

[illegible]

(as <i>Tuomeya fluviatilis</i> (Linnaeus) C. Agardh								0.3*	0.7*		
Lemaniaceae											
<i>Lemanea</i> sp.Ott #3								1.6*	3.1*		
<i>Lemanea</i> sp.Ott #4									3.2*		
<i>Paralemanea annulata</i> (Kützing) Vis et Sheath									3.2*		
<i>Paralemanea pleocarpa</i> (Atkinson) Vis et Sheath									2.0*		
BONNEMAISONIALES											
Bonnemaisoniaceae											
11	<i>Bonnemaisonia hamifera</i> Hariot	>40	28	588	0.6	1.3*	2.6	unp	Gallus	MI:DAPI	
CERAMIALES											
Ceramiaceae											
12	<i>Aglaothamnion boergesenia</i> (Aponte et Ballantine) L'Ardy-Halos et Rueness	60	9	1372	1.4	2.8*	5.6	14	Gallus	MI:DAPI	
(as <i>Callithamnion byssoides</i> Arnott ex Harvey)											
<i>Aglaothamnion callophyllidicola</i> Boo, I.K. Lee, Rueness et Yoshida						2.31*		Choi	Cap-Nic	NV:DAPI	
13	<i>Anotrithium multiramosum</i> (Setchell and Gardner) Baldock			394	0.4 ⁽¹⁾	0.8	1.5*	unp	Gallus	MI:DAPI	
<i>Antithamnion aglandum</i> Kim et I.K. Lee						1.35*		Choi	Cap-Nic	NV:DAPI	
<i>Antithamnion callocladum</i> Itono						1.42*		Choi	Cap-Nic	NV:DAPI	
<i>Antithamnion densum</i> Kylin						0.86*		Choi	Cap-Nic	NV:DAPI	
<i>Antithamnion nipponicum</i> Yamada et Inagaki						1.30*		Choi	Cap-Nic	NV:DAPI	
<i>Antithamnion sparsum</i> Tokida						1.94*		Choi	Cap-Nic	NV:DAPI	
14	<i>Antithamnion villosum</i> (Kützing) Athanasiadis in Maggs et Hommersand	48	11	980	1.0	2.0*	4.0	14	Gallus	MI:DAPI	
(as <i>Antithamnion cruciatum</i> (C. Agardh) Nägeli)											
15	<i>Centroceras clavulatum</i> (C. Agardh in Kunth) Montagne in Durieu de Maisonneuve			588	0.6 ⁽¹⁾	1.2*	2.4	unp	Gallus	MI:DAPI	
16	<i>Ceramium cimbricum</i> H. Petersen			392	0.4 ⁽¹⁾	0.8	1.6*	unp	Gallus	MI:DAPI	
17	<i>Ceramium strictum</i> Harvey			245	0.3	0.5*	1.0*	unp	Gallus	MI:DAPI	
18	<i>Crouania attenuata</i> (C. Agardh) J. Agardh			392	0.4 ⁽¹⁾	0.9*	1.8	unp	Gallus	MI:DAPI	
19	<i>Crouania pleonospora</i> W. Taylor			931	0.9 ⁽¹⁾	1.8*	3.3*	unp	Gallus	MI:DAPI	
<i>Pterothamnion yezoense</i> (Inagaki) Athanasiadis						0.45*		Choi	Cap-Nic	NV:DAPI	
20	<i>Spyridia filamentosa</i> (Wulfen) Harvey in Hooker			833	0.8 ⁽¹⁾	1.5*	3.0	unp	Gallus	MI:DAPI	
21	<i>Wrangelia penicillata</i> (C. Agardh) C. Agardh			931	0.9 ⁽¹⁾	1.8	3.6*	unp	Gallus	MI:DAPI	
Dasyaceae											
22	<i>Dasya baillouviana</i> (S. G. Gmelin) Montagne	40	34	490	0.5	1.0*	2.0	14	Gallus	MI:DAPI	
<i>Dasya collabens</i> Hooker et Harvey						0.45*		Choi	Cap-Nic	NV:DAPI	

23	<i>Dasya ocellata</i> (Grateloup) Harvey in Hooker			931	0.9 ⁽¹⁾	1.8	3.5*	unp	Gallus	MI:DAPI
	<i>Dasya villosa</i> Harvey					0.57*		Choi	Cap-Nic	NV:DAPI
24	<i>Heterosiphonia gibbesii</i> (Harvey) Falkenberg			394	0.4 ⁽¹⁾	0.8*	1.6	unp	Gallus	MI:DAPI
	<i>Heterosiphonia japonica</i> Yendo					0.4*		Choi	Cap-Nic	NV:DAPI
	<i>Heterosiphonia pulchra</i> (Okamura) Falkenberg					0.51*		Choi	Cap-Nic	NV:DAPI
	Delesseriaceae									
25	<i>Caloglossa leprieurii</i> (Montagne) J. Agardh			590	0.6	1.2*	2.4*	unp	Gallus	MI:DAPI
26	<i>Calonitophyllum medium</i> (Hoyt) Aregood			690	0.7 ⁽¹⁾	1.4	2.9*	unp	Gallus	MI:DAPI
27	<i>Grinnellia americana</i> (C. Agardh) Harvey			588	0.6 ⁽¹⁾	1.2	2.4*	unp	Gallus	MI:DAPI
28	<i>Hypoglossum tenuifolium</i> (Harvey) J. Agardh			586	0.7 ⁽¹⁾	1.4	2.9*	unp	Gallus	MI:DAPI
29	<i>Martensia fragilis</i> Harvey			394	0.4 ⁽¹⁾	0.9*	1.8	unp	Gallus	MI:DAPI
	Rhodomelaceae									
30	<i>Acanthophora spicifera</i> (Vahl) Børgesen	64	6	490	0.5	1.1*	2.1*	unp	Gallus	MI:DAPI
31	<i>Bostrychia moritziana</i> (Sonders) J. Agardh			690	0.7 ⁽¹⁾	1.3	2.7*	unp	Gallus	MI:DAPI
32	<i>Bostrychia radicans</i> (Montagne) Montagne			931	0.9 ⁽¹⁾	1.8	3.5*	unp	Gallus	MI:DAPI
33	<i>Bryothamnion seaforthii</i> (Turner) Kützing			490	0.5 ⁽¹⁾	1.0*	2.0	unp	Gallus	MI:DAPI
34	<i>Chondria dasyphylla</i> (Woodward) C. Agardh	62	32	490	0.5	1.0*	2.0	14	Gallus	MI:DAPI
35	<i>Chondria littoralis</i> Harvey			490	0.5	1.1*	2.2	14	Gallus	MI:DAPI
36	<i>Laurencia papillosa</i> (C. Agardh) Greville	40	38	833	0.8 ⁽¹⁾	1.6*	3.1*	unp	Gallus	MI:DAPI
37	<i>Murrayella pericladus</i> (C. Agardh) Schmitz			586	0.7 ⁽¹⁾	1.4	2.8*	unp	Gallus	MI:DAPI
38	<i>Polysiphonia boldii</i> Wynne et Edwards			833	0.8	1.7*	3.4	13	Gallus	MI:DAPI
39	<i>Polysiphonia denudata</i> (Dillwyn) Greville ex Harvey in Hooker	60	13	931	0.9	1.9*	3.8	13	Gallus	MI:DAPI
40	<i>Polysiphonia elongata</i> (Hudson) Sprengel	74	1	637	0.7	1.3*	2.6	13	Gallus	MI:DAPI
41	<i>Polysiphonia harveyi</i> Bailey	64	10	1029	1.1	2.1*	4.2	13	Gallus	MI:DAPI
42	<i>Polysiphonia nigrescens</i> (Hudson) Greville	60	1	539	0.6	1.1*	2.2	13	Gallus	MI:DAPI
43	<i>Polysiphonia opaca</i> (C. Agardh) Moris et De Notaris	60	1	784	0.8	1.6*	3.2	13	Gallus	MI:DAPI
44	<i>Polysiphonia sphaerocarpa</i> Børgesen			539	1.1	2.2*	4.4	13	Gallus	MI:DAPI
45a	<i>Polysiphonia urceolata</i> Lightfoot ex Dillwyn (NC)	60	13	392	0.4	0.8*	1.6	13	Gallus	MI:DAPI
45b	<i>P. urceolata</i> Lightfoot ex Dillwyn(NO)			784	0.8	1.6*	3.2	13	Gallus	MI:DAPI
46	<i>Polysiphonia violacea</i> (Roth) Sprengel	32	33	833	0.8	1.7*	3.4	13	Gallus	MI:DAPI

COLACONEMATALES¹

Colaonemataceae

47	<i>Colaonema daviesii</i> (Dillwyn) Stegenga (= <i>Audouinella daviesii</i> (Dillwyn) Woelkerling)			294	0.3 ⁽¹⁾	0.6*	1.2	unp	Gallus	MI:DAPI
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COMPSOPOGONALES²

Compsopogonaceae									
48	<i>Compsopogon coerulus</i> (C. Agardh) Montagne	c. 14	30	98	0.1	0.2	0.4	unp	Gallus MI:DAPI
CORALLINALES									
Corallinaceae									
49	<i>Amphiroa beauvoisii</i> Lamouroux			343	0.3	0.7*	1.4	2	Gallus MI:DAPI
50	<i>Amphiroa zonata</i> Yendo			294	0.3	0.6*	1.2	2	Gallus MI:DAPI
51	<i>Bossiella orbigniana</i> ssp. <i>dichotoma</i> (Manza) Johansen			588	0.6	1.2*	1.4	2	Gallus MI:DAPI
52	<i>Calliarthron tuberculosum</i> (Postels et Ruprecht) Dawson			637	0.6	1.3*	1.6	2	Gallus MI:DAPI
53	<i>Cheilosporum sagittatum</i> (Lamouroux) Areschoug			343	0.3	0.7*	1.4	2	Gallus MI:DAPI
54	<i>Corallina officinalis</i> Linnaeus	48	36	588	0.6	1.2*	2.4	2	Gallus MI:DAPI
55	<i>Corallina vancouveriensis</i> Yendo			637	0.6	1.3*	2.6	2	Gallus MI:DAPI
56	<i>Heydrichia wolkerlingii</i> Townsend, Chamberlain et Woelkerling			69	0.1	0.1*	0.2	2	Gallus MI:DAPI
57	<i>Heydrichia</i> sp.			98	0.1	0.2*	0.4	2	Gallus MI:DAPI
58	<i>Jania adhaerens</i> Lamouroux			539	0.6	1.1*	2.2	2	Gallus MI:DAPI
59	<i>Leptophytum ferox</i> (Foslie) Chamberlain et Keats			98	0.1	0.2*	0.4	2	Gallus MI:DAPI
60	<i>Lithothrix aspergillum</i> Gray			343	0.3	0.7*	1.4	2	Gallus MI:DAPI
61	<i>Mesophyllum discrepans</i> Foslie			118	0.1	0.2 *	0.4	2	Gallus MI:DAPI
62	<i>Metagoniolithon radiatum</i> (Lamarck) Ducker			343	0.3	0.7*	1.4	2	Gallus MI:DAPI
63	<i>Neogoniolithon spectabile</i> (Foslie) Setchell et Mason			394	0.4 ⁽¹⁾	0.8	1.5*	*	Gallus MI:DAPI
64	<i>Spongites yendoii</i> (Foslie) Chamberlain			147	0.1	0.3*	0.6	2	Gallus MI:DAPI
65	<i>Titanoderma polycephalum</i> Foslie			196	0.2	0.4 *	0.8	2	Gallus MI:DAPI
66	<i>Titanoderma pustulatum</i> (Lamouroux) Nägeli			490	0.5	1.0*	2.0	2	Gallus MI:DAPI
CYANIDIALES									
	<i>Cyanidioschyzon merolae</i> P.DeLuca, R.Taddei et L.Varano	40	M-04	17*				M-93	PFGE
	<i>Cyanidioschyzon merolae</i>			12*				T-93	PFGE
	<i>Cyanidium caldarium</i> (Tilden) Geitler		M-01	12*				S-92	Fe
	<i>Galdieria maxima</i> O. Yu Sentsova	4	M-01		*			M-01	Sac Fe
	<i>Galdieria partita</i> O. Yu Sentsova	4	M-01		*			M-01	Sac Fe
	<i>Galdieria sulphuraria</i> (Galdieri) Merola	4	M-01		*			M-01	Sac Fe
	<i>Galdieria sulphuraria</i>			10*				M-94	PFGE
ERYTHROPELTIDALES									
5	<i>Erythrotrichia carnea</i> (Dillwyn) J. Agardh			295	0.3	0.7*	1.4	unp	Gallus MI:DAPI
GELIDIALES									
Gelidiaceae									
67	<i>Gelidiella acerosa</i> (Forsskål) Feldmann et Hamel	12	23	147	0.2	0.3*	0.6*	23	Gallus MI:DAPI

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GRACILARIALES

Gracilariaceae

87	<i>Gracilaria arcuata</i> Zanardini			186	0.2	0.4*	0.8*	24	Gallus	MI:DAPI
88	<i>Gracilaria blodgettii</i> Harvey			186	0.2	0.4*	0.8*	27	Gallus	MI:DAPI
89	<i>Gracilaria caudata</i> J. Agardh			196	0.2	0.4*	0.8	27	Gallus	MI:DAPI
90	<i>Gracilaria cervicornis</i> (Turner) J. Agardh			196	0.2	0.4*	0.8	27	Gallus	MI:DAPI
91	<i>Gracilaria divaricata</i> Harvey			196	0.2	0.4*	0.8	27	Gallus	MI:DAPI
92	<i>Gracilaria eucheumoides</i> Harvey			206	0.2	0.4*	0.8	24	Gallus	MI:DAPI
93	<i>Gracilaria firma</i> Zhang et Xia			196	0.2	0.4*	0.8	24	Gallus	MI:DAPI
94	<i>Gracilaria flabelliforme</i> P. Crouan et H. Crouan ex Schramm et Maze	48	12	191	0.2	0.4*	0.8	12	Gallus	MI:DAPI
95	<i>Gracilaria mammillaris</i> (Montagne) M. A. Howe	48	12	196	0.2	0.4*	0.8	12	Gallus	MI:DAPI
96	<i>Gracilaria pacifica</i> Abbott	48	4,12	196	0.2	0.4*	0.8	12	Gallus	MI:DAPI
97	<i>Gracilaria salicornia</i> (C. Agardh) E. Y. Dawson			191	0.2	0.4*	0.8*	24	Gallus	MI:DAPI
98	<i>Gracilaria tikvahiae</i> McLachlan	48	29	191	0.2	0.4*	0.8	12	Gallus	MI:DAPI
99	<i>Gracilaria verrucosa</i> (Hudson) Papenfuss	48	3	147	0.2	0.3*	0.6	12	Gallus	MI:DAPI
100	<i>Gracilaria</i> sp. (NC)			196	0.2	0.4	0.8*	unp	Gallus	MI:DAPI
101	<i>Gracilariopsis bailinae</i> Zhang et Xia			196	0.2	0.4*	0.8*	24	Gallus	MI:DAPI
102	<i>Gracilariopsis carolinensis</i> Liao et Hommersand (as <i>Gracilariopsis lemaneiformis</i> (Bory) Dawson, Acleto et Foldvik)	64	12	196	0.2	0.4*	0.8	12	Gallus	MI:DAPI
103	<i>Gracilariopsis tenuifrons</i> (Bird et Oliveira) Fredericq et Hommersand	64	12	196	0.2	0.4*	0.8	12	Gallus	MI:DAPI
104	<i>Hydropuntia cornea</i> (J. Agardh) Wynne			245	0.2	0.5*	1.0	12	Gallus	MI:DAPI
105	<i>Hydropuntia dentata</i> (J. Agardh) Wynne			196	0.2	0.4*	0.8	12	Gallus	MI:DAPI
106	<i>Hydropuntia fastigiata</i> (Zhang et Xia) Wynne			196	0.2	0.4*	0.8	24	Gallus	MI:DAPI

HALYMENIALES³

Halymeniaceae

107	<i>Grateloupia filicina</i> (Lamouroux) C. Agardh			196	0.2 ^{*(1)}	0.4	0.8	unp	Gallus	MI:DAPI
108	<i>Halymenia floridana</i> J. Agardh			196	0.2 ^{*(1)}	0.4	0.8	unp	Gallus	MI:DAPI

NEMALIALES

Galaxauraceae

109	<i>Galaxaura rugosa</i> (Ellis et Solander) Lamouroux			1084	1.1 ⁽¹⁾	2.3	4.6	unp	Gallus	MI:DAPI
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Helminthocladiaceae

Cumagloia andersonii (Farlow) Setchell et Gardner

Nemaliaceae

Nemalion multifidum (F. Weber et D. Mohr) Endlicher

PALMARIALES										
Palmariaaceae										
110	<i>Palmaria palmata</i> (Linnaeus) Kuntze	38-48	37	794	0.8 ⁽¹⁾	1.6*	3.3*	unp	Gallus	MI:DAPI
PORPHYRIDIALES I										
	<i>Rhodella violacea</i> (Kornmann) Wehrmeyer					0.4*				
PORPHYRIDIALES II										
	<i>Chroodactyolon ornatum</i> (C.Agardh) Basson									
	<i>Goniotrichopsis sublittoralis</i> G. M. Smith									
	<i>Rhodosorus marinus</i> Geitler					0.4*				
PORPHYRIDIALES III										
	<i>Flintiella sanguinaria</i> F. D. Ott					0.4*				
	<i>Porphyridium cruentum</i> (S. F. Gray) Nägeli					0.2				
RHODYMENIALES										
Rhodymeniaceae										
111	<i>Champia parvula</i> (C. Agardh) Harvey	24	14	196	0.2	0.4*	0.8	14	Gallus	MI:DAPI
112	<i>Lomentaria baileyana</i> (Harvey) Farlow	20	14	196	0.2	0.3*	0.6	14	Gallus	MI:DAPI
113	<i>Rhodymenia pseudopalmata</i> (Lamouroux) Silva	20	14	294	0.3	0.5*	1.0	14	Gallus	MI:DAPI
THOREALES										
	<i>Thorea reikei</i> Bischoff					0.7			Gallus	MI:DAPI

¹Recent molecular investigations have demonstrated that algae previously referred to as 'acrochaetoid' are not a natural assemblage, but include filamentous forms allied with at least three groups in the Bangiophycidae: 1) the Batrachospermales and sister groups (Pueschele *et al.*, 2000), the Acrochaetales (Saunders *et al.*, 1995; Harper and Saunders, 1998) which are allied with the Palmariales (Figure 13), and the newly recognized Colaonematales (Harper and Saunders, 2002) which are weakly allied with the Nemaliales.

²The relationship of the Compsopogonales to other Bangiophycidae remains under investigation (Harper and Saunders, 1998; Viset *et al.*, 1998; Müller *et al.*, 2002).

³Kraft and Robbins (1985) proposed merging the Cryptonemiales and Gigartinales. Neither the traditional classification (Kylin, 1956) nor the proposed merger is supported by *rbcL* data (Freshwater *et al.*, 1994). Instead, most families previously included in the Cryptonemiales form a monophyletic clade within the Gigartinales. The central family of the former order Cryptonemiales, Halymeniaceae, is now treated as an order (Huisman *et al.*, 2003).