Huisman, (MURU DAR 1835a). Goodwyn I., intertidal, 31.viii.1999, J.M.Huisman (MURU DAR 1273).

#### Order SPHACELARIALES

##### Family Sphaelariaceae

#### SPHACELARIA

**Sphaelaria rigidula** Kützing, 1843: 292.

*Type Locality:* Red Sea. *References:* Womersley, 1987: 166, figs 51D, 54A-G. Prud’homme van Reine, 1982: 203, figs 508-554. *Distribution:* Widespread in tropical and temperate seas. Epiphytic on larger algae (mainly Fucales) and seagrasses. *Specimens:* South side of West Lewis I., intertidal, 5.ix.1999, J.M.Huisman (MURU DAR 1834).

**Sphacelaria tribuloides** Meneghini, 1840: 2.

*Type Locality:* Italy. *Distribution:* Cosmopolitan in tropical and temperate seas.

*Specimens:* Malus I., on *Sporochnus* sp. at 3.5m depth, 27.viii.1999, J.M.Huisman (MURU DAR 2243).

**Order DICTYOTALES**  
**Family Dictyotaceae**

**DICTYOPTERIS**

**Dictyopteris australis** (Sonder) Askenasy, 1888: 30.

*Haliseris australis* Sonder, 1853: 664. *Type Locality:* Lefevre Peninsula, South Australia. *References:* Phillips, 2000: 299-301, figs 3a-j, a-f. Huisman, 2000: 187. *Distribution:* From Albany, Western Australia, north along the west Australian coast and across northern Australia to Moreton Bay, Queensland, and Lord Howe and Norfolk Islands, and in the Gulf region of South Australia; New Caledonia; India; Bangladesh; Pakistan; Laccadive Islands; Hawaiian Islands. *Specimens:* Hamersley Shoals, upper subtidal zone, 27.v.1985, J.Mercer (MURU DA317). East side of West Lewis I., 4.ix.1999, J.M.Huisman (MURU, DAR 2008). Northwest of Angel I., from 4m, 20.x.1998, J.M.Huisman & M.Vanderklift (MURU DAR 683). Malus I., from 3.5m, 27.viii.1999, J.M.Huisman (MURU, DAR 1355). North West Reefs, from 13.4m depth, 3.ix.1999, J.M.Huisman (MURU DAR 1719).

**Dictyopteris delicatula** Lamouroux, 1809b: 332.

*Type Locality:* from the Antilles. *Reference:* Phillips, 2000: 302-304, figs 5c-g. *Distribution:* Hamersley Shoals, Dampier Archipelago, Western Australia, across northern Australia to Caloundra, Queensland and Lord Howe Island. Widespread in tropical regions. *Specimens:* Hamersley Shoals, upper subtidal zone, 27.v.1985, J.Mercer (MURU DA 332). Huay I., from 10 m depth, 23.x.1998, J.M.Huisman (MURU DAR 433).

**Dictyopteris secundispiralis** Phillips, 2000: 313.

*Type Locality:* Horrocks Beach, near Northampton, Western Australia. *Reference:* Phillips, 2000: figs 11a-j, 12a-f. *Distribution:* Hamersley Shoals, Dampier Archipelago, to Five Fathom Bank (between Fremantle and Mandurah), Western Australia. *Specimens:* Hamersley Shoals, upper subtidal zone, 27.v.1985, J.Mercer (MURU DA166).

**Dictyopteris serrata** (Areschoug) Hoyt, 1920: 460.

*Haliseris serrata* Areschoug, 1847: 4, pl. *Type Locality:* Port Natal, South Africa. *References:* Phillips, 2000: 316-318, figs 13a-i. Phillips & Huisman, 1998: 43-49, figs 1-17. Huisman, 2000: 188. *Distribution:* Known from the Dampier Archipelago to Dongara, Western Australia; South Africa; Mauritius; Mozambique; Réunion. Epilithic in the subtidal. *Specimens:* Hamersley Shoal, 27.v.1985, J.Mercer (MURU DA132, DA332).

**Dictyopteris woodwardia** (R. Brown ex Turner) C. Agardh, 1817: xxi.

*Fucus woodwardia* R. Brown ex Turner, 1809-1811: 53-54, pl. 158. *Type Locality:* 'North Coast of New Holland'. *Reference:* Phillips, 2000: 318-320, figs 14a-i. *Distribution:* From Ningaloo Reef, near Exmouth, Western Australia, across northern Australia to Magnetic Island, Queensland; India; Sri Lanka; Indonesia; Amirante Islands. Generally epilithic in the shallow

subtidal. *Specimens*: Hamersley Shoal, upper subtidal, 27.v.1985, *J.Mercer* (MURU DA316). Malus I., 3-5 m depth, 27.viii.1999, *J.M.Huisman* (MURU DAR 1453). South side of Kendrew I., from 3-4 m depths, 30.viii.1999, *J.M.Huisman* (MURU DAR 1383).

## DICTYOTA

**Dictyota cervicornis** Kützing, 1859: 11, pl. 24, fig. 2

*Type locality*: Key West, Florida, U.S.A. *Reference*: De Clerck, 1998: pls 5-8. *Distribution*: Widespread in warmer waters. Epilithic or epiphytic in the intertidal or subtidal. *Specimens*: Keast I., intertidal, 26.x.1998, *J.M.Huisman* (MURU DAR 968). East of West Lewis I., from 5 m depth, 4.ix.1999, *J.M.Huisman* (MURU DAR 1992). Rosemary I., intertidal, 29.viii.1999, *P.Berry* (MURU DAR 1891). Malus I., from 3.5 m depth, 27.viii.1999, *J.M.Huisman* (MURU DAR 1364). East of Gidley I., intertidal, 19.x.1998, *J.M.Huisman* (MURU DAR 945).

**Dictyota ciliolata** Sonder ex Kützing, 1859: 12, pl. 27, fig. 1.

*Type Locality*: La Guaira, Venezuela. *Reference*: Huisman, 2000: 189. *Distribution*: Widely distributed in tropical and subtropical waters. Generally epilithic. *Specimens*: Keast I., intertidal, 26.x.1998, *J.M.Huisman* (MURU DAR 997). South of Legendre I., in shallows, 29.x.1998, *J.M.Huisman* (MURU DAR 182).

**Dictyota friabilis** Setchell, 1926: 91-92, pl. 13, figs. 4-7; pl. 20, fig. 1.

*Type Locality*: Tafaa Point, Tahiti. *Reference*: De Clerck, 1998: pls 22, 23. *Distribution*: Warmer waters of the Indo-Pacific. Forms mats on hard substrate of the outer reef slope. *Specimens*: Hamersley Shoal, from 2.5m depth, 22.x.1998, *J.M.Huisman & M.Vanderklift* (MURU DAR 369). North of Legendre I., 26.x.1998, *J.M.Huisman & P.Morrison*, (MURU DAR 485). Nelson Rocks, from 15m depth, 7.ix.1999, *J.M.Huisman* (MURU DAR 1790).

## LOBOPHORA

**Lobophora variegata** (Lamouroux) Womersley ex Oliveira, 1977: 217.

*Dictyota variegata* Lamouroux, 1809a: 40. *Type Locality*: Antilles, West Indies. *References*: Womersley, 1987: figs 91F,G, 92A. Allender & Kraft, 1983: figs 4G-H, 5A-B. Huisman, 2000: 193. *Distribution*: Known from tropical to warm temperate coasts in most seas. Generally epilithic in the subtidal. *Specimens*: Hamersley Shoal, from 2-5 m depths, 22.x.1998, *J.M.Huisman & M.Vanderklift* (MURU DAR 366). Northwest of Angel I., from 4 m depth, 20.x.1998, *J.M.Huisman & M.Vanderklift* (MURU DAR 720). East of Gidley I., intertidal, 19.x.1998, *J.M.Huisman* (MURU DAR 936). Sth side of Kendrew I., from 3-4 m depths, 30.viii.1999, *J.M.Huisman* (MURU DAR 1375).

## PADINA

**Padina australis** Hauck, 1887: 44.

*Type Locality*: Cape York, Queensland. *Reference*: Allender & Kraft, 1983: 85, figs 50, 6B. *Distribution*: Widespread in the Indian and west Pacific Oceans. *Specimens*: Nelson Flats, 27.x.1983, *M.A.Borowitzka* (MURU DA 49, 052). Malus I., 22.i.1983, *M.A.Borowitzka* (MURU DA 50). Hamersley Shoal, 27.v.1985, *J.Mercer* (MURU DA 145). Channel north of Gidley I., intertidal, 22.x.1998, *J.M.Huisman & M.Vanderklift* (MURU DAR 9). Hamersley Shoal, from 2.5m depth, 22.x.1998, *J.M.Huisman & M.Vanderklift* (MURU DAR 337). Goodwyn I., intertidal, 31.viii.1999, *J.M.Huisman* (MURU DAR 1270).

***Padina elegans*** Koh ex Womersley, 1987: 220.

*Type Locality:* Mudurup Reef, Cottesloe, Western Australia. *References:* Womersley, 1987: figs 74B,C, 75K-M. Huisman, 2000: 195. *Distribution:* Dampier Archipelago, Western Australia, to Pearson I., South Australia. *Specimens:* South of Nelson Rocks, from 6m depth, 8.ix.1999, J.M.Huisman (MURU DAR 2011).

***Padina tenuis*** Bory, 1827: 590.

*Type Locality:* Mauritius. *Reference:* Allender & Kraft, 1983: figs 5D, E. *Distribution:* Tropical Indian and Pacific Oceans and eastern Atlantic. Epilithic. *Specimens:* Sth of Nelson Rocks, from 6m depth, 8.ix.1999, J.M.Huisman (MURU DAR 2052). Nth side of Legendre I., from 1-2m depths, 18.x.1998, J.M.Huisman (MURU DAR 861). Flying Foam Passage, intertidal, 23.x.1996, J.M.Huisman & M.Vanderklift (MURU DAR 296). South of Legendre I., in shallows, 29.x.1998, J.M.Huisman (MURU DAR 174).

**SPATOGLOSSUM*****Spatoglossum macrodontum*** J. Agardh, 1882: 113.

*Type Locality:* Port Denison, Bowen, Queensland. *References:* Huisman, 2000: 197. Allender & Kraft, 1983: 100, figs 15-16. *Distribution:* Tropical Australia. *Specimens:* Gidley I., 23.i.1983, M.A.Borowitzka (MURU DA 058). Hamersley Shoal, from 2.5 m depth, 22.x.1998, J.M.Huisman & M.Vanderklift (MURU DAR 367). Dolphin I., intertidal, 21.x.1998, J.M.Huisman & M.Vanderklift (MURU DAR 637).

**STOECHOSPERMUM*****Stoechospermum polypodioides*** (Lamouroux) J. Agardh, 1848: 100.

*Dictyota polypodioides* Lamouroux, 1809a: 44. *Type Locality:* uncertain.

*Reference:* Phillips *et al.*, 1993: figs. 2-13 [as *Stoechospermum marginatum* (C. Agardh) Kützing]. *Distribution:* Warmer waters of the Indian Ocean. In Australia, known only from the Pilbara region. *Specimens:* Northwest of Angel I., from 4 m depth, 20.x.1998, J.M.Huisman & M.Vanderklift (MURU DAR 710, 717).

**STYPOPODIUM*****Styopodium flabelliforme*** Weber-van Bosse, 1913: 176.

*Type Locality:* Rotti Island, Indonesia, and Pearl Bank, Tawitawi Province, Sulu Archipelago. *References:* Allender & Kraft, 1983: figs 11D-F, 12. Huisman, 2000: 198. *Distribution:* Widespread in the warmer waters of the Indo-Pacific. In Australia from Rottnest Island, W.A., around northern Australia to Lord Howe Island and Jervis Bay, N.S.W.; epilithic in the subtidal. *Specimens:* Dolphin I., intertidal, 25.x.1998, J.M.Huisman & M.Vanderklift (MURU DAR 402). Island east of Sea Ripple Passage, intertidal, 28.x.1998, J.M.Huisman (MURU DAR 554).

**Order CUTLERIALES**  
**Family Cutleriaceae**

**CUTLERIA*****Cutleria kraftii*** Huisman, 2000: 200, 286-287.

*Type Locality:* Bynoe Island, Houtman Abrolhos, Western Australia. *Reference:* Huisman 2000: 200, 286-287. *Distribution:* Known from Rottnest Island, the Houtman Abrolhos, and the

Dampier Archipelago, Western Australia. *Specimen*: Northwest Reefs, from 13-14m depths, 3.ix.1999, J.M.Huisman (MURU DAR 1729).

**Order SCYTOSIPHONALES**  
**Family Chnoosporaceae**

**CHNOOSPORA**

***Chnoospora implexa*** J. Agardh, 1848: 172.

*Type Locality*: near Tor, Sinai Peninsula, Egypt. *References*: Dawson, 1954: fig. 20a, b. Cribb, 1996: 38, 39. Calumpong & Meñez, 1997: 133. *Distribution*: Widespread in the tropical Indo-Pacific. *Specimens*: Channel north of Gidley I., intertidal, 22.x.1998, J.M.Huisman & M.Vanderklift (MURU DAR 16).

**Family Scytoniphonaceae**

**COLPOMENIA**

***Colpomenia sinuosa*** (Mertens ex Roth) Derbès & Solier in Castagne, 1851: 95.

*Ulva sinuosa* Mertens ex Roth, 1806: 327, pl. XII. *Type Locality*: near Cádiz, Spain. *References*: Womersley, 1987: 297, figs 107A, 108E,F. Fuhrer *et al.*, 1981: 64, pl. 99. *Distribution*: Almost cosmopolitan. *Specimens*: Rosemary I., intertidal, 30.viii.1999, J.M.Huisman (MURU DAR 1618). Keast I., intertidal, 26.x.1998, J.M.Huisman (MURU DAR 960). Sth side of Enderby I., intertidal, 6.ix.1999, J.M.Huisman (MURU DAR 2105).

**HYDROCLATHRUS**

***Hydroclathrus clathratus*** (C. Agardh) Howe, 1920: 590.

*Encoelium clathratum* C. Agardh, 1822: 412. *Type Locality*: Uncertain. *References*: Womersley, 1987: 300, figs 109A, 110A,B. Fuhrer *et al.*, 1981: pl. 100. Huisman, 2000: 204. *Distribution*: Widely distributed in tropical to warm temperate seas. *Specimens*: Nelson Flats, from 7m depth, 26.viii.1983, M.A.Borowitzka (MURU DA 059). East Lewis I., Dampier Archipelago 27.x.1983, M.A.Borowitzka (MURU DA 061A,B). Enderby I., intertidal, 2.ix.1999, J.M.Huisman (MURU DAR 2078). Sth side of Kendrew I., 3-4 m, 30.viii.1999, J.M.Huisman (MURU DAR 1386).

**ROSENVINGEA**

***Rosenvingea orientalis*** (J. Agardh) Børgesen, 1914: 26 (182).

*Asperococcus orientalis* J. Agardh, 1848: 78. *Type Locality*: Manila, Philippines. *Reference*: Cribb 1996: 54-55. *Distribution*: India; Guadeloupe; Philippines; Taiwan; West Indies. *Specimens*: South of Nelson Rocks, from 6 m depth, 8.ix.1999, J.M.Huisman (MURU DAR 2050). South of Nelson Rocks, sand flats at 6-7m depths, 7.ix.1999, J.M.Huisman (MURU DAR 1840).

***Rosenvingea nhatrangensis*** Dawson, 1954: 403, figs 18e, 19b.

*Type Locality*: Cua Bé, near Truong Dong, Vietnam. *Reference*: Dawson, 1954: figs 18e, 19b. *Distribution*: Vietnam; India. *Specimens*: Dolphin I., intertidal flats, 25.x.1998, J.M.Huisman (MURU DAR 391). *Remarks*: The present specimens have branches up to 15mm broad and agree with this species as described by Dawson (1954). Egerod (1974) felt that *R. nhatrangensis* was likely to be synonymous with *R. fastigiata* (Zanardini)Børgesen var. *major* Reinbold.

**Order FUCALES**  
**Family Cystoseiraceae**

**CYSTOSEIRA**

**Cystoseira trinodis** (Forsskål) C. Agardh, 1820: 67.

*Type Locality:* Red Sea. *References:* Womersley, 1987: 357, figs 128B, 131E,F. Papenfuss & Jensen, 1967: 17, figs 1, 2. Huisman, 2000: 218. *Distribution:* Tropical and subtropical waters of the Indo-West Pacific, with a colder water form extending into south-western and southern Australia. Epilithic in intertidal pools and the shallow subtidal. *Specimens:* Tish Reef, Rosemary Island, Dampier Archipelago. In intertidal pools. *J.M.Huisman*, 30.viii.1999 (MURU DAR 1893).

**HORMOPHYSA**

**Hormophysa cuneiformis** (Gmelin) P. Silva in Silva *et al.*, 1987: 81.

*Fucus articulatus* Forsskål, 1775: 191, *nom. illeg.* *Type Locality:* Suez, Egypt.

*Fucus cuneiformis* Gmelin, 1792: 1389. *References:* Allender & Smith, 1978. Womersley, 1987: 356; figs 128A, 131C, D (as *Hormophysa triquetra*). Huisman, 2000: 219. *Distribution:* Known from Augusta, Western Australia, around western and northern Australia to Port Stephens, New South Wales, and isolated records from northern Spencer Gulf, South Australia. Widespread in tropical and subtropical waters of the Indo-Pacific. Epilithic in the subtidal. *Specimens:* Nelson Flats, 28.xi.1985, *J.Mercer* (MURU DA 125). Flying Foam Passage, from 1m depth, 25.i.1983, *M.A.Borowitzka* (MURU DA 284). Channel north of Gidley I., intertidal, 22.x.1998, *J.M.Huisman & M.Vanderklift* (MURU DAR 25).

**Family Sargassaceae**

**SARGASSUM<sup>1</sup>**

**Sargassum decurrens** (R. Brown ex Turner) C. Agardh, 1820: 42.

*Fucus decurrens* R. Brown ex Turner, 1809-1811: 142-143, pl. 194.

*Type Locality:* "North Shores of New Holland". *Reference:* Womersley, 1954: 343-344, pl. 2, fig. 1. *Distribution:* From Rottnest I., W.A., around northern Australia to Keppel Bay, Qld; an isolated occurrence at Wallaloo, S.A., New Caledonia (Womersley 1954). *Specimens:* Gidley I., 21.viii.1984, *J.Mercer* (MURU DA 273); 30.viii.1984, *M.A.Borowitzka & J.Mercer* (MURU DA 275-6). Conzinc I., 26.i.1984, *J.Mercer* (MURU DA 278); 28.viii.1984, *J.Mercer* (MURU DA 279). Nelson Flats, 26.vii.1983, *M.A.Borowitzka* (MURU DA 280).

**Sargassum oligocystum** Montagne, 1845: 67.

*Type Locality:* From Lampung Bay, Sumatra, Indonesia. *Reference:* Womersley & Bailey, 1970: 299, text-fig. 8, pl. 25, fig. 16. *Distribution:* Tropical Indo-Pacific. *Specimens:* Gidley I., 21.viii.1984, *J.Mercer* (MURU DA 206, 208); 19.viii.1983, *T.Chiffings* (MURU DA 221-224, 254-256). Hamersley Shoals, 22.viii.1985, *J.Mercer* (MURU DA 330). Nelson Flats, 24.viii.1985, *J.Mercer* (MURU DA 199); 22.vii.1983, *T.Chiffings* (MURU DA 230).

**Sargassum linearifolium** (Turner) C. Agardh, 1820: 24

*Fucus linearifolius* Turner, 1808-1809: 105-106, pl. 111. *Type Locality:* "Western coast of New

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<sup>1</sup>The genus *Sargassum* will be treated in more detail elsewhere in this volume.

Holland". *Reference*: Womersley & Scott, 1987: 440, figs 165, 168B,C. *Distribution*: Southern and Western Australia. *Specimens*: East Lewis I., 20.i.1983, *J.Mercer* (MURU DA 193). Gidley I., 21.viii.1984, *J.Mercer* (MURU DA 207); 19.vii.1983, *T.Chiffings* (MURU DA 225, 248-252, 257); 23.vii.1983, *T.Chiffings* (MURU DA 232).

## TURBINARIA

**Turbinaria gracilis** Sonder, 1845: 52.

*Type Locality*: Western Australia. *References*: Taylor, 1964: 480, pl 3, figs 13-21. Huisman, 2000: 226. *Distribution*: Only reliably known from Western Australia, where it has been recorded from Cape Leeuwin, north to One Arm Point, Kimberley coast. *Specimens*: North-east tip of Dophin I., 17.x.1998, *J.M.Huisman* (MURU DAR 731). Rosemary I., intertidal, 30.viii.1999, *J.M.Huisman* (MURU DAR 1617).

**Turbinaria ornata** (Turner) J. Agardh, 1848: 266.

*Fucus turbinatus* L. var. *ornata* Turner, 1807-1808: 50-53, pl. 24: figs c, d. *Type Locality*: Not known. *References*: Taylor, 1964: 483-485, pl. 3: figs 1-6. Huisman, 2000: 226. *Distribution*: In Western Australia, from the tropics south to Coral Bay. Widespread in tropical seas. *Specimens*: Malus I., intertidal, 27.viii.1999, *J.M.Huisman* (MURU DAR 1149). North side of Legendre I., from 1-2m depths, 18.x.1998, *J.M.Huisman* (MURU DAR 873).

## DIVISION RHODOPHYTA ‘The Red Algae’

### CLASS BANGIOPHYCEAE Order PORPHYRIDIALES Family Porphyridiaceae

#### STYLONEMA

**Stylonema alsidii** (Zanardini) Drew, 1956: 72.

*Bangia alsidii* Zanardini, 1840: 136. *Type Locality*: Trieste, Italy. *Reference*: Huisman, 2000: 26. *Distribution*: Cosmopolitan. Epiphytic on a variety of larger algae. *Specimens*: Malus I., from 3.5m depth, epiphytic on *Seirospora orientalis* Kraft, *J.M.Huisman* (MURU DAR 2251).

### Order ERYTHROPELTIDALES Family Erythrotrichiaceae

#### ERYTHROTRICHIA

**Erythrotrichia carnea** (Dillwyn) J. Agardh, 1883: 15.

*Conferva carnea* Dillwyn, 1807 [1802-1809]: pl. 84. *Type Locality*: near Loughor [Llwchwr], Glamorgan, Wales. *Reference*: Womersley, 1994: 28, fig. 2A-D. *Distribution*: Cosmopolitan. Epiphytic on larger algae. *Specimen*: Tish Point, Rosemary I., intertidal, 29.viii.1999, *P.Berry* (MURU DAR 1882a).

### CLASS FLORIDEOPHYCEAE Order ACROCHAETIALES Family Acrochaetiaceae

## AUDOUINELLA

**Audouinella microscopica** (Nägeli) Woelkerling, 1971: 33.

*Callithamnion microscopicum* Nägeli in Kützing, 1849: 640. *Type Locality:* Bay of Naples, Italy. *Reference:* Huisman 2000: 28. *Distribution:* Cosmopolitan. Epiphytic on a wide variety of algae. *Specimens:* Tish Point, Rosemary I., intertidal, on *Hypnea* sp., 29.viii.1999, J.M.Huisman (MURU DAR 1882).

**Audouinella saviana** (Meneghini) Woelkerling, 1973: 560.

*Callithamnion savianum* Meneghini, 1840: [2]. *Type Locality:* Genova, Italy. *Reference:* Woelkerling & Womersley, 1994: 47, figs 7E-H. *Distribution:* Nearly cosmopolitan. *Specimens:* Kendrew I., from 12m depth, 30.viii.1999, J.M.Huisman (MURU DAR 1578a).

## Order NEMALIALES Family Galaxauraceae

### GALAXAURA

**Galaxaura marginata** (Ellis & Solander) Lamouroux, 1816: 264.

*Corallina marginata* Ellis & Solander, 1786: 115, pl. 22, fig. 6. *Type Locality:* Bahama Islands, West Indies. *References:* Huisman & Borowitzka, 1990: 157-161, figs 14-27. Huisman, 2000: 38. *Distribution:* Found throughout Australia, although less commonly in colder waters. Widely distributed in warmer seas. Epilithic in the subtidal. *Specimens:* North of Legendre I., 26.x.1998, J.M.Huisman & P.Morrison (MURU DAR 475). Hamersley Shoal, 21.x.1998, M.Vanderklift (MURU DAR 317). North West Reefs, 3.ix.1999, J.M.Huisman (MURU DAR 1717).

**Galaxaura obtusata** (Ellis & Solander) Lamouroux, 1816: 262.

*Corallina obtusata* Ellis & Solander, 1786: 113, pl. 22, fig. 2. *Type Locality:* Bahama Islands, West Indies. *References:* Huisman & Borowitzka, 1990: 161-163, figs 28-38. Huisman, 2000: 38-39. *Distribution:* Widely distributed in warmer seas. Epilithic in the subtidal. *Specimens:* Eagle Hawk I., from 10-11m depth, 3.ix.1999, J.M.Huisman (MURU DAR 1915). Hamersley Shoal, from 6m depth, 27.v.1985, J.Mercer (MURU DA 160-164, 166, 167). Gidley I., 21.viii.1984, J.Mercer (MURU DA 307).

**Galaxaura rugosa** (Ellis & Solander) Lamouroux, 1816: 263.

*Corallina rugosa* Ellis & Solander, 1786: 115, pl. 22, fig. 3. *Type Locality:* Jamaica. *References:* Huisman & Borowitzka, 1990: 153-157, figs 1-13. Huisman, 2000: 39. *Distribution:* Widely distributed in warmer seas. Epilithic in the subtidal and lower intertidal. *Specimens:* Hamersley Shoal, from 2.5 m depth, 22.x.1998, J.M.Huisman & M.Vanderklift (MURU DAR 344).

### SCINAIA

**Scinaia tsinglanensis** Tseng, 1941b: 106.

*Type Locality:* Tsinglan-Kang, Wenchang, Hainan, China. *References:* Huisman, 1986: figs 36-47. Huisman, 2000: 40. *Distribution:* Widely distributed throughout Australia; Hainan, China. Occurs in the intertidal and subtidal, attached to rock or coral. *Specimens:* Eagle Hawk I., from 10-11m depth, 3.ix.1999, J.M.Huisman (MURU DAR 1916, 1917).

### TRICLEOCARPA

**Tricleocarpa cylindrica** (Ellis & Solander) Huisman & Borowitzka, 1990: 164-168.

*Corallina cylindrica* Ellis & Solander, 1786: 114, pl. 22, fig. 4. *Type Locality*: West Indies. *References*: Huisman & Borowitzka, 1990: figs 40-45, 50-52. Huisman, 2000: 41. *Distribution*: Known from Augusta, Western Australia, around northern Australia to Dee Why, New South Wales. Worldwide in warmer waters generally. Found at depths ranging from intertidal rock pools to 15 m., often found at sand/rock interfaces and attached to rock with its base lightly covered with sand. *Specimens*: Off mainland opposite Haycock I., 24.viii.1979, M.Cambridge (AD A51779). Northwest of Angel I., from 4 m depth, 20.x.1998, J.M.Huisman & M.Vanderklift (MURU DAR 697).

**Tricleocarpa fragilis** (Linnaeus) Huisman & Townsend, 1993: 100.

*Eschara fragilis* Linnaeus, 1758: 805. *Type Locality*: Oceano Americano. *Reference*: Huisman & Borowitzka, 1990: figs 46-49, 53-56 as *T. oblongata* (J.Ellis & Solander) Huisman & Borowitzka. *Distribution*: From the Dampier Archipelago, Western Australia, probably around northern Australia to Moorefield River, Qld. In warmer waters worldwide. *Specimens*: Hamersley Shoal, from 6 m deep, 27.v.1985, J.Mercer (MURU DA 160-162, 167).

### Family Liagoraceae

#### GANONEMA

**Ganonema farinosum** (Lamouroux) K.C.Fan & Yung C. Wang, 1974: 492, pl. 1.

*Liagora farinosa* Lamouroux, 1816: 240. *Type Locality*: Red Sea, near Suez. *References*: Abbott, 1999: 77, figs 11A-G. Huisman, 2000: 30. *Distribution*: Widespread in tropical and warm-temperate seas. *Specimens*: Goodwyn I., intertidal, 31.viii.1999, J.M.Huisman (MURU DAR 1272).

**Ganonema borowitzkiae** Huisman, 2002: 820.

*Type Locality*: Middle Island, Barrow Island, Western Australia. *Reference*: Huisman, 2002: 820-823, figs 110-117. *Distribution*: Known from Thevenard I., Barrow I. and the Dampier Archipelago, northwest Western Australia; in the lower intertidal and upper subtidal, epilithic, generally with the base covered in sand. *Specimens*: Malus I., intertidal, 27.viii.1999, J.M.Huisman (MURU DAR 1143).

**Ganonema pinnatum** (Harvey) Huisman, 2002: 828.

*Liagora pinnata* Harvey, 1853: 138-139, pl. XXXI.B. *Type Locality*: Sand Key, Florida, U.S.A. *References*: Cribb, 1983: 21-22, pl. 45, fig. 1, pl. 47, fig. 1. Huisman, 2002: 828-829, figs 125, 126, 128-130. *Distribution*: Apparently widespread in tropical regions. In Australia, known only from the Capricorn Group of the Great Barrier Reef, Queensland, and the Dampier Archipelago, Western Australia. *Specimens*: South Side of Kendrew I., from 3-4 m depth, 30.viii.1999, J.M.Huisman (MURU DAR 1429).

#### LIAGORA

**Liagora ceranoides** Lamouroux, 1816: 239.

*Type Locality*: St Thomas, Virgin Islands. *Reference*: Cribb, 1983: 18-19; pl. 46, fig. 1; pl. 47, fig. 2. *Distribution*: Widespread in tropical and warmer seas. Generally epilithic in the subtidal, often with the base covered with sand. *Specimens*: Channel north of Gidley I., intertidal, 22.x.1998, J.M.Huisman & M.Vanderklift (MURU DAR 39).

**Liagora divaricata** Tseng, 1941a: 268-271, figs 2-4.

*Type Locality:* Tsinglan-Kang [Qinglan-Gang], Hainan, China. *Reference:* Huisman, 2002: 800-803, figs. 61-67. *Distribution:* From Rottnest I., Western Australia, probably around northern Australia to Magnetic Island, Queensland, China, Seychelles, Tanzania. Epilithic or epiphytic in the subtidal. *Specimens:* South of Nelson Rocks, 7.ix.1999, J.M.Huisman (MURU DAR 1876).

**Liagora valida** Harvey, 1853: 138, pl. 31A.

*Type Locality:* Sand Key, Florida. *References:* Cribb, 1983: 22-23, pl. 44, fig. 1. Abbott & Yoshizaki, 1982. Huisman, 2000: 33. *Distribution:* Kimberley region to Albany, Western Australia, Queensland; Japan; Hawaii; Caribbean. Probably widespread in warmer waters. Plants are generally found growing on rock or coral at depths ranging from intertidal pools to 15 m. *Specimens:* East side of Huay I., from 2-3 m depth, J.M.Huisman, 23.x.1998 (MURU, DAR 235).

**PATENOCARPUS****Patenocarpus paraphysiferus** Yoshizaki, 1987: 48.

*Type Locality:* Toyohara, Iriomote Islands, Ryukyu Islands, Japan. *Reference:* Yoshizaki, 1987: 47-52. *Distribution:* In Australia, known only from the Pilbara coast. Japan. Epilithic in the subtidal and in intertidal pools. *Specimens:* Rosemary I., intertidal, 30.viii.1999, J.M.Huisman (MURU, DAR 1703). Sth side of Kendrew I., from 3-4 m depths, 30.viii.1999, J.M.Huisman (MURU DAR 1430).

**YAMADAELLA****Yamadaella caenomyce** (Decaisne) Abbott, 1970: 116.

*Liagora caenomyce* Decaisne, 1842: 119. *Type Locality:* Manila, Philippines. *References:* Wynne & Huisman, 1998. Huisman, 2000: 36. *Distribution:* Known from Rottnest Island (rarely), the Houtman Abrolhos and the North West Cape region, Western Australia, presumably across northern Australia to the Great Barrier Reef, Qld, and Lord Howe I., N.S.W. More common in tropical regions. Grows in intertidal regions on rock or coral platforms, near low-water mark. *Specimens:* Rosemary I., intertidal, 30.viii.1999 J.M.Huisman (MURU DAR 1711).

**TRICHOGLOEA****Trichogloea requienii** (Montagne) Kützing, 1847: 54.

*Batrachospermum requienii* Montagne, 1843: 355-356. *Type Locality:* Red Sea. *References:* Cribb, 1983: pl. 47, figs 3,4; pl. 48, fig. 2. Huisman & Kraft, 1994: fig. 11. Huisman, 2000: 35. *Distribution:* Recorded from the Houtman Abrolhos, Dampier Archipelago, and Montebello Islands, W.A., probably around northern Australia to the Great Barrier Reef, Qld., Norfolk I. and Lord Howe I., N.S.W. Widespread in tropical waters, generally associated with coral reefs in areas of high water movement. *Specimens:* Hamersley Shoal, from 2-5 m depth, 22.x.1998, J.M.Huisman (MURU DAR 1121, 1122). Hamersley Shoal, from 7-9 m depth, 21.x.1998, J.M.Huisman (MURU DAR 1116, 1117, 1118, 1119).

**Order GELIDIALES****Family Gelidiaceae****PTEROCLADIPELLA****Pterocladiella caerulescens** (Kützing) Santelices & Hommersand, 1997: 118.

*Gelidium caerulescens* Kützing, 1868: 19, pl 56, figs c-d. *Type Locality:* Wagap, New

Caledonia. *References*: Price & Scott, 1992: 21-24, fig. 3A-F. Santelices, 1976: 173, figs 1-27 (as *Pterocladia caerulescens*). *Distribution*: Warmer waters of the Indo-Pacific. *Specimens*: Off Rosemary and Brigadier Is., from 20m depth, 28.viii.1999, J.M.Huisman (MURU DAR 1278).

### Family Gelidiellaceae

#### GELIDIELLA

**Gelidiella acerosa** (Forsskål) Feldmann & Hamel, 1934: 533.

*Fucus acerosus* Forsskål, 1775: 190. *Type Locality*: Mocha, Yemen. *References*: Price & Scott, 1992: 25-27, fig. 4. Huisman, 2000: 42. *Distribution*: Widely distributed in tropical seas. *Specimens*: Malus I., from 3.5m depth, 27.viii.1999, J.M.Huisman (MURU DAR 2268).

### Order GRACILARIALES

#### Family Gracilariaeae

#### GRACILARIA

**Gracilaria blodgettii** Harvey, 1853: 111.

*Type Locality*: Key West, Florida, U.S.A. *Reference*: Withell, Millar & Kraft, 1994: 283, figs 2, 3. *Distribution*: Widespread in warmer waters. *Specimens*: Sth of Nelson Rocks, from 6-7m depths, 7.ix.1999, J.M.Huisman (MURU DAR 1848).

**Gracilaria canaliculata** Sonder, 1871: 56.

*Type Locality*: Wagap, New Caledonia. *References*: Withell, Millar & Kraft, 1994: 301, figs 16, 17. Huisman, 2000: 95. *Distribution*: From the Houtman Abrolhos, Western Australia, around northern Australia; Indo-Pacific. *Specimens*: Kendrew I., from 12m depth, 30.viii.1999, J.M.Huisman (MURU DAR 1565). Goodwyn I., intertidal, 31.viii.1999, J.M.Huisman (MURU DAR 1192).

**Gracilaria salicornia** (C. Agardh) Dawson, 1954: 4.

*Sphaerococcus salicornia* C. Agardh, 1820: pl 8, fig 1-4. *Type Locality*: Manila, Philippines. *Reference*: Withell, Millar & Kraft, 1994: 297, figs 14, 15. *Distribution*: Widespread in warmer waters of the Indo-Pacific. Generally epilithic in the shallow subtidal or in intertidal pools or fissures. *Specimens*: Flying Foam Passage, intertidal, 23.x.1998, J.M.Huisman & M.Vanderklift (MURU DAR 299). East of Gidley I., intertidal, 19.x.1998, J.M.Huisman & M.Vanderklift (MURU DAR 782). East side of West Lewis I., intertidal, 5.ix.1999, J.M.Huisman (MURU DAR 1815).

**Gracilaria urvillea** (Montagne) Abbott in Abbott, Zhang & Xia, 1991: 23.

*Hydropuntia urvillea* Montagne, 1842a: 7. *Type Locality*: Near 'Insel Toud', Torres Strait [since renamed Warrior Islet]. *Reference*: Withell, Millar & Kraft, 1994: 306, fig. 21. *Specimens*: Huay I., from 1-3 m depths, 19.x.1998, J.M.Huisman & M.Vanderklift (MURU DAR 1071). Goodwyn I., intertidal, 31.viii.1999, J.M.Huisman (MURU DAR 1230).

### Order BONNEMAISONIALES

#### Family Bonnemaisoniaceae

#### ASPARAGOPSIS

**Asparagopsis taxiformis** (Delile) Trevisan, 1845: 45.

*Fucus taxiformis* Delile, 1813[1813-1826]: 151, 295, pl. 57, fig. 2. *Type Locality*: Alexandria, Egypt. *References*: Cribb, 1983: 28, pl. 4, figs 1-2. Huisman, 2000: 47. *Distribution*: Cosmopolitan in warmer seas. Epilithic in the subtidal. *Specimens*: Malus I., from 3.5 m, 27.viii.1999, J.M.Huisman (MURU DAR 1363). Keast I., intertidal, 26.x.1998, J.M.Huisman (MURU DAR 1000). Nth-west of Angel I., from 4m depth, 20.x.1998, J.M.Huisman (MURU DAR 694).

## Order CORALLINALES<sup>2</sup>

### Family Corallinaceae

#### AMPHIROA

**Amphiroa foliacea** Lamouroux in Quoy & Gaimard, 1824: 628, pl. 93: figs 2, 3.

*Type Locality*: Mariana Is. *References*: Cribb, 1983: 45, pl. 11, figs 2-3. Huisman, 2000: 49. *Distribution*: Tropical oceans. *Specimens*: Delambre I., 24.x.1998, S.Slack-Smith (MURU DAR 328). Malus I., 22.i.1983, M.A.Borowitzka (MURU DA 158).

**Amphiroa fragilissima** (Linnaeus) Lamouroux, 1816: 298.

*Corallina fragilissima* Linnaeus, 1758: 806. *Type Locality*: Jamaica. *Reference*: Huisman, 2000: 50. *Distribution*: Widespread in tropical seas. Epilithic, generally in the shallow subtidal. Commonly found on reef flats. *Specimens*: Channel between Angel and Gidley Islands, from <1m depth, 20.x.1998, J.M. Huisman & M.Vanderklift (MURU DAR 915).

#### HALIPTILON

**Haliptilon roseum** (Lamarck) Garbary & Johansen, 1982: 218.

*Corallina rosea* Lamarck, 1815: 235-236. *Type Locality*: “le mers Australs”. *References*: Johansen & Womersley, 1986: 551, figs 1-6. Huisman, 2000: 51. *Distribution*: Dampier Archipelago, Western Australia, around southern Australia to Port Denison, Queensland; New Zealand. *Specimens*: Channel north of Gidley I., intertidal, 22.x.1998, J.M.Huisman & M.Vanderklift (MURU DAR 87).

#### HYDROLITHON

**Hydrolithon farinosum** (Lamouroux) Penrose & Chamberlain, 1993: 295.

*Melobesia farinosa* Lamouroux, 1816: 315. *Type Locality*: Mediterranean Sea. *References*: Penrose & Chamberlain, 1993: 295. Littler & Littler, 2000: 28, 29. *Distribution*: British Isles; Mediterranean Sea; Adriatic Sea; Red Sea; Kenya; Indonesia; South Africa; Australia. Epiphytic on a variety of larger algae and seagrasses. *Specimens*: Conzinc I., on settling panel, ii.1985, J.Mercer (MURU DA 523).

#### JANIA

**Jania adhaerens** Lamouroux, 1816: 270.

*Type Locality*: “Méditerranée?” *Reference*: Price & Scott, 1992: 48-50, fig. 12A-C. *Distribution*: Widespread in tropical and subtropical seas. *Specimens*: On top of pipeline, at 14m depth, 8.ix.1999, J.M.Huisman (MURU DAR 1180).

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<sup>2</sup>The crustose coralline algae are presently being studied and will be reported on elsewhere.

**Order GIGARTINALES**  
**Family Dumontiaceae**

**DUDRESNAYA**

**Dudresnaya hawaiiensis** Lee, 1963: 315.

*Type Locality:* Kaneohe Bay, Oahu, Hawaiian Islands. *Reference:* Robins & Kraft, 1985: 15, figs 44-89. *Distribution:* Great Barrier Reef; Lord Howe I.; Dampier Archipelago; Hawaii; *Specimens:* Bare Rock, from 12m depth, 31.viii.1999, J.M.Huisman (MURU DAR 1964). *Remarks:* The present specimens agree in most respects with the description given by Robins & Kraft (1985). The thick mucilage surrounding the carpogonial and auxiliary cell filaments that is regarded as distinctive of this species was evident in only a small proportion of filaments. The presence of other features, however, such as the indistinct central axis and lack of cellular crystals, also suggest *D. hawaiiensis*.

**GIBSMITHIA**

**Gibsmithia hawaiiensis** Doty, 1963: 458.

*Type Locality:* Waikiki, Oahu, Hawaii, drift. *References:* Doty, 1963: 458-465, figs 1-7. Kraft, 1986: 425-433, figs 2-22. Huisman, 2000: 75. *Distribution:* Widespread in tropical waters of the Indo-Pacific. Epilithic in the subtidal. *Specimens:* North of Legendre I., from 15m depth, 27.x.1998, P.Morrison & C.Bryce (MURU DAR 1129). South-west of Rocky Head, Enderby I., from 14m depth, 6.ix.1999, J.M.Huisman (MURU DAR 1445).

**Family Hypnaceae**

**HYPNEA**

**Hypnea boergesenii** Tanaka, 1941: 233.

*Type Locality:* Keelung (= Chilung), Tairi, Formosa (Taiwan). *Reference:* Millar, 1990: figs. 22A, B. *Distribution:* Indo-west Pacific. *Specimens:* Goodwyn I., intertidal, 31.viii.1999, J.M.Huisman (MURU DAR 1223, 1269).

**Hypnea cornuta** (Kützing) J. Agardh, 1851[1851-1863]: 449-450.

*Chondroclonium cornutum* Kützing, 1849: 741. *Type Locality:* “Locus natalis ignotus” [“ad oras Guineae” fide J. Agardh, 1851[1851-1863]: 449]. *Distribution:* Indo-west Pacific. *Specimens:* East side of Huay I., from 1m depth, 23.x.1998, J.M.Huisman (MURU DAR 2264).

**Hypnea pannosa** J. Agardh, 1847: 14.

*Type Locality:* San Agustin, Mexico. *References:* Cribb, 1996: 95 + adjacent fig. Huisman, 2000: 78. *Distribution:* Widespread in tropical and warm seas. In Australia known from Rottnest Island, W.A., around northern Australia to Queensland, generally epilithic in the intertidal or shallow subtidal. *Specimens:* DA179 (no collection data recorded)

**Family Nemastomataceae**

**PREDAEA**

**Predaea weldii** Kraft & Abbott, 1971: 194.

*Type Locality:* Kaneohe Bay, Oahu I., Hawaii. *References:* Kraft, 1984: 15-19, figs 36-42. Huisman, 2000: 85. *Distribution:* Houtman Abrolhos, Western Australia, probably around northern Australia to northeastern Australia; Hawaii; Venezuela. Generally epilithic in the

subtidal. *Specimens*: Delambre I., from 4m depth, 24.x.1998, *M. Hewitt & J. Fromont* (MURU DAR 1126). Kendrew I., from 12m depth, 30.viii.1999, *J.M.Huisman* (MURU DAR 1576).

### Family Peyssonneliaceae

#### PEYSSONNELIA

**Peyssonnelia capensis** Montagne, 1847: 177.

*Type Locality*: Port Natal, South Africa. *References*: Denizot, 1968: 123, figs 105, 107. Womersley, 1994: 155-157, figs 44B, 45D-F. *Distribution*: Dampier Archipelago, Western Australia, around southern Australia to northern New South Wales, South Africa, Madagascar, New Zealand, Brazil, Angola, Japan, Solomon Is. Epilithic, subtidal, often on vertical walls in partially shaded positions. *Specimens*: Southwest corner of Rosemary I., from 6.4m depth, 29.viii.1999, *J.M.Huisman* (MURU DAR 1308). Kendrew I., from 12m depth, 30.viii.1999, *J.M.Huisman* (MURU DAR 1582).

### Family Rhizophyllidaceae

#### PORTIERIA

**Portieria hornemannii** (Lyngbye) P. Silva in Silva *et al.*, 1987: 129.

*Desmia hornemannii* Lyngbye, 1819: 35, pl. 7c. *Type Locality*: Probably Red Sea. *References*: Cribb, 1983: 35-36, pl. 8, fig. 2 (as *Chondrococcus hornemannii* (Lyngbye) F.Schmitz). Huisman, 2000: 92. *Distribution*: Tropical Indo-Pacific. Epilithic in the lower intertidal and shallow subtidal. Common on reef flats. *Specimens*: North side of Legendre I., from 1-2 m depths, 18.x.1998, *J.M.Huisman* (MURU DAR 833). Keast I., intertidal, 26.x.1998, *J.M.Huisman* (MURU DAR 967).

### Family Schizymeniaceae

#### PLATOMA

**Platoma cyclocolpum** (Montagne) Schmitz, 1894: 627.

*Halymenia cyclocolpa* Montagne, 1841 [1839-1841]: 163-164. *Type Locality*: Teneriffe, Canary Islands. *References*: Huisman, 1999: figs 1-12. Huisman, 2000: 84. *Distribution*: Cape Bouvard north to the Dampier Archipelago, Western Australia; Canary Islands. In subtidal positions, to depths of 20 m, generally on the sides or at the bases of limestone reefs in positions of relatively low light. *Specimens*: Bare Rock, from 12m depth, 31.viii.1999, *J.M.Huisman* (MURU DAR 1969).

#### TITANOPHORA

**Titanophora weberae** Børgesen, 1943: 39.

*Type Locality*: Salee Strait, Irian Barat, Indonesia. *References*: Mshigeni & Papenfuss, 1980: 780-785, figs 1, 3-20. Huisman, 2000: 86. *Distribution*: Known from the Houtman Abrolhos, Western Australia, presumably around northern Australia to Queensland and Lord Howe I., N.S.W. Tropical Indo-Pacific. Epilithic in the subtidal, usually associated with coral reefs. *Specimens*: Eagle Hawk I., from 10-11m depth, 3.ix.1999, *J.M.Huisman* (MURU DAR 1913). Off Rosemary I. and Brigadier I., from 20m depth, 28.viii.1999, *J.M.Huisman* (MURU DAR 1275). Top of pipeline, from 14m depth, 8.ix.1999, *J.M.Huisman* (MURU DAR 1164).

### Family Solieriaceae

#### BETAPHYCUS

**Betaphycus speciosum** (Sonder) Doty ex P. Silva in Silva *et al.*, 1996: 326.

*Gigartina speciosa* Sonder, 1845: 55. *Type Locality*: Western Australia. *References*: Huisman, 2000: 64. *Distribution*: From the Northwest Cape region to the Perth region, Western Australia; Mauritius; Madagascar. Epilithic in the subtidal and in intertidal pools. *Specimens*: Goodwyn I., intertidal, 31.viii.1999, J.M.Huisman (MURU DAR 1261).

## EUCHEUMA

**Eucheuma denticulatum** (Burman) Collins & Hervey, 1917: 106-108.

*Fucus denticulatus* Burman, 1768: [32]. *Type Locality*: Supposedly Cape of Good Hope, South Africa. *References*: Huisman, 2000: 68. *Distribution*: From the Houtman Abrolhos (rarely) and North West Cape region, Western Australia, around northern Australia to Queensland. Warmer waters of the Indo-Pacific. *Specimens*: Goodwyn I., intertidal, 31.viii.1999. J.M.Huisman (MURU DAR 1211).

## SARCONEMA

**Sarconema filiforme** (Sonder) Kylin, 1932: 22.

*Dicranema filiforme* Sonder, 1845: 56. *Type Locality*: Western Australia. *References*: Papenfuss & Edelstein, 1974: 31-44, figs 1-3, 13, 20-25. Huisman, 2000: 70. *Distribution*: Indo-Pacific. *Specimens*: Lewis I., on settling panel, v.1984, J.Mercer (MURU DA #90).

## Order HALYMENTIALES

### Family Halymeniaceae

#### HALYMENTIA

**Halymenia durvillei** Bory de Saint-Vincent, 1828[1826-1829]: 180-181, pl. 15.

*Type Locality*: Port Praslin, New Ireland, Papua New Guinea. *References*: Cribb 1983: 54, pl. 12, Fig. 1. Wynne, 1995: 274, fig. 10. *Distribution*: Tropical Indo-Pacific; Japan. *Specimens*: Nelson Flats, 26.vii.1983, M.A.Borowitzka (MURU DA 297). *Remarks*: The specimen is sterile but appears identical to those described by Cribb (1983).

**Halymenia floresia** (Clemente y Rubio) C. Agardh, 1817: xix.

*Fucus floresius* Clemente y Rubio, 1807: 312. *Type Locality*: Mediterranean. *References*: Womersley & Lewis, 1994: 189-191, fig. 56A. Huisman, 2000: 103. *Distribution*: Widespread in tropical and subtropical oceans. *Specimens*: Nelson Flats, 27.x.1983, M.A.Borowitzka (MURU DA 171).

### Family Sebdeniaceae

#### SEBDENIA

**Sebdenia flabellata** (J. Agardh) Parkinson, 1980: 12.

*Isymenia flabellata* J. Agardh, 1899: 62, 66. *Type Locality*: Guadeloupe. *References*: Schneider & Wynne, 1991: 471-474, fig. 1. Huisman, 2000: 105. *Distribution*: Widely distributed in tropical and warmer seas. Epilithic, often on rocks in sandy regions of the subtidal. *Specimens*: Goodwyn I., intertidal, 31.viii.1999, J.M.Huisman (MURU DAR 1188). Sth side of Kendrew I., from 3-4m depths, 30.viii.1999, J.M.Huisman (MURU DAR 1419).

## Order RHODYMENIALES

### Family Champiaceae

## CHAMPIA

**Champia compressa** Harvey, 1838: 402.

*Type Locality:* Muizenberg, False Bay, Cape Province, South Africa. *References:* Millar, 1990: 371-373, figs 30A-D. Huisman, 2000: 108. *Distribution:* Western and eastern Australia; South Africa; Sri Lanka. *Specimens:* Kendrew I., from 12m depth, 30.viii.1999, J.M.Huisman (MURU DAR 1578).

**Champia parvula** (C. Agardh) Harvey, 1853: 76.

*Chondria parvula* C. Agardh, 1824: 207. *Type Locality:* Cádiz, Spain. *References:* Price & Scott, 1992: 55-57, fig. 14A-E. Huisman, 2000: 109. *Distribution:* Widespread in tropical and temperate seas. *Specimens:* Dolphin I., intertidal, 21.x.1998, J.M.Huisman (MURU DAR 2261).

**Champia stipitata** Huisman, 2000: 285.

*Type Locality:* Roe Reef, Rottnest Island, Western Australia. Epilithic from 15 m depth.

*Reference:* Huisman, 2000: 109. *Distribution:* Known from Rottnest Island, Western Australia, north to Darwin, Northern Territory and Papua New Guinea. Generally epilithic in the lower intertidal and subtidal. *Specimens:* East side of Huay I., from 2-3 m depth, 23.x.1998, J.M.Huisman (MURU, DAR 241).

## Family Lomentariaceae

### LOMENTARIA

**Lomentaria corallicola** Børgesen, 1939: 113.

*Type Locality:* Kharg Is., Gulf of Iran. *Reference:* Price & Scott, 1992: fig. 18. *Distribution:* Northern Australia, Iran, Natal. *Specimens:* South side of West Lewis I., from 5.1m depth, 6.ix.1999, J.M.Huisman (MURU DAR 2255).

## Family Rhodymeniaceae

### ASTEROMENIA

**Asteromenia peltata** (Taylor) Huisman & Millar, 1996: 139.

*Faucheia peltata* Taylor, 1942: 113-114, pl. 3: fig. 9, pl. 16: figs 1-5. *Type Locality:* Tortuga Island, Venezuela. *References:* Huisman & Millar, 1996: figs 1-17. Huisman, 2000: 112. *Distribution:* Widespread in tropical and warmer seas. Epilithic in the subtidal. Generally grows on vertical surfaces in part shade. *Specimens:* Site Approx. 2.25 n. miles E of Huay I., dredged from 19.5m depth, 16.vii.1999, S.Slack-Smith & M.Hewitt (MURU DAR 2179).

## BOTRYOCLADIA

**Botryocladia leptopoda** (J. Agardh) Kylin, 1931: 17, pl. 6, fig. 14.

*Chrysymenia uvaria* J. Agardh var. *leptopoda* J. Agardh, 1876: 324. *Type Locality:* Moreton Bay, Queensland. *References:* Jaasund, 1976: 103, fig. 209. Huisman, 2000: 113. *Distribution:* Northern and western Australia; Lord Howe Island; Red Sea; Indian Ocean; Indonesia; Japan. *Specimens:* Flying Foam Passage, approx. 0.9 n. miles NE of S point of Angel Island, dredged from 7-9m depths, 22.vii.1999, S.Slack-Smith & M.Hewitt (MURU DAR 2235). Approx. 4.35 n. miles W of Cape Bruguieres, dredged, 17.vii.1999, S.Slack-Smith & M.Hewitt (MURU DAR 2226).

## CERATODICTYON

**Ceratodictyon spongiosum** Zanardini, 1878: 37.

*Type Locality:* Wokam, Aru Islands. *References:* Price & Kraft, 1991: 106-116, figs 1-16. Huisman, 2000: 115. *Distribution:* Widespread in the tropical Indo-Pacific. *Specimens:* Channel between Angel and Gidley Islands, from 1m depth, 26.i.1983, M.A.Borowitzka (MURU DA 40). North of West Lewis I., intertidal, 4.ix.1999, J.M.Huisman (MURU DAR 1553). Sth side of Kendrew I., from 3-4m depths, 30.viii.1999, J.M.Huisman (MURU DAR 1413).

### CHAMAEBOTRYS

**Chamaebotrys boergesenii** (Weber-van Bosse) Huisman, 1996: 105.

*Coelarthrurum boergesenii* Weber-van Bosse, 1928: 473, figs. 207, 208. *Type Locality:* Sailus-Besar, Isles Paternoster, from 27 m depth. *References:* Huisman, 1996: 105-109, figs 35-38, 40-42. Huisman, 2000: 116. *Distribution:* Widespread in warmer waters. Generally found in protected positions on and under rock and coral ledges. It is occasionally found growing epizoically. Specimens have been collected from the upper sublittoral to 40-50 m depths. *Specimens:* Eagle Hawk I., from 10-11m depth, 3.ix.1999, J.M.Huisman (MURU DAR 2252).

### COELARTHURUM

**Coelarthrurum cliftonii** (Harvey) Kylin, 1931: 15.

*Chylocladia cliftonii* Harvey, 1855: 556. *Type Locality:* Fremantle, Western Australia. *References:* Norris, 1986: 537, figs 6-8. Harvey, 1858: pl. 57 (as *Chylocladia cliftoni*). Huisman, 1996: 96-100, figs 1-15. Huisman, 2000: 118. *Distribution:* Known from the Montebello Islands south and east to Troubridge and Kangaroo Islands (South Australia); Canary Islands; Natal, southern Africa; Mauritius; West Indies; Hawaii. Epilithic in the subtidal. *Specimens:* Approx. 6.35 n. miles W of Cape Bruguières, dredged from 29-30m depths, 17.vii.1999, S.Slack-Smith & M. Hewitt (MURU DAR 2205).

**Coelarthrurum opuntia** (Endlicher) Børgesen, 1937: 333.

*Chrysymenia opuntia* Endlicher, 1843: 42. *Type Locality:* Indian Ocean. *References:* Huisman, 1996: 100-104, figs 16-25. Huisman, 2000: 119. *Distribution:* Darwin, Northern Territory, around Western Australia to Wilson's Promontory, Victoria, and northern Tasmania; Indian Ocean; Pakistan; Indonesia; Japan. Epilithic in the subtidal. *Specimens:* Dampier Archipelago, 29.xi.1983, W.Wood (MURU, DA119). Approx. 4.35 n. miles W of Cape Bruguières, dredged, 17.vii.1999, S.Slack-Smith & M. Hewitt (MURU DAR 2223).

### COELOTHRIX

**Coelothrix irregularis** (Harvey) Børgesen, 1920: 389.

*Cordylecladia irregularis* Harvey, 1853: 156. *Type Locality:* Key West, Florida, U.S.A.

*References:* Price & Scott, 1992: 60, fig. 17A-D. Huisman, 2000: 110. *Distribution:* Tropical Indo-West Pacific region and tropical West Atlantic Ocean. *Specimen:* Roly Rock, from 10m depth, 1.ix.1999, J.M.Huisman (MURU DAR 2265).

### GELIDIOPSIS

**Gelidiopsis intricata** (C. Agardh) Vickers, 1905: 61.

*Sphaerococcus intricatus* C. Agardh, 1822: 333-334. *Type Localities:* Mauritius, Hawaiian Islands, and Ravak (Rauki I., near Waigeo I., Indonesia). *Reference:* Price & Scott, 1992: fig. 13a-f. *Distribution:* Widespread in tropical waters. *Specimens:* Conzinc I., on settling panel, v.1984, J.Mercer (MURU DA #76C).

**Gelidiopsis scoparia** (Montagne & Millardet) De Toni, 1900: 410-411.

*Gelidium scoparium* Montagne & Millardet, 1862: 13-14, pl. XXVII: fig. 1. *Type Locality:* Réunion. *Reference:* Price & Kraft, 1991: fig. 18. *Distribution:* Probably widespread in the Indo-Pacific. Epilithic in the subtidal. *Specimens:* Rosemary I., from 12m depth, 28.viii.1999, J.M.Huisman (MURU DAR 1606a).

**Order CERAMIALES**  
**Family Ceramiaceae**

**AGLAOTHAMNION**

**Aglaothamnion cordatum** (Børgesen) Feldmann-Mazoyer, 1941: 459.

*Callithamnion cordatum* Børgesen, 1909: 10, figs 1-5. *Type Locality:* Off Cruz bay, between St. Thomas and St. Jan, Virgin Islands. *References:* Price & Scott, 1992: 75-76, fig 22A, B. Huisman, 2000: 127. *Distribution:* Widely distributed in warmer waters.

*Specimens:* Between Enderby and West Lewis Is., from 17m depth, 2.ix.1999, J.M.Huisman (MURU DAR 2146).

**ANOTRICHUM**

**Anotrichium tenue** (C. Agardh) Nägeli, 1862: 399.

*Griffithsia tenuis* C. Agardh, 1828: 131. *Type Locality:* Venezia, Italy. *References:* Baldock, 1976: 556, figs 59-64, 90. Huisman, 2000: 129. *Distribution:* Widely distributed in all tropical and subtropical oceans except for the eastern Atlantic. Epilithic and epiphytic on a variety of algae and seagrasses. *Specimens:* Malus I., from 3.5m, epiphytic, 27.viii.1999, J.M.Huisman (MURU DAR 2246).

**BALLIELLA**

**Balliella subcorticata** (Itono) Itono & Tanaka, 1973: 250.

*Antithamnion subcorticatum* Itono, 1969: 40, fig. 7. *Type Locality:* Yoronjima, Okinawa-gunto, Ruykyu-retto, Japan. *Reference:* Itono & Tanaka, 1973. *Distribution:* Montebello Is. and the Dampier Archipelago; Philippines, Japan. *Specimens:* Off Rosemary and Brigadier Islands, from 20m depth, 28.ix.1999, J.M.Huisman (MURU DAR 1279, 1280). Kendrew I., from 12m depth, 30.ix.1999, J.M.Huisman (MURU DAR 1573).

**CENTROCERAS**

**Centroceras clavulatum** (C. Agardh) Montagne, 1846: 140.

*Ceramium clavulatum* C. Agardh, 1822: 2. *Type Locality:* Callao, Peru.

*References:* Price & Scott, 1992: 81-82, fig 25A-E. Huisman, 2000: 134. *Distribution:* Widespread in warmer waters. Epilithic or epiphytic on a variety of substrata, very common. *Specimens:* North west of West Lewis I., intertidal, 4.ix.1999, J.M.Huisman (MURU DAR 1555).

**CERAMIUM**

**Ceramium affine** Setchell & Gardner, 1930: 172.

*Type Locality:* Guadelupe Island, Mexico. *Reference:* Wynne, 1995: 290, fig. 32.

*Distribution:* Widespread in warmer seas. *Specimens:* South side of Kendrew I., from 3-4m depths, 30.viii.1999, J.M.Huisman (MURU DAR 2257). *Remarks:* The present specimen has nodes with only a single layer of four periaxial cells and as such is similar to *Ceramium codii*

(Richards) G. Mazoyer (Itono 1972a, 1977). It also has naked rather than involucrate tetrasporangia, however, which suggests it is better placed in *C. affine* (Wynne 1995).

**Ceramium fimbriatum** Setchell & Gardner, 1924: 777, pl. 26: figs 43, 44.

*Type Locality:* near La Paz, Baja California Sur, Mexico. *Reference:* Wynne, 1995: 292, fig. 37. *Distribution:* Widespread in warmer seas. *Specimens:* Northwest Lewis I., intertidal, 4.ix.1999, J.M.Huisman (MURU DAR 2263). *Remarks:* The present specimens are similar to *C. flaccidum* (Harvey ex Kützing) Ardisson, differing primarily in the presence of bulbous unicellular hairs arising from the distal edges of the cortical bands (Wynne 1995: 292).

**Ceramium flaccidum** (Harvey ex Kützing) Ardisson, 1871: 40.

*Hormoceras flaccidum* Harvey ex Kützing, 1862: 21, pl. 69a-d. *Type Locality:* Kilkee, County Clare, Eire. *References:* Womersley, 1978: 234, figs 4A-D, 14E-H. Huisman, 2000: 135. *Distribution:* Widely distributed in cool-temperate to tropical oceans. Epiphytic on a variety of larger algae and seagrasses. *Specimens:* Malus I., from 3.5m, epiphytic, 27.viii.1999, J.M.Huisman (MURU DAR 2247).

**Ceramium isogonum** Harvey, 1855: 557

*Type Locality:* Garden I., Western Australia. *References:* Womersley, 1978: 227, figs 3A, 12; Price & Scott, 1992: 95-97, fig. 29A-C. *Distribution:* Australia - wide, Indonesia. *Specimens:* Dolphin I., intertidal, 21.x.1998, J.M.Huisman (MURU DAR 2260).

**Ceramium serpens** Setchell & Gardner, 1924: 775, pl. 27: fig. 58.

*Type Locality:* La Paz, Baja California Sur, Mexico. *Reference:* Wynne, 1995: 294, fig. 43. *Distribution:* Widespread in warmer waters. *Specimens:* on settling panel, J.Mercer (MURU DA10BF).

**Ceramium borneense** Weber-van Bosse, 1923: 329.

*Type Locality:* Borneo Bank. *Reference:* Price & Scott, 1992: 109-110, fig. 35A-E (as *Ceramium sympodiale* Dawson). *Distribution:* Northern Australia; Solomon Is., Eniwetok Atoll; Hateruma I. (Ryukyu Archipelago). *Specimens:* Kendrew I., from 12m depth, 30.viii.1999, J.M.Huisman (MURU DAR 2258). *Remarks:* Previously recorded in Australia as *Ceramium sympodiale* Dawson (Price & Scott 1992), which was reduced to synonymy by Abbott (1999: 268)

## CORALLOPHILA

**Corallophila apiculata** (Yamada) Norris, 1993: 395.

*Centroceras apiculatum* Yamada, 1944: 42. *Type Locality:* Ant Atoll, near Ponape, Caroline Islands. *Reference:* Price & Scott, 1992: 79- 81, fig. 24A-D (as *Centroceras apiculatum*). *Distribution:* Tropical Indo-Pacific. *Specimens:* (MURU DA 27A). No details recorded.

**Corallophila huysmansii** (Weber-van Bosse) Norris, 1993: 396.

*Ceramium huysmansii* Weber-van Bosse, 1923: 322, fig. 115a-b. *Type Locality:* Lucipares I., Indonesia. *References:* Price & Scott 1992: 92-95, fig. 28A-E (as *Ceramium huysmansii*). Huisman, 2000: 137. *Distribution:* Warmer waters of the Indo-Pacific. *Specimens:* on settling panel, J.Mercer (MURU DA144C).

## CROUANIA

**Crouania attenuata** (C. Agardh) J. Agardh, 1842: 83

*Mesogloia attenuata* C. Agardh, 1824: 51. *Type Locality*: “In mari Atlantico” *Reference*: Price & Scott, 1992: 117-120, fig. 38A-D, 39A-B. *Distribution*: Widespread in temperate and tropical seas. Epiphytic and epilithic in intertidal regions. *Specimens*: Malus I., intertidal, 27.viii.1999, J.M.Huisman (MURU DAR 1150). Sth side of Kendrew I., from 3-4m depths, 30.viii.1999, J.M.Huisman (MURU DAR 1418).

## GRIFFITHSIA

**Griffithsia heteromorpha** Kützing, 1863: 2, pl. 3: figs. a, b.

*Type Locality*: New Caledonia. *Reference*: Price & Scott, 1992: 121-123, fig. 40A-B. *Distribution*: Tropical Indo-West Pacific region and tropical western Atlantic Ocean. *Specimens*: Lewis I., on settling panel, v.1984, J.Mercer (MURU DA #11B).

**Griffithsia metcalfii** Tseng, 1942: 111-115, figs. 5-9.

*Type Locality*: Yinggehai, Hainan, China. *Reference*: Price & Scott, 1992: 123-124, fig. 41A-B. *Distribution*: Northern Australia; China; Vietnam; Hawaii. *Specimens*: South side of Enderby I, intertidal, 6.ix.1999, J.M.Huisman (MURU DAR 2111).

## MONOSPORUS

**Monosporus indicus** Børgesen, 1931a: 12-13, fig. 8.

*Type Locality*: Bombay, India. *Reference*: Huisman & Kraft, 1982: 189, fig. 38. *Distribution*: Indo-Pacific, in warmer waters. *Specimens*: Eagle Hawk I., from 10-11m depths, 3.ix.1999, J.M.Huisman (MURU DAR 2245).

## PLEONOSPORIUM

**Pleonosporum caribaeum** (Børgesen) Norris, 1985: 61, figs 1-7.

*Mesothamnion caribaeum* Børgesen, 1917: 208. *Type Locality*: St. John, off Annaberg, Virgin Islands, Danish West Indies. *References*: Norris, 1985: figs 1-7. Itono 1977: 45, figs 25A, 26A-B, 44C-D, 52E-F, 65A-1. *Distribution*: Widely distributed in tropical and subtropical seas. *Specimens*: Nelson Flats, v.1984, J.Mercer (MURU DA 51C).

## SEIROSPORA

**Seirospora orientalis** Kraft, 1988: 2.

*Type Locality*: One Tree Island, Capricorn Group, Great Barrier Reef, Queensland, Australia. *References*: Kraft, 1988: 1-11, figs 2-25. Huisman, 2000: 143. *Distribution*: Known from the Capricorn Group, Queensland, and the Houtman Abrolhos, Montebello Islands, and Dampier Archipelago, Western Australia. *Specimens*: Malus I., from 3.5m depth, epiphytic, 27.viii.1999, J.M.Huisman (MURU DAR 2250).

## SPYRIDIA

**Spyridia filamentosa** (Wulfen) Harvey, 1833: 337(6).

*Fucus filamentosus* Wulfen, 1803: 64. *Type Locality*: Adriatic Sea. *References*: Womersley & Cartledge, 1975: 222, figs 1, 3A,B. Huisman, 2000: 145. *Distribution*: Widely distributed in tropical and warm temperate oceans. Epilithic or epiphytic in the intertidal and subtidal. Very common in the region. *Specimens*: South side of West Lewis I., intertidal, 5.ix.1999, J.M.Huisman (MURU DAR 1832a).

### Family Dasyaceae

#### HETEROSIPHONIA

**Heterosiphonia crassipes** (Harvey) Falkenberg, 1901: 655.

*Dasya crassipes* Harvey, 1855: 543. *Type Locality*: Jetty Reef, Rottnest I., Western Australia. *Reference*: Kützing 1864: pl.72. *Distribution*: Indian Ocean; Coffs Harbour, Lord Howe I., New South Wales. *Specimens*: Hamersley Shoal, 27.v.1985, J.Mercer (MURU DA 262-264). Enderby I., intertidal, 1.ix.1999, J.M.Huisman (MURU DAR 1501). Rosemary I., intertidal, 30.viii.1999, J.M.Huisman (MURU DAR 1688). Sth of Nelson Rocks, on sand flats at 6-7m depths, 7.ix.1999, J.M.Huisman (MURU DAR 1839).

**Heterosiphonia crispella** (C. Agardh) Wynne, 1985: 87.

*Callithamnion crispella* C. Agardh, 1828: 183. *Type Locality*: near Cádiz, Spain. *Reference*: Cribb, 1983: 105, pl. 64, fig. 1 (as *Heterosiphonia wurdemanni* var. *laxa*). *Distribution*: Most tropical oceans. *Specimens*: Lewis I., on settling panel, v.1984, J.Mercer (MURU DA 502). Conzinc I., on settling panel, v.1984, J.Mercer (MURU DA 503)

#### DASYA

**Dasya ballouviana** (Gmelin) Montagne, 1841 [1839-1841]: 165.

*Fucus baillouviana* Gmelin, 1768: 165. *Type Locality*: Mediterranean Sea. *Reference*: Cribb, 1983: 101, p1.65, figs. 1-4. *Distribution*: Widespread in warmer seas. *Specimens*: Conzinc I., on settling panel, ii.1985, J.Mercer (MURU DA 504). *Remarks*: The Dampier specimen is sterile, but appears vegetatively identical to those described by Cribb (1983).

### Family Delesseriaceae

#### CALOGLOSSA

**Caloglossa leprieurii** (Montagne) Martens, 1869: 234, 237.

*Delesseria leprieurii* Montagne, 1840: 196-197, pl. 5: fig. 1. *Type Locality*: near Cayenne, French Guiana. *References*: Cribb, 1996: 70, 71. King & Puttock, 1994a: 112-115. *Distribution*: Widespread in tropical seas. *Specimens*: South side of East Lewis I., on mangrove pneumatophores, 5.ix.1999, J.M.Huisman (MURU DAR 2271).

#### COTTONIELLA

**Cottoniella filamentosa** (Howe) Børgesen, 1920: 478.

*Sarcomenia filamentosa* Howe, 1905: 571. *Type Locality*: Biscayne Key, Florida, USA.

*References*: Børgesen, 1920: 478. Huisman, 2000: 147. *Distribution*: Apparently widely but sporadically distributed in warmer seas. *Specimens*: Off Rosemary and Brigadier Islands, from 20m depth, 28.viii.1999, J.M.Huisman (MURU DAR 1276). Rosemary I., from 20m depth, 28.viii.1999, J.M.Huisman (MURU DAR 1613).

**Cottoniella amamiensis** Itono, 1972b: 57-59, fig. 4.

*Type Locality*: Tatsugo, Amami-oshima, Kagoshima Prefecture, Japan. *Reference*: Wynne & Norris, 1991: figs. 7, 8. *Distribution*: Known from southern Japan; South Africa; Bangladesh; northern Papua New Guinea; and the Dampier Archipelago. *Specimens*: On top of pipeline, at 14m depth, 8.ix.1999, J.M.Huisman (MURU DAR 1172). *Remarks*: The present specimens are similar to those described by Wynne & Norris (1991) from South Africa. This represents a new record for Australia.

## HYPOGLOSSUM

**Hypoglossum caloglossoides** Wynne & Kraft, 1985: 15.

*Type Locality:* South Passage, Lord Howe Island, New South Wales. *Reference:* Wynne & Kraft, 1985: 9-19, figs 1-19. *Distribution:* Northern Australia, Samoa, Marshall Islands. *Specimens:* North west of West Lewis I., intertidal, 4.ix.1999, J.M.Huisman (MURU DAR 1560).

## MARTENSIA

**Martensia fragilis** Harvey, 1854: 145.

*Type Locality:* Belligam Bay, Ceylon. *References:* Millar, 1990: 418-420, figs 53C-E. Huisman, 2000: 150. *Distribution:* Probably pan-tropical. Generally epilithic in the subtidal. *Specimens:* Dolphin I., on intertidal silt flats, 21.x.1998, J.M.Huisman & M.Vanderklift (MURU DAR 612). East of Sea Ripple Passage, intertidal, 28.x.1998, J.M.Huisman (MURU DAR 575).

## PLATYSIPHONIA

**Platysiphonia delicata** (Clemente y Rubio) Cremades in Cremades & Perez-Cirera, 1990: 492. *Confervaria delicata* Clemente y Rubio, 1807: 322. *Type Locality:* Sanlúcar de Barrameda, Cádiz, Spain. *References:* Børgesen, 1931b: 21-29, figs 1-5; Ballantine & Wynne, 1985: 461-463, figs 7, 8 [as *Platysiphonia miniata* (C. Agardh) Børgesen]. *Distribution:* Widely distributed. *Specimens:* South side of Kendrew I., from 3-4m depths, 30.viii.1999, J.M.Huisman (MURU DAR 2256). *Remarks:* This species is more widely known as *Platysiphonia miniata* (C. Agardh) Børgesen.

## TAENIOMA

**Taenioma perpusillum** (J. Agardh) J. Agardh, 1863[1851-1863]: 1257.

*Polysiphonia perpusilla* J. Agardh, 1847: 16. *Type Locality:* San Agustín, Oaxaca, Mexico. *Reference:* Huisman, 2000: 153. *Distribution:* Widespread in warmer sea. Epilithic or epiphytic on a variety of algae. *Specimens:* Conzinc I., on settling panel, ii.1984, J.Mercer (MURU DA 522). South side of Enderby I., intertidal, 6.ix.1999, J.M.Huisman (MURU DAR 2110).

## Family Rhodomelaceae

### ACANTHOPHORA

**Acanthophora dendroides** Harvey, 1855: 538.

*Type Locality:* Rottnest I., Western Australia. *References:* Kraft, 1979: fig. 7. De Jong *et al.*, 1999: 225, figs 9-14, 43. Huisman, 2000: 154. *Distribution:* Western Australia, Queensland, New South Wales. *Specimens:* Approx. 4.35 n. miles W of Cape Bruguieres, dredged, 17.vii.1999, S.Slack-Smith & M.Hewitt (MURU DAR 2224).

**Acanthophora spicifera** (Vahl) Børgesen, 1910: 201.

*Fucus spiciferus* Vahl, 1802: 44. *Type Locality:* St. Croix, Virgin Islands. *References:* Cribb, 1983: 105-106, pl. 32, fig. 2. De Jong *et al.*, 1999: 231-235, figs 3, 33-39, 46. Huisman, 2000: 154. *Distribution:* Widely distributed in tropical waters. Epilithic, often in shallow water. *Specimens:* Enderby I., intertidal, 1.ix.1999, J.M.Huisman (MURU, DAR 1508). Dolphin I., intertidal, 25.x.1998, J.M.Huisman & M.Vanderklift (MURU, DAR 398).

## BOSTRYCHIA

**Bostrychia radicans** (Montagne) Montagne, 1842b: 661.

*Rhodomela radicans* Montagne, 1840: 198, pl. 5: fig. 3. *Type Locality*: Near Cayenne, French Guiana. *Reference*: King & Puttock, 1989: 25-28, figs 10b, 10d, 11b, 12. *Specimens*: South side of East Lewis I., on mangrove pneumatophores, 5.ix.1999, J.M.Huisman (MURU DAR 2272).

## CHONDRIA

**Chondria armata** (Kützing) Okamura, 1907-1909: 69.

*Lophura armata* Kützing, 1866: 2, pl. 3: figs a, b. *Type Locality*: Wagap, New Caledonia. *Reference*: Huisman, 2000: 157. *Distribution*: Widespread in the tropical Indo-West Pacific. *Specimens*: Delambre I., from 1-2m depths, 24.x.1998, J.M.Huisman (MURU DAR 597).

**Chondria dangeardii** Dawson, 1954: 460.

*Chondria platycladia* Dangeard, 1952: 303. *Type Locality*: Cape Verde, Senegal.

*References*: Huisman, 2000:158 . Price & Scott 1992: 165-167, fig. 57A-D.

*Distribution*: Houtman Abrolhos, Western Australia, and Queensland; Vietnam; Senegal; Ghana.

*Specimen*: South-west corner of Rosemary I., from 6.4m depth, 29.viii.1999, J.M.Huisman (MURU DAR 1320).

## CHONDROPHYCUS

**Chondrophycus papillosa** (C. Agardh) Garbary & Harper, 1998: 195.

*Chondria papillosa* C. Agardh 1822[1822-1823]: 344. *Type Locality*: Mokha, Yemen. *References*:

Nam & Saito, 1991. Huisman, 2000: 159. *Distribution*: Widely distributed in warmer seas.

*Specimens*: Goodwyn I., intertidal, 31.viii.1999, J.M.Huisman (MURU DAR 1232).

## DIGENEA

**Digenea simplex** (Wulfen) C. Agardh, 1822[1822-1823]: 389.

*Conferva simplex* Wulfen, 1803: 17. *Type Locality*: Trieste, Italy. *Reference*: Cribb, 1983: pl. 32, fig. 3. *Distribution*: Widely distributed in tropical seas. Epilithic in the lower intertidal.

*Specimens*: Georgeff Reefs, intertidal, 28.viii.1999, J.M.Huisman (MURU DAR 1902). Gidley I., 13.ii.1985, J.Mercer (MURU DA 291).

## ECHINOPHYCUS

**Echinophycus minutus** Huisman, 2001: 177-178.

*Type Locality*: Approximately 4.8 nautical miles NE of Courtenay Head Light, Malus Is, Dampier Archipelago, Western Australia. *Reference*: Huisman, 2001: 177-182, figs 1-12.

*Distribution*: Known only from the type locality and collection, which was dredged from a coarse sand/rubble habitat at a depth of 15-16 m. Growing on an unconsolidated substratum.

*Specimens*: Approximately 4.8 nautical miles NE of Courtenay Head Light, Malus Is, Western Australia; dredge run from 20° 26.95'S, 116° 44.86'E to 20° 27.39'S, 116° 44.28'E, at 15.0 - 16.0 m depth (Western Australian Museum Stn DA2/99/32), 18.vii.1999, S.Slack-Smith & M.Hewitt (MURU, DAR 2243 - slide). The type collection consists of several thalli in addition to the holotype, mounted on five slides (MURU, DAR 2199, 2200, 2201, 2244, 2255).

## HERPOSIPHONIA

**Herposiphonia secunda** (C. Agardh) Ambron, 1880: 197.

*Hutchinsia secunda* C. Agardh, 1824: 149. *Type Locality*: Sicily, Mediterranean. *References*: Millar, 1990: 451-452, figs 68A-C. Huisman, 2000: 168. *Distribution*: Widespread in warmer

waters. Epiphytic on a variety of larger algae and seagrasses.

*Specimens*: Malus I., from 3.5m, epiphytic, 27.viii.1999, J.M.Huisman (MURU DAR 2248).

## LAURENCIA

**Laurencia majuscula** (Harvey) Lucas, 1935: 223.

*Laurencia obtusa* (Hudson) Lamouroux var. *majuscula* Harvey, 1863: xxvi. *Type Locality*: Rottnest Is., Western Australia. *References*: Saito & Womersley, 1974: 819-821; figs. 1A, 6. Cribb, 1983: 20, p1.37, fig. 3. Huisman, 2000: 171. *Distribution*: Widely distributed in tropical, subtropical and temperate Pacific and Indian Oceans. *Specimens*: Nelson Flats, 26.viii.1983, M.A.Borowitzka (MURU DA 185, 187-192). Sth side of West Lewis I., intertidal, 5.ix.1999, J.M.Huisman (MURU DAR 1805).

**Laurencia obtusa** (Hudson) Lamouroux, 1813: 29.

*Fucus obtusus* Hudson, 1778: 586. *Type Locality*: presumably Devon or Sussex, England. *Reference*: Saito, 1967: 5, text-figs. 1-5, pls. 1, 2. *Distribution*: Cosmopolitan in tropical and temperate waters. *Specimens*: Malus I., 22.i.1983, M.A.Borowitzka (MURU DA 172).

## LEVEILLEA

**Leveillea jungermannioides** (Hering & G. Martens) Harvey, 1855: 539.

*Amansia jungermannioides* Hering & G. Martens in G. Martens & Hering, 1836: 485. *Type Locality*: Tor, Sinai Peninsula, Egypt. *References*: Price & Scott, 1992: 196-198, fig 71A, B. Huisman, 2000: 173. *Distribution*: Widely distributed in tropical and subtropical Indo-west Pacific. Epiphytic on a variety of larger algae and seagrasses. *Specimens*: Tozier I., intertidal, 29.x.1998, J.M.Huisman (MURU DAR 522). Dolphin I., intertidal, 25.x.1998, J.M.Huisman & M.Vanderklift (MURU DAR 405). Nth side of Legendre I., snorkel, 18.x.1998, J.M.Huisman (MURU DAR 588).

## LOPHOCLADIA

**Lophocladia kuetzingii** (Kuntze) P. Silva in Silva *et al.*, 1996: 524.

*Dasya harveyi* Kützing, 1864: 26, pl. 71: figs e, f, *nom. illeg.* *Baillouviana kuetzingii* Kuntze, 1891: 885. *Type Locality*: Fremantle, Western Australia. *Reference*: Kützing, 1864: p1.71 e, f (as *Dasya harveyi*). *Distribution*: Western Australia; northern Papua New Guinea. *Specimens*: Conzinc I., on settling panel, ii.1984, J.Mercer (MURU DA 505).

## OSMUNDARIA

**Osmundaria melvillii** (J. Agardh) Norris, 1991: 10.

*Amansia melvillii* J. Agardh, 1885: 110. *Type Locality*: Mauritius. *Distribution*: Tropical waters of the Indo-Pacific. *Reference*: Norris, 1991: figs 8, 10-19. *Specimens*: Goodwyn I., intertidal, 31.viii.1999, J.M.Huisman (MURU DAR 1194; MURU DAR 1225; MURU DAR 1217). *Remarks*: Until recently this species was known as *Vidalia melvillii* (J. Agardh) Schmitz (1895: 140, 159-160). Norris (1991) subsumed *Vidalia* into *Osmundaria*, but that move has not met with general acceptance and unpublished studies (Kraft, pers. comm.) have cast doubt on its validity.

## POLYSIPHONIA

**Polysiphonia denudata** (Dillwyn) Greville ex Harvey, 1833: 332.

*Conferva denudata* Dillwyn, 1809 [1802-1809]: 85, suppl. pl. G. *Type Locality*: Southampton, England. *Reference*: Kapraun *et al.*, 1983: 885, figs 39,40. *Distribution*: Temperate and tropical

waters throughout the world (Kapraun *et al.*, 1983). *Specimens*: Lewis I., xi.1984, *J.Mercer* (MURU DA 506). Nelson Flats, xi.1984, *J.Mercer* (MURU DA 507). All on settling panels. *Remarks*: The specimens from the Dampier Archipelago are in agreement with the description given by Kapraun *et al.*, (1983), with the exception that they generally produce six pericentral cells as opposed to the 5(-6) described by those authors. Taylor (1960) described *P. denudata* as having six (rarely five to eight) pericentral cells.

**Polysiphonia ferulacea** Suhr ex J. Agardh, 1863 [1851-1863]: 980.

*Type Locality*: Several localities listed; lectotype needs selecting (Price & Scott, 1992). *Reference*: Price & Scott, 1992,: 202-204, fig. 73A-E. *Distribution*: Widely distributed, mostly in tropical seas. *Specimens*: Goodwyn I., intertidal, 31.viii.1999, *J.M.Huisman* (MURU DAR 2249).

**Polysiphonia herpa** Hollenberg, 1968a: 68, figs 1I, 2G.

*Type Locality*: Near Otetou, Raroia Atoll, Tuamotu Archipelago. *References*: Hollenberg, 1968a: 68, figs 1I, 2G. Abbott, 1999: 417, fig. 122E. *Distribution*: Tuamotu Archipelago, Hawaiian Is.; Line Is.; Marshall Is.; Dampier Archipelago. *Specimens*: Conzinc I., on settling panel, ii.1985, *J.Mercer* (MURU DA #142C).

**Polysiphonia infestans** Harvey, 1855: 539.

*Type Locality*: Princess Royal Harbour, King Georges Sound, Western Australia. *Reference*: Womersley 1979: 481, figs 6A-E. *Distribution*: From the Dampier Archipelago, Western Australia, around southern Australia to Port Phillip, Vic. and probably Lake King; northern (and probably eastern) Tasmania. Also known from Botany Bay, New South Wales. *Specimens*: Lewis Is., on settling panels, ii.198, *J.Mercer* (MURU DA 508).

**Polysiphonia pentamera** Hollenberg, 1968b: 204, fig. 20.

*Type Locality*: Eniwetok Atoll. *Reference*: Hollenberg, 1968b: 204, fig.20. *Distribution*: Hawaiian, Gilbert & Caroline Islands; East Indies; Vietnam; Dampier Archipelago. *Specimens*: Conzinc I., on settling panel, ii.1984, *J.Mercer* (MURU DA 509). *Remarks*: The current specimens are identical to the description given by Hollenberg (1968b). This is a new record for Australia.

**Polysiphonia scopulorum** Harvey, 1855: 540.

*Type Locality*: Rottnest I. Western Australia. *Reference*: Womersley, 1979: 467, figs 2A-E. *Distribution*: From the Dampier Archipelago, Western Australia, around southern Australia to Queensland. *Specimens*: Conzinc I., on settling panels, ii.1984, *J.Mercer* (MURU DA). Nelson Flats, on settling panels, v.1984, *J.Mercer* (MURU DA 510).

**Polysiphonia sertularioides** (Grateloup) J. Agardh, 1863[1851-1863]: 969.

*Ceramium sertularioides* Grateloup, 1806: [1], fig. IV. *Type Locality*: Cette, Golfe Du Lion, France. *Reference*: Womersley, 1979: 478, figs 5A-D. *Distribution*: Mediterranean; probably Australia-wide. *Specimens*: Conzinc I., on settling panels, ii.1984, *J.Mercer* (MURU DA 511). Nelson Flats, on settling panels, xi.1984, *J.Mercer* (MURU DA 512).

**Polysiphonia upolensis** Grunow, 1874: 49.

*Type Locality*: Upolu, Western Samoa. *References*: Hollenberg, 1968a: 94, figs 6D-E, 29, 35,

42. Cribb, 1983: 135, p1.69, figs 3-4. *Distribution*: Hawaiian, Fiji, Marshall, Gilbert, Caroline, Philippine, Mariana and Society Islands; Johnston Is., Tuomotu Archipelago; Vietnam, American Samoa; Dampier Archipelago; Queensland. *Specimens*: Conzinc I., on settling panels, ii.1984, *J.Mercer* (MURU DA 513).

### SPIROCLADIA

**Spirocladia barodensis** Børgesen, 1933: 3-16, figs 1-10.

*Type Locality*: Port Okha, Gujarat, India. *References*: Millar, 1990: 453-455, figs 70A-F. Huisman, 2000: 178. *Distribution*: From the Houtman Abrolhos, Western Australia, probably around northern Australia to Coffs Harbour, New South Wales; India. Epilithic in the subtidal. *Specimens*: South west of Rocky Head, Enderby I., from 14m depth, 6.ix.1999, *J.M.Huisman* (MURU DAR 1541).

### TOLYPIOCLADIA

**Tolytiocladia calodictyon** (Harvey ex Kützing) P. Silva, 1952: 308.

*Polysiphonia calodictyon* Harvey ex Kützing, 1864: 16, pl. 46: figs. a-c. *Type Locality*: Tonga. *Reference*: Weber van Bosse, 1923: 359-361, pl. X: figs 6-8. *Distribution*: Tropical Indian Ocean. *Specimens*: Enderby I., intertidal, 1.ix.1999, *J.M.Huisman* (MURU DAR 1512). Sth side of West Lewis I., intertidal, 5.ix.1999, *J.M.Huisman* (MURU DAR 1806).

**Tolytiocladia glomerulata** (C. Agardh) Schmitz in Schmitz & Falkenberg, 1897: 442.

*Hutchinsia glomerulata* C. Agardh, 1824: 158. *Type Locality*: Shark Bay, Western Australia. *References*: Price & Scott, 1992: 219-221, fig. 81A-D. Huisman, 2000: 179. *Distribution*: Widely distributed in tropical Indo-west Pacific. *Specimens*: East side of West Lewis I., from 5m depth, 4.ix.1999, *J.M.Huisman* (MURU DAR 1974). Enderby I. 2.ix.1999, *J.M.Huisman* (MURU DAR 2062).

## DIVISION CYANOPHYTA 'Blue-Green Algae'

### Order OSCILLATORIALES Family Oscillatoriaceae

### BLENNOTHRIX

**Blennothrix lyngbyacea** (Kützing) Anagnostidis & Komarek, 1988: 430.

*Hydrocoleum lyngbyaceum* Kützing, 1849: 259. *Type Locality*: Cherbourg, Manche, France. *Reference*: Littler & Littler, 2000: 460, 461. *Distribution*: Cosmopolitan. *Specimens*: South of Nelson Rocks, from 6m depth, 8.ix.1999, *J.M.Huisman* (DAR 2049)

### LYNGBYA

**Lyngbya confervoides** C. Agardh, 1824: 73.

*Type Locality*: Spain. *Reference*: Littler & Littler, 2000: 450, 451. *Distribution*: Cosmopolitan. *Specimens*: Rosemary I., from 12m depth, 28.viii.1999, *J.M.Huisman* (MURU DAR 1603). Georgeff Reef, from 4-5m depths, 29.viii.1999, *J.M.Huisman* (MURU DAR 1297).

**Lyngbya semiplena** (C. Agardh) J. Agardh, 1842: 11.

*Calothrix semiplena* C. Agardh, 1827: 634-635. *Type Locality*: Trieste, Italy. *Reference*: Littler

& Littler, 2000: 452, 453. *Distribution*: Cosmopolitan. *Specimens*: Goodwyn I., intertidal, 31.viii.1999, J.M.Huisman (MURU DAR 1253).

### Family Phormidiaceae

#### SYMPLOCA

**Symploca hydnoides** (Harvey) Kützing, 1849: 272.

*Calothrix hydnoides* Harvey, 1833: 368-369. *Type Locality*: Appin, Argyll, Scotland. *Reference*: Littler & Littler, 2000: 462, 463. *Distribution*: Cosmopolitan. *Specimens*: Kendrew I., from 12m depth, 30.viii.1999, J.M.Huisman (MURU DAR 1582a).

### Order STIGONEMATALES

#### Family Mastigocladaceae

### BRACHYTRICHIA

**Brachytrichia quoyi** (C. Agardh) Bornet & Flahault, 1886b [1886-1888]: 373.

*Nostoc quoyi* C. Agardh, 1824: 22. *Type Locality*: Mariana Islands. *Reference*: Littler & Littler, 2000: 478, 479. *Distribution*: Widespread in warmer seas. On intertidal rocks. *Specimens*: Enderby I., intertidal, 1.ix.1999, J.M.Huisman (MURU DAR 1525).

### DIVISION MAGNOLIOPHYTA

#### 'Seagrasses'

#### Family Hydrocharitaceae

### ENHALUS

**Enhalus acoroides** (Linnaeus f.) Royle, 1839: 377, 453.

*Stratiotes acoroides* Linnaeus f., 1782 ('1781'): 268. *Type Locality*: Not known. *References*: Hartog, 1970: fig. 60, pls 22, 23. Phillips & Meñez, 1988: 65, fig. 41. *Distribution*: Widespread in the tropical Indo-west Pacific. Generally in areas with a fine sand/mud substratum. *Specimens*: Channel north of Gidley I., 22.x.1998, J.M.Huisman & M.Vanderklift (MURU DAR 54).

### THALASSIA

**Thalassia hemprichii** (Ehrenberg) Ascherson, 1871: 242.

*Schizotheca hemprichii* Ehrenberg, 1832: 429. *Type Locality*: Massawa, Eritrea. *References*: Hartog, 1970: fig. 61, pls 25-27. Phillips & Meñez, 1988: 68, fig. 42. *Distribution*: Widespread in the Indo-West Pacific. *Specimens*: Nth side of Legendre I., from 1-2 m depth, 18 Oct 1998, J.M.Huisman (MURU DAR 844, 845). Channel between Angel and Gidley Is., from <1m depth, 20.x.1998, J.M.Huisman & M.Vanderklift (MURU DAR 888). Dolphin I., intertidal mud flats, 21.x.1998, J.M.Huisman & M.Vanderklift (MURU DAR 633). Island east of Sea Ripple Passage, intertidal, 28.x.1998, J.M.Huisman (MURU DAR 557). Goodwyn I., intertidal, 31.viii.1999, J.M.Huisman (MURU DAR 1238).

### HALOPHILA

**Halophila decipiens** Ostenfeld, 1902: 260.

*Type Locality*: Off Koh Kahdat, Gulf of Thailand. *References*: Robertson, 1984: 61, figs 10A, 11A-C. Phillips & Meñez, 1988: 70, figs 46, 47. Huisman, 2000: 283. *Distribution*: Widespread

in the Indo-West Pacific. *Specimens*: East Lewis I., 26.x.1983, *M.A.Borowitzka* (MURU DA 014-013). Burrup Peninsula, 26.i.1983, *M.A.Borowitzka* (MURU DA 2 & 6). Lewis I., 28.viii.1984, *M.A.Borowitzka* (MURU DA 341). Eagle Hawk I., from 10-11m depths, 3.ix.1999, *J.M.Huisman* (MURU DAR 1942). Approx. 1.3 n. miles W of Bluff Point, Enderby I., dredged from 9m depth, 27.vii.1999, *S.Slack-Smith & M.Hewitt* (MURU DAR 2121, 2189, 2208). Approx. 2.1 n. miles WSW of Marks Point, West Lewis I., dredged from 11-13m depths, 19.vii.1999, *S.Slack-Smith & M.Hewitt* (MURU DAR 2189). Approx. 2 n. miles SSE of Bluff Point, Enderby I., dredged from 10.5m depth, 23.vii.1999, *S.Slack-Smith & M.Hewitt* (MURU DAR 2208).

**Halophila minor** (Zollinger) Hartog, 1957: 410.

*Lemnopsis minor* Zollinger, 1854: 75. *Type Locality*: Flores, Lesser Sunda Is., Indonesia. *References*: Meñez *et al.*, 1983: 26, figs 19A-C, 20. Phillips & Meñez 1988: 77, fig. 52. *Distribution*: Tropical Indo-Pacific. *Specimens*: Tidepole I., from 2m depth, 26.x.1983, *W.Wood & R.Lethbridge* (MURU DA 9). Enderby I., intertidal, 2.ix.1999, *J.M.Huisman* (MURU DAR 2055). Sth end of West Lewis I., intertidal, 5.ix.1999, *J.M.Huisman* (MURU DAR 1813).

**Halophila ovalis** (R. Brown) J. D. Hooker, 1858: 45.

*Caulinia ovalis* R. Brown, 1810: 339. *Type Locality*: Thirsty Sound, Queensland, Australia (J. Kuo, pers. com.). *References*: Robertson, 1984: 61, figs 10B,C 11D-G. Phillips & Meñez, 1988: 78, figs 53. Huisman, 2000: 283. *Distribution*: Widely distributed in tropical and warm temperate waters of the Indo-Pacific. *Specimens*: Malus I., 22.i.1983, *M.A.Borowitzka* (MURU DA 3). Tidepole I., 26.x.1983, *W.Wood & R.Lethbridge* (MURU DA 4 & 5). East Lewis I., 26.x.1983, *M.A.Borowitzka* (MURU DA 6-7). Nelson Flats, 26.i.1985, *J.Mercer* (MURU DA 356). Georgeff Reef, from 4-5m depth, 29.viii.1999, *J.M.Huisman* (MURU DAR 1291).

**Halophila spinulosa** (R. Brown) Ascherson, 1875: 368.

*Caulinia spinulosa* R. Brown, 1810: 339. *Type Locality*: Queensland, Australia. Exact locality unknown. *References*: Meñez *et al.*, 1983: 33, figs 23A, B, 24. Phillips & Meñez, 1988: 78, figs 54, 55. *Distribution*: Tropical Indo-Pacific. From the tropics south to Jurien Bay, Western Australia. *Specimens*: Tidepole I., 26.x.1983, *W.Wood & R.Lethbridge* (MURU DA 11, 12 & 13).

## Family Cymodoceaceae

### CYMODOCEA

**Cymodocea angustata** Ostenfeld, 1916: 10-14.

*Type Locality*: Carnarvon, Western Australia. *References*: Hartog, 1970: 176, fig. 49d. Phillips & Meñez, 1988: 56, fig. 31. *Distribution*: Northwestern Australia. *Remarks*: Not observed in the present study, but recorded for the Dampier Archipelago/Cape Preston region by Walker & Prince (1987) and Osborne *et al.* (2000).

## HALODULE

**Halodule uninervis** (Forsskål) Ascherson, 1882: 24.

*Zostera uninervis* Forsskal, 1775: 157. *Type Locality*: unknown. *Reference*: Phillips & Meñez, 1988: 52, fig. 29. *Specimens*: East of Gidley I., intertidal, 19.x.1998, *J.M.Huisman* (MURU, DAR 955). Dolphin I., intertidal, 21.x.1998, *J.M.Huisman & M.Vanderklift* (MURU, DAR 962).

Island east of Sea Ripple Passage, intertidal, 28.x.1998, J.M.Huisman (MURU, DAR 564). Sth side of West Lewis I., intertidal, 5.ix.1999, J.M.Huisman (MURU DAR 1812). Enderby I., intertidal, 1.ix.1999, J.M.Huisman (MURU DAR 1474).

## SYRINGODIUM

**Syringodium isoetifolium** (Ascherson) Dandy in Dandy & Tandy, 1939: 116.

*Cymodocea isoetifolia* Ascherson, 1867: 3. *Type Locality*: unknown. *References*: Lanyon, 1986: 35, fig 12. Meñez et al. 1983: 18, figs 11A-D, 12. Huisman, 2000: 279. *Distribution*: Tropical Indo-West Pacific, extending down the Western Australian coastline as far as Garden Island. *Specimens*: East Lewis I., 26.x.1983, M.A.Borowitzka (MURU DA 67A, B, C).

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