

**Porifera of New Caledonia.
Remarks on the check list of shallow water species**

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Prior to a concerted taxonomic program on the New Caledonian shallow-water sponge fauna, Claude Lévi suggested (presumably from existing collections he had available to him at that time), that 157 species of sponges inhabited the New Caledonian Lagoon and shelf region (Lévi, 1979). He further predicted that most were probably 'widely distributed' tropical Indo-west Pacific species, with only a minor endemic component in this fauna (less than 20% of the fauna). This contrasted greatly with the (at that time) better-known deeper-water sponge fauna which was found to have levels of endemism around 75%. Further details on the biogeography and affinities of the New Caledonian sponge fauna can be found in Hooper & Lévi (1994).

Since Lévi's 1979 predictions the published New Caledonian shallow water sponge fauna (0-100 m depth) now consists of 149 species in 94 genera, 54 families, 10 orders and two classes (Demospongiae and Calcarea), and a much higher level of endemism than previously recognised. Of course, this diversity represents only a small proportion of species actually living in the region, as evidenced by the huge collections made during the SMIB and other research programs of IRD (ORSTOM), but unfortunately taxonomic resources are not available to complete a full faunal inventory, including description of potentially many more new species. Remarkably 60 of these 149 species, or 40%, are either indigenous to New Caledonia (the majority of these), or were first described from New Caledonia and subsequently recorded from the northeast coast of Australia (so far only several Microcionidae species). Of the species that have more extensive distributions outside of the New Caledonian EEZ, eight are recorded elsewhere in the western Pacific islands (e.g. Fiji, Micronesia), 35 are also found in Australian waters (mostly the Great Barrier Reef), nine also occur in the Indo-Malay Archipelago. 26 are more widely distributed in the western Indian Ocean (e.g. Sri Lanka to the Red Sea), and seven are allegedly 'cosmopolitan' (e.g. Mediterranean, Caribbean) but these are also possible misidentifications or cryptic sibling species that cannot be differentiated using morphological criteria. Surprisingly the fauna has very little overlap (one species) with the New Zealand fauna.

Several highly speciose families are so far very under-represented in the New Caledonian sponge inventory (e.g. Chalinidae, Mycalidae, Halichondriidae, Irciniidae, Niphatidae), indicating that much taxonomic work still remains to be done. Conversely, several of the rare, highly ecologically specialised families are well represented in this inventory (e.g. Minchinellidae, some of the cryptic coral-dwelling calcareans), but this rather reflects a particular taxonomic expertise available at the time rather than any major peculiarities in the sponge fauna. Finally, the Porifera research community is indeed fortunate to have benefited from the resources of IRD (ORSTOM), CNRS and the MNHN Paris that enabled a concerted international taxonomic effort to be applied to the New Caledonian sponge fauna, particularly during the 1990s, and which culminated in the publication of the popular field guide 'Sponges of the New Caledonian Lagoon' (Lévi *et al.*, 1998).

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List of the PORIFERA of New Caledonia (0-100 m)

(Following the name of each species, the locality of the first description)

ACANTHOCHAETETIDAE Fischer, 1970

Acanthochaetetes wellsi Hartman & Goreau, 1975 (Marianas)

ACARNIDAE Dendy, 1922

Acarnus caledoniensis Hooper & Lévi, 1993 (New Caledonia)

AGELASIDAE Verrill, 1907

Agelas ceylonica Dendy, 1905 (Gulf of Manaar)

Agelas mauritiana (Carter, 1883) (Mauritius)

ANCORINIDAE Schmidt, 1870

Asteropus simplex (Dendy, 1905) (Western Australia)

Ecionemia acervus Bowerbank, 1864 (Fiji)

Jaspis splendens (de Laubenfels, 1954) (Micronesia)

Rhabdastrella globostellata (Carter, 1879) (Sri Lanka)

APLYSINELLIDAE Bergquist, 1980

Porphyria flintae Bergquist, 1995 (New Caledonia)

Suberea creba Bergquist, 1995 (New Caledonia)

Suberea laboutei Bergquist, 1995 (New Caledonia)

ASTROCLERIDAE Lister, 1900

Astroclera willeyana Lister, 1900 (Christmas Island)

Stromatospongia micronesica Hartman & Goreau, 1976 (Micronesia)

AXINELLIDAE Ridley & Dendy, 1887

Cymbastela cantharella (Lévi, 1983) (New Caledonia)

Cymbastela concentrica (Lendenfeld, 1887) (East Australia)

Phakellia stipitata (Carter, 1881) (Bass Strait)

Dragmacidon debitusae (Hooper & Lévi, 1993) (New Caledonia)

Ptilocaulis epakros Hooper & Lévi, 1993 (New Caledonia)

Ptilocaulis fusiformis Lévi, 1967 (New Caledonia)

Phycopsis papillatus (Hooper & Lévi, 1993) (New Caledonia)

Reniochalina condylia Hooper & Lévi, 1993 (New Caledonia)

CALLYSPONGIIDAE de Laubenfels, 1936

Callyspongia aerizusa Desqueyroux-Faundez, 1984 (New Caledonia)

Callyspongia azurea Fromont, 1995 (GBR)

Callyspongia bullata (Lamarck, 1813) (Aust.)

Callyspongia (Cladochalina) diffusa (Ridley, 1884) (Northern Australia)

Callyspongia flammea Desqueyroux-Faundez, 1984 (New Caledonia)

Callyspongia fruticosa Desqueyroux-Faundez, 1984 (New Caledonia)

Callyspongia hispidonulosa Desqueyroux-Faundez, 1984 (New Caledonia)

Callyspongia (Cladochalina) subarnügera (Ridley, 1884) (N. Aust.)

CHALINIDAE Gray, 1867

Haliclona (Gellius) cymaeformis (Esper, 1794) (Sri Lanka)

Haliclona olivacea Fromont, 1995 (Great Barrier Reef)

Haliclona sanguinea Fromont, 1995 (GBR)

Haliclona tyria Fromont, 1995 (GBR)

CHONDRILLIDAE Gray, 1872

Chondrilla australiensis Carter, 1873 (Australia)

CLATHRINIDAE Minchin, 1900

Clathrina chrysea Borojevic & Klautau, 2000 (New Caledonia)

CLIONAIDAE d'Orbigny, 1851

Cliona orientalis Thiele, 1900 (Ternate)

Cliona jullieni Topsent, 1891 (La Réunion)

COELOSPHAERIDAE Hentschel, 1923

Lissodendoryx (Waldoschmittia) schmidti (Ridley, 1884) (New South Wales)

CRELLIDAE Hentschel, 1923

Crella (Grayella) papillata (Lévi, 1958) (Red Sea)

Crella (Yvesia) spinulata (Hentschel, 1911) (WA)

DARWINELLIDAE Merejkowsky, 1879

Chelonaplysilla aurea Bergquist, 1995 (New Caledonia)

Dendrilla rosea Lendenfeld, 1883 (S. Aust.)

DESMACELLIDAE Ridley & Dendy, 1886

Neofibularia hartmani Hooper & Lévi, 1993 (New Caledonia)

DESMOXYIDAE Hallmann, 1917

Higginsia anfractuosa Hooper & Lévi, 1993 (New Caledonia)

Higginsia massalis Carter, 1885 (South Africa)

Higginsia tanekea Hooper & Lévi, 1993 (New Caledonia)

Myrnekioderma granulatum (Esper, 1794) (Indonesia)

DICTYODENDRILLIDAE Bergquist, 1980

Acanthodendrilla australis Bergquist, 1995 (New Caledonia)

Dendrilla elegans Lendenfeld, 1888 (Aust.)

DICTYONELLIDAE Van Soest, Diaz & Pomponi, 1990

Acanthella pulcherrima Ridley & Dendy, 1886 (N Aust.)

Liosina paradoxa Thiele, 1899 (Sulawesi)

Rhaphoxya systemma Hooper & Lévi, 1993 (New Caledonia)

Stylissa carteri (Dendy, 1889) (India)

Stylissa flabelliformis (Hentschel, 1912) (Aru Island)

Stylissa massa (Carter, 1887) (Mergui)

DYSIDEIDAE Gray, 1867

Citronia vasiformis Bergquist, 1995 (New Caledonia)

Dysidea arenaria Bergquist, 1965 (Palau)

Dysidea frondosa Bergquist, 1995 (New Caledonia)

Dysidea nigrescens Bergquist, 1995 (New Caledonia)

Euryspongia delicatula Bergquist, 1995 (New Caledonia)

Lamellodysidea herbacea (Keller, 1889) (Eritrea)

HALICHONDRIIDAE Vosmaer, 1887

Axinyssa aplysinoides (Dendy, 1921) (Carajos)

HETEROPIIDAE Dendy, 1892

Syconessa syconiformis (Borojevic, 1967) (New Caledonia)

Syccettusa tenuis Borojevic & Klautau, 2000 (New Caledonia)

Vosmaeropsis hozawai Borojevic & Klautau, 2000 (Brazil)

HYMEDESMIIDAE Topsent, 1928

Hamigera strongylata (Burton, 1934) (GBR)

IANTHELLIDAE Hyatt, 1875

Anomoianthella rubra Bergquist, 1995 (New Caledonia)

Ianthella basta (Pallas, 1766) (Indian Ocean)

IOTROCHOTIDAE Dendy, 1922

Iotrochota baculifera Ridley, 1884 (N. Aust.)

IRCINIIDAE Gray, 1867

Ircinia irregularis (Poléjaeff, 1884) (Irian Jaya)

Psanmocinia bulbosa Bergquist, 1995 (New Caledonia)

JENKINIDAE Borojevic, Boury-Esnault & Vacelet, 2000

Anamixilla torresi (Poléjaeff, 1883) (N. Aust.)

Leucascandra caveolata Borojevic & Klautau, 1998 (New Caledonia)

LELAPIELLIDAE Borojevic, Boury-Esnault & Vacelet, 1990

Lelapiella incrustans Vacelet, 1977 (Madagascar)

LEPIDOLEUCONIDAE Vacelet, 1967

Lepidoleucon inflatum Vacelet, 1967 (Madagascar)

LEUCALTIDAE Dendy & Row, 1913

Leucaltis clathria Haeckel, 1872 (Florida) [doubtful ID]

LEUCASCIDAE Dendy, 1892

Leucascus neocaledonicus Borojevic & Klautau, 2000 (New Caledonia)

LEUCETTIDAE de Laubenfels, 1936

Leucetta chagosensis Dendy, 1913 (Seychelles)

Leucetta grisea (Dendy & Frederick, 1924) (WA)

Leucetta microraphis Haeckel, 1872 (Medit.)

Pericharax heteroraphis Poléjaeff, 1883 (Tristan de Cunha)

MERLIIDAE Kirkpatrick, 1908

Merlia deficiens Vacelet, 1980 (Medit.)

Merlia normani Kirkpatrick, 1908 (Madiera)

MICROCIONIDAE Carter, 1875

Clathria (Clathria) bulbosa Hooper & Lévi, 1993 (New Caledonia)

Clathria (Clathria) kylista Hooper & Lévi, 1993 (New Caledonia)

Clathria (Clathria) menoui Hooper & Lévi, 1993 (New Caledonia)

Clathria (Thalysias) araiosa Hooper & Lévi, 1993 (New Caledonia)

Clathria (Thalysias) corneolia Hooper & Lévi, 1993 (New Caledonia)

Clathria (Thalysias) flabellifera Hooper & Lévi, 1993 (New Caledonia)

Clathria (Thalysias) hirsuta Hooper & Lévi, 1993 (New Caledonia & GBR)

Clathria (Thalysias) vulpina (Lamarck, 1814) (Aust.)

Clathria (Wilsonella) australiensis Carter, 1885 (Port Philip)

Clathria (Wilsonella) litos Hooper & Lévi, 1993 (New Caledonia)

Clathria (Wilsonella) rugosa Hooper & Lévi, 1993 (New Caledonia)

Echinochalina (Echinochalina) intermedia (Whitelegge, 1902) (E. Aust.)

Echinochalina (Protophlitaspongia) bargibanti Hooper & Lévi, 1993 (New Caledonia)

Echinochalina (Protophlitaspongia) laboutei Hooper & Lévi, 1993 (New Caledonia)

MINCHINELLIDAE Dendy & Row, 1913

Minchinella kirkpatricki Vacelet, 1981 (New Caledonia)

Plectroninia hindei Kirkpatrick, 1900 (Funafuti)

Plectroninia lepidophora Vacelet, 1981 (New Caledonia)

Plectroninia microstyla Vacelet, 1981 (New Caledonia)

Plectroninia minima Vacelet, 1967 (Madagascar)

Plectroninia novaecaledoniense Vacelet, 1981 (New Caledonia)

Plectroninia tecta Vacelet, 1967 (Madagascar)

Plectroninia tetractinosa Vacelet, 1981 (New Caledonia)

Plectroninia vasseuri Vacelet, 1967 (Madagascar)

Tulearinia stylifera Vacelet, 1977 (Madagascar)

MURRAYONIDAE Dendy & Row, 1913

Murrayona phanolepis Kirkpatrick, 1910 (Christmas I.)

MYCALIDAE Lundbeck, 1905

Mycale (Zygonyscale) parishii (Bowerbank, 1875) (Malaysia)

NIPHATIDAE van Soest, 1980

Amphimedon compressa Duchassaing & Michelotti, 1864 (Caribbean) [doubtful ID]

Gelliodes carnosa Dendy, 1889 (India)

Gelliodes fibulata (Carter, 1881) (Bass Strait)

Gelliodes persica Fromont, 1995 (GBR)

Niphates erecta Duchassaing & Michelotti, 1864 (Caribb.) [doubtful ID]

PARAMURRAYONIDAE Vacelet, 1967

Paramurrayona corticata Vacelet, 1967 (Madagascar)

PETROSIIDAE van Soest, 1980

Petrosia (Petrosia) capsu Desqueyroux-Faundez, 1987 (New Caledonia)

Xestospongia bergquistia Fromont, 1995 (GBR)

Neopetrosia exigua (Kirkpatrick, 1900) (Christmas I)

PHLOEODICTYIDAE Carter, 1882

Oceanapia tenuis Desqueyroux-Faundez, 1987 (New Caledonia)

PODOSPONGIIDAE de Laubenfels, 1936

Diacarnus levii Kelly-Borges & Vacelet, 1996 (New Caledonia)

POLYMASTIIDAE Gray, 1867

Polymastia tropicalis Lévi, 1967 (New Caledonia)

PSEUDOCERATINIDAE Carter, 1885

Pseudoceratina verrucosa Bergquist, 1995 (New Caledonia)

RASPAILIIDAE Hentschel, 1923

Ceratopsion clavatum (Thiele, 1898) (Japan)

Ceratopsion expansa (Thiele, 1898) (Japan)

Ceratopsion palmatum Hooper, 1991 (N. Aust.)

Raspailia (Raspaxilla) clathrioides (Lévi, 1967) (New Caledonia)

Raspailia (Raspailia) wilsoni Hooper, 1991 (N. Aust.)

SPIRASTRELLIDAE Ridley & Dendy, 1886

Sphaciospongia inconstans (Dendy, 1887) (India)

Sphaciospongia vagabunda (Ridley, 1884) (N. Aust.)

SPONGIIDAE Gray, 1867

Carteriospongia delicata Pulitzer-Finali, 1982 (GBR)

Coscinodermia mathewsi (Lendenfeld, 1886) (Micronesia)

Leiosella ramosa Bergquist, 1995 (New Caledonia)

Phyllospongia papyracea (Esper, 1794) (Indian O.)

Spongia (Spongia) australis Bergquist, 1995 (New Caledonia)

SPONGILLIDAE Van Soest, 1980

Pachyrotula raceki (Rutzler, 1968) (New Caledonia)

SYCETTIDAE Dendy, 1892

Sycon gelatinosum (Blainville, 1847) (Aust.)

TETHYIDAE Gray, 1848

Tethya japonica Sollas, 1888 (Philippines)

Tethya sollasi Bergquist & Kelly-Borges, 1991 (NZ)

Tethya topsenti Sara, Bavestrello & Calcinai, 2000 (New Caledonia)

TETILLIDAE Sollas, 1886

Cinachyrella schulzei (Keller, 1891) (Aden)

Cinachyrella tenuiviolacea (Pulitzer-Finali, 1982) (GBR)

THORECTIDAE Bergquist, 1978

Fascaplysinopsis reticulata (Hentschel, 1912) (Aru I)

Hyrtios erectus (Keller, 1889) (Eritrea)

Hyrtios reticulatus (Thiele, 1899) (Indonesia)

Luffariella caliculata Bergquist, 1995 (New Caledonia)

Luffariella cylindrica Bergquist, 1995 (New Caledonia)

Petrosaspongia nigra Bergquist, 1995 (New Caledonia)

TRACHYCLADIDAE Hallmann, 1917

Trachycladus digitatus Lendenfeld, 1887 (E. Aust.)

VERTICILLITIDAE Steinmann, 1882

Vaceletia crypta (Vacelet, 1977) (Madagascar)



Aka sp.

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Chlathria rugosa

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Dactyllia delicata

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Hamigera strongylata

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Lamellodysidea herbacea

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Liosina paradoka

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Lissodendouyx schmidti

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Lufariella cylindrica

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Myrmekioderma sp.

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Petrosia capsa

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Phakellia cavernosa

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Phyllospongia papyracca

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Psammocora sp.

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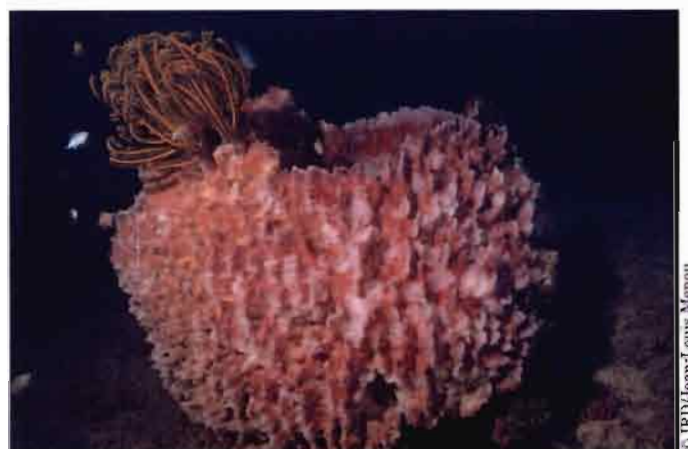
Sphaciospongia vagabunda

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Sycon sp.

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Xetospongia berquista

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