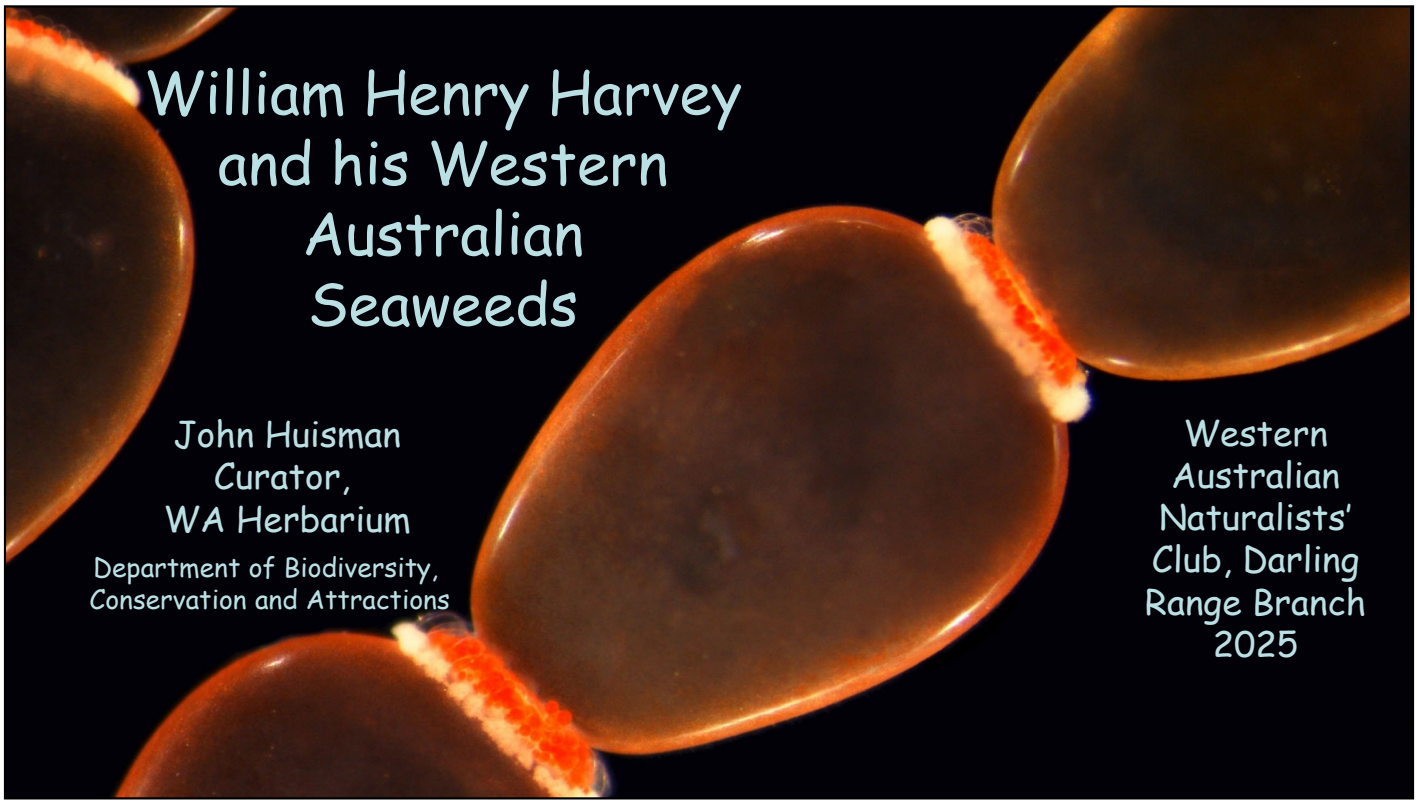
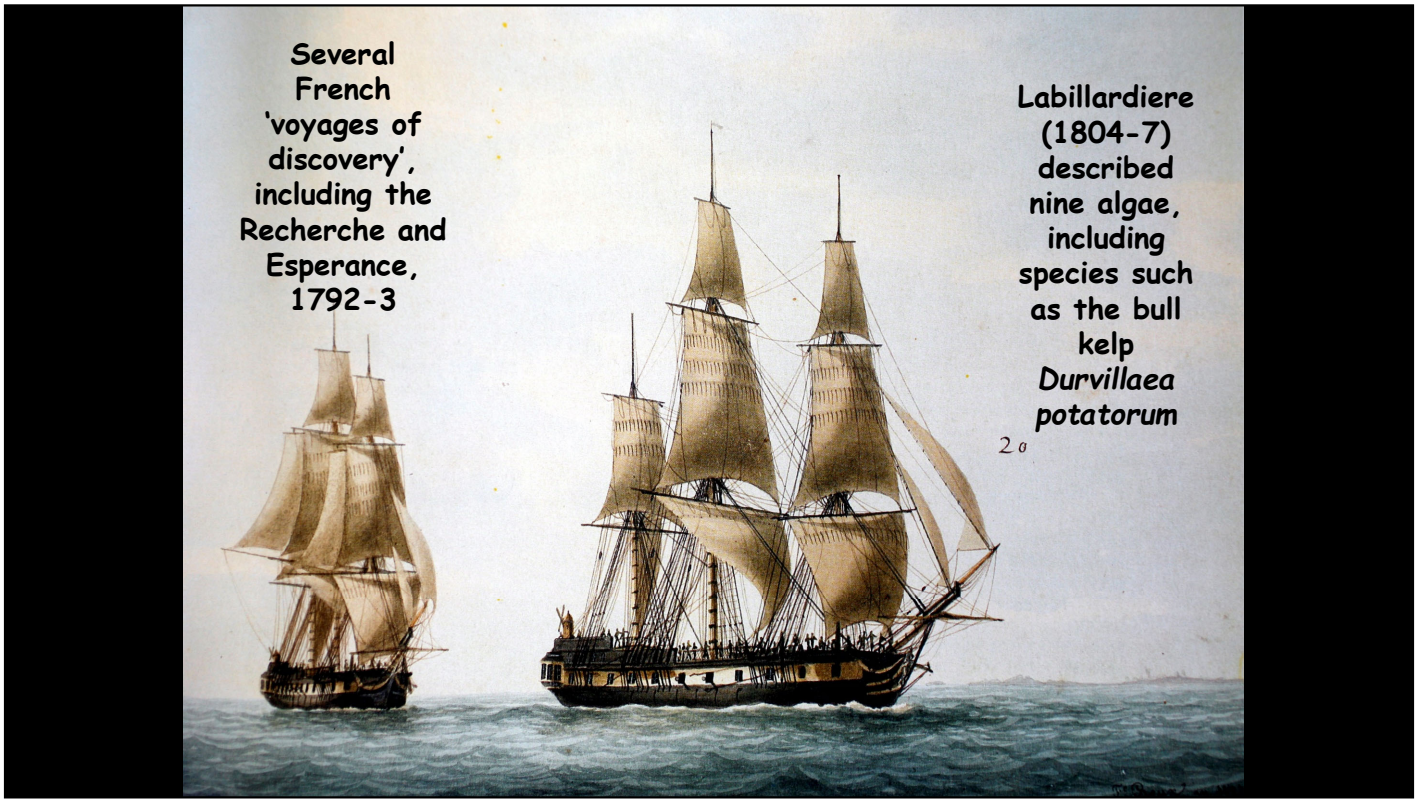


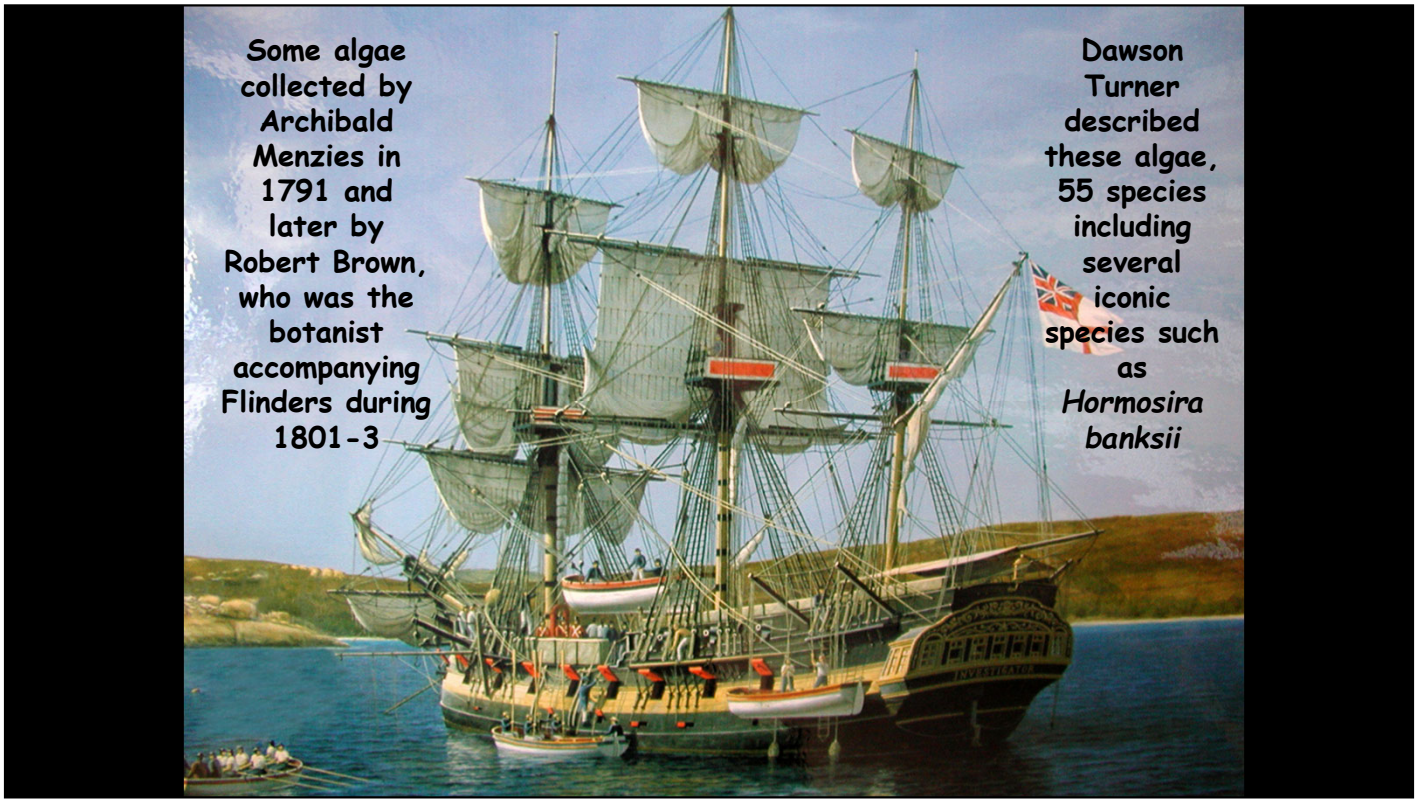
Many thanks for the opportunity to present at this symposium, and it's perhaps appropriate that the first talk is about some of the earliest discoveries of Australian seaweeds. I won't be presumptuous and suggest they are the earliest, as I'll not be talking about indigenous knowledge of seaweeds or the earlier voyages of discovery in any detail. My talk should probably have also been title 'Western' Australian seaweeds, as that is the focus of my research.



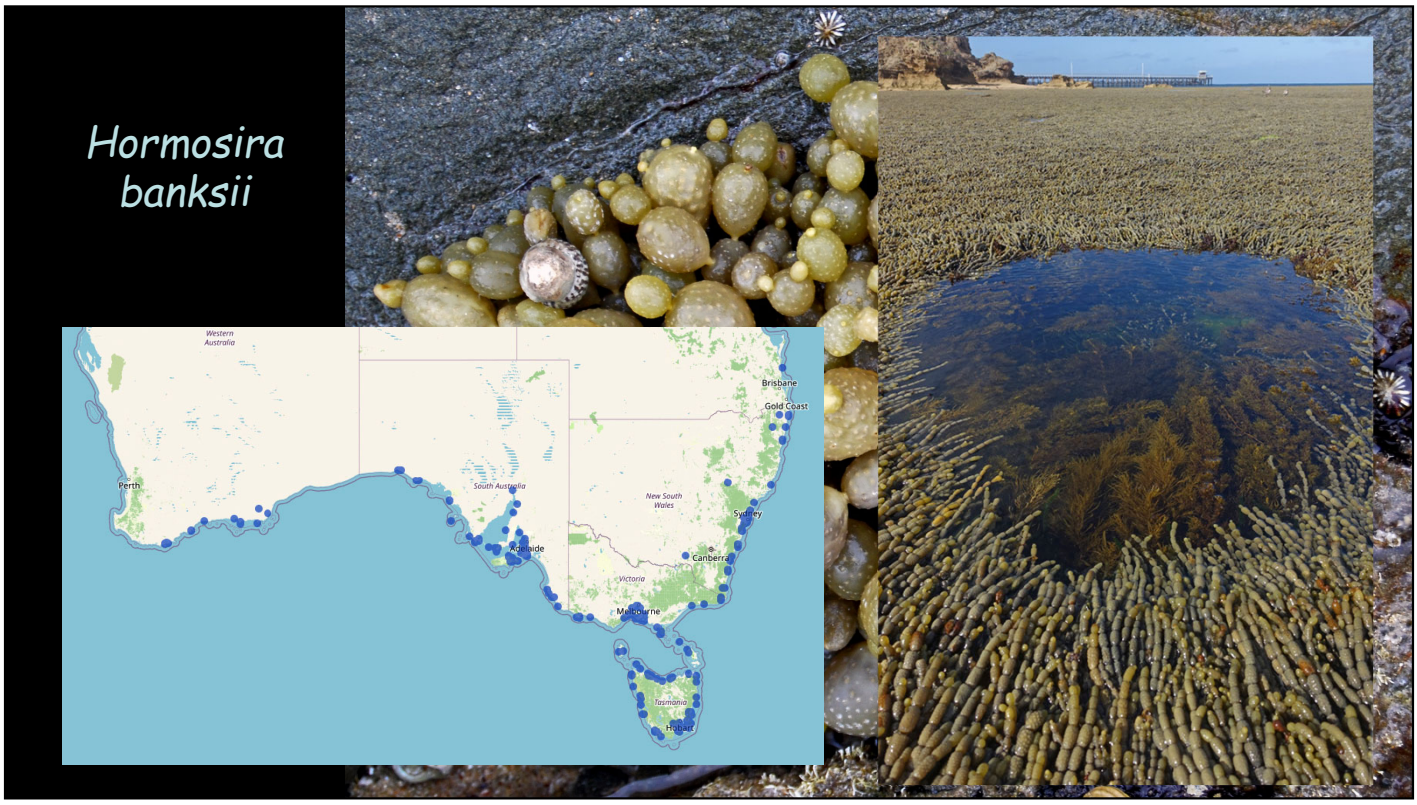
Recherche and Esperance. Before we get to Harvey, there were of course seaweeds collected by others.

Durvillaea potatorum

Acetabularia caliculus

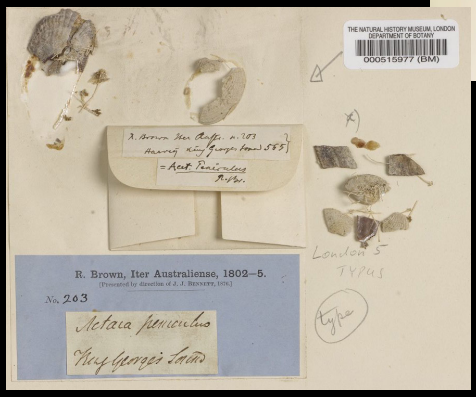


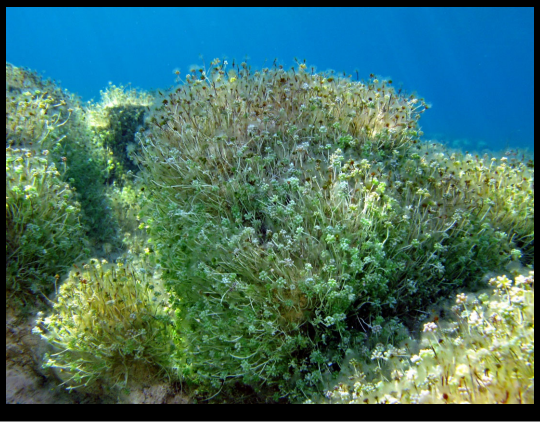
Discovery and Investigator. Before we get to Harvey, there were of course seaweeds collected by others.



Hormosira banksia, as Fucus banksii

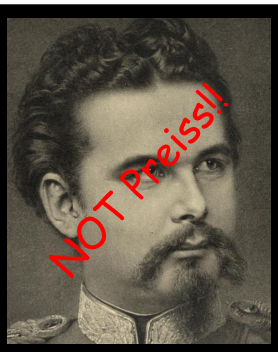
Fucus peniculus now *Acetabularia peniculus*





This is the type specimen of Fucus peniculus, collected at King George Sound in south-western Australia. Turner's illustration, and the species as it's found at Shark Bay.

Ecklonia radiata



Johann August Ludwig Preiss

Lived in the Swan River colony from December 1838 to January 1842, making a large collection that included about 3000-4000 species, from an area extending from about 100 km north of Perth south to Albany and east to the vicinity of Cape Riche. More than 80 new species of algae.

Botanische Zeitung.

3. Jahrgang. Den 24. Januar 1845. 4. Stück.

— 49 — — 50 —

Nova Algarum genera et species, quas in itinere ad oras occidentales Novae Hollandiae, collegit L. Preiss, Ph. Dr.

Auctore

G. Sonder *).

Conferveae.

1. ***Conferva valoniioides*** caespitosa, filis inferne firmioribus ramosissimis dichotomis, ramis patulis plerumque ternis verticillatisve, articulis cylindricis subinflatis inaequalibus, inferioribus diametro 6—8-plo, superioribus 3—4-plo longioribus, ultimis obtusissimis.

2. ***Conferva nitidula*** filis membranaceis laete-viridibus erectis dichotomis, ramulis ultimis subsecundis brevissimis, articulis cylindricis inaequalibus diametro 3—6-plo longioribus.

Ulvaceae.

3. ***Phycoseris Ulva*** stipite nullo, fronde cartilagineo-membranacea latiuscula irregulariter laciniata subcrispata, basi reniformi-cordata, laciniis plerisque elongatis margine dentatis, cellulis peripherici elongatis verticalibus.

Siphoneae.

4. ***Bryopsis australis*** caespitosa, filis tenuissimis sparse ramosis, ramis elongatis nudis apice penicillatis, penicillo oblongo, ramentis undique egredientibus erecto-patulis.

5. ***Bryopsis foliosa*** caespitosa, ramentis obtusis subsimplicibus dense vestita, filis erectis apice subincurvo ramosis, ramis secundis, inferioribus longioribus.

6. ***Bryopsis gracilis*** filis aggregatis erectis subapice obtusa, tandem attenuata ex articulis superioribus ramos emittens breves articulatos distiche bipinnatos circumscriptione subpyramidatos.

Alga marina, radicibus flexuosis tubulosis instructa.

7. ***Struvea plumosa.***

8. ***Caulerpa distichophylla*** surculo repente debili, frondibus erectis pinnato-pectinatis, pinnis approximatis patentibus oppositis cylindraceis obtusis basi non attenuatis, junioribus subfalcatis.

9. ***Caulerpa cylindracea*** surculo repente debili, frondibus erectis simplicibus, ramentis vesiculosis undique laxe imbricatis cylindraceis obtusissimis basi subattenuatis.

10. ***Caulerpa obscura*** surculo squamuloso, frondibus erectis crassiusculis, ramis tenuibus, undique patentibus inferioribus longioribus, ramentis subulato-setaceis 4-fariam imbricatis.

Batrachospermeae.

11. ***Liagora australasica*** pumila dichotoma, ramis continuis teretiusculis exsiccatione compressis, ramulis teretibus divaricatis supremis brevissimis obtusis.

12. ***Galaxaura versicolor*** dichotoma basi cylindracea, ramis fastigiatis, articulis compressis linearibus basi subangustatis, apice auriculatis perfossis, superioribus subzonatis.

Sphacelarieae.

13. *Sphacelaria Novae Hollandiae* stupa nulla, fronde minuta tenuissima, ramis alternis erecto-patulis filiformibus, paucis brevissimis clavatis intermixtis, articulis striatis diametro aequalibus.

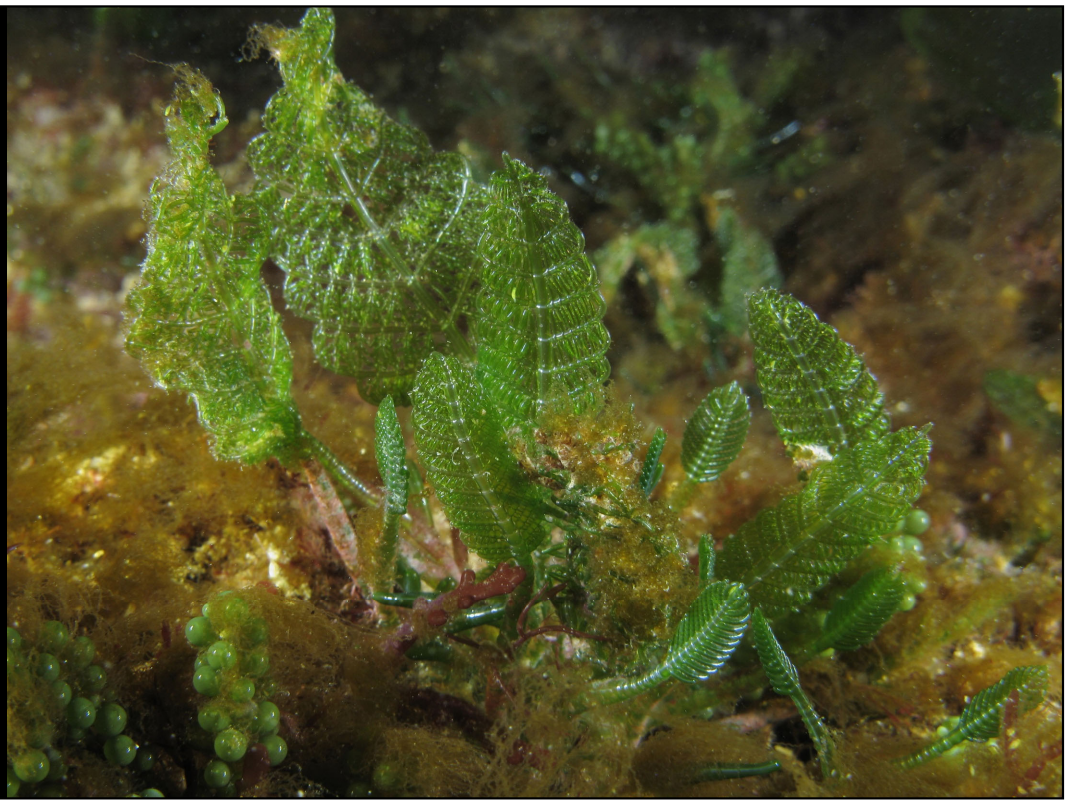
Dictyoteae.

‘Mad’ King Ludwig of Bavaria

Caulerpa cylindracea

Caulerpa cylindracea, which has been treated as C. racemosa but is now regarded as a separate species.

Struvea plumosa



Struvea plumosa, common just below low tide on rocky shores

Bryopsis foliosa

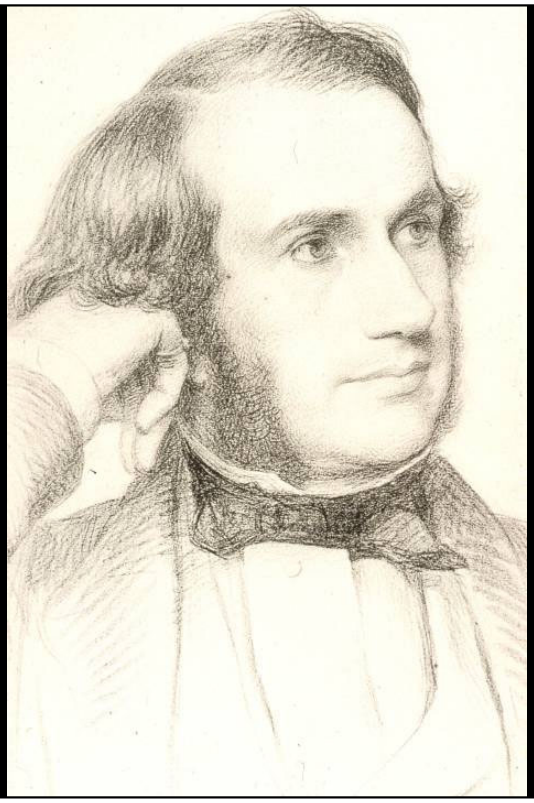
Struvea plumosa, common just below low tide on rocky shores

Hymenocladia dactyloides

Hymenocladia dactyloides, epiphytic on the seagrass Amphibolis

William Henry Harvey,
Irish Botanist

Visited Australia in 1854-1855, arriving in Western Australia where he made collections from the Fremantle region and the south-west coast, before moving to Victoria, Tasmania and New South Wales.



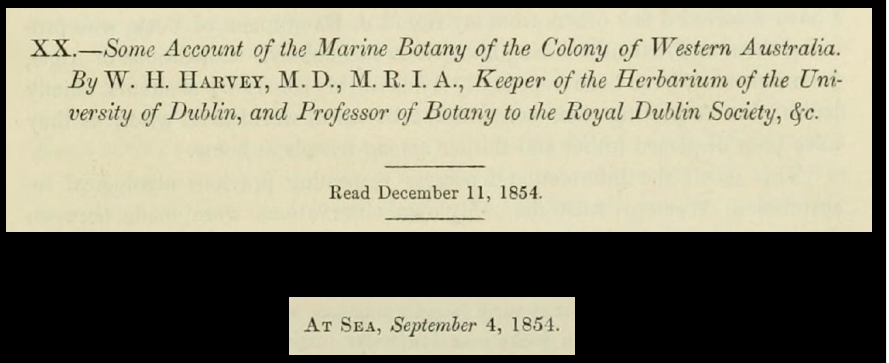
"exploring the natural history of the southern coasts of that continent … and for extensively collecting Marine Algae"

Moving to William Henry Harvey, the Irish botanist. Harvey arrived in Western Australia in 1854, with the express purpose of of "exploring the natural history of the southern coasts of that continent … and for extensively collecting Marine Algae"

Harvey, 1855

20,000 specimens during his 18 months in Australia.

Harvey reported from King George Sound "In one day I collected and preserved 700 specimens, some being new kinds"



XX.—*Some Account of the Marine Botany of the Colony of Western Australia.* *By* W. H. Harvey, M. D., M. R. I. A., *Keeper of the Herbarium of the University of Dublin, and Professor of Botany to the Royal Dublin Society, &c.*

Read December 11, 1854.

At Sea, *September* 4, 1854.

Harvey had a set of Preiss's algae, so he was able to compare his new collections

Harvey, 1855

133 new species and 7 new genera were described. Harvey was also a very engaging writer, in a style no longer found in scientific texts. His description of the reefs of Rottnest…

"At every few yards, deep basin-like hollows, of greater or lesser size, break the surface of the reef, and afford well-sheltered nooks for a variety of beautiful Algae. The water in these basins is always intensely transparent; the bottom frequently of white sand; and the steep and craggy sides clothed with Algae vegetation, in which the brightest tints of green, purple, carmine, and olive, and the most graceful waving forms, are mingled in rich variety."

He was a very engaging writer and his memoirs and collections of letters are available online. Some examples regarding the reefs of Rottnest.

Asparagopsis armata
"having two or three naked branchlets armed with reflexed prickles"…."The frond is … twice as thick as a hog's bristle"

Asparagopsis armata, currently the topic of much research

'Twice as thick as a hog's bristle' and other irregular units of measure

John M. Huisman, WA Herbarium

Taxonomists are often delving back into historical literature, hoping to gain insights based on the original descriptions of species. Prior to the general adoption of the smaller units of the metric or imperial systems, botanists used traditional units related to human body parts or other natural objects. This relationship can also be seen in the historical development of units, the 'foot' being perhaps the more obvious. The 'inch' was originally the width of the human thumb, but was decreed by King Edward II of England in 1324 to be the length of 'three grains of barley, dry and round, placed end to end, lengthwise'. When botanists required a smaller unit, the 'line' was used, which was ¼ the length of a barleycorn (i.e., 1/12 of an inch or 2.12 mm). This attempt at standardisation (the British line) was hampered by a competing measure, the Paris line, which is slightly larger at 2.25 mm (see Stearn, 1992, who gave approximate lengths for a variety of measures based on the human body).

Despite heeding the warning of Klein (1974), 'the confusions and contradictions of historical unit usage defy the most ingenious present-day attempts to harmonize them or to explain them away', I have, for no other reason than my own amusement and with no claims to accuracy, endeavoured to establish measurements of other historical units used in phycological literature. These have mostly been taken from Dawson Turner's 'Fuci' (1809, 1811) but also the writings of William Henry Harvey, everyone's favourite nineteenth-century phycologist. As most of these related to the thickness of bird quills, I initially consulted Dr Lukas Jenni of the Swiss Ornithological Institute, the author of the seminal 'Determinants and constraints of feather growth' (Jenni *et al.*, 2020). That paper (and references therein) gave measurements of some, but not all the species of interest. Dr Jenni, who was unaware of this botanical usage, then pointed me in the direction of various online feather resources, of which 'Featherbase' (https://www.featherbase.info/en/home) not only gave numerous images of feathers, but provided the tools to measure their components. As the most likely 'standard' feathers were those used for writing until the mid 19th century, I selected the largest and most robust for measurement. One non-bird-related example is that of Harvey, who in 1855 described the frond of *Asparagopsis armata* as being 'twice as thick as a hog's bristle' (Figure 1). For this I initially consulted the literature (Jiang *et al.*, 2021), however as that study only assessed immature animals (bristle diameter 18–49 µm) I also took direct measurements of hog's bristles removed from an artist's brush. These were considerably larger at 100–220 µm. Womersley's (1996) figures of *A. armata* indicates a main branch diameter of *c.* 500 µm, which is comparable to twice the upper measure, agreeing with Harvey's statement.

The dimensions of 'pack thread' (Turner, 1809) presented some difficulty. As the name suggests, packthread is a strong twine used for tying up packages. As the diameter of twines can vary depending on the intended use, and I was unable to find information regarding historical twines, I took the branch diameters (Womersley, 2003) of one of Turner's species (*Fucus forsteri*, now in *Laurencia*) and used that as the standard.

Human hair can also vary considerably. Jiang *et al.* (2021) gave 16–42 µm diameter, and my own scalp hair measured a comparable 36–40 µm diameter, however my facial hair was considerably more stout at 100–110 µm diameter. Stearn (1992, pg.111) calculated from Linnaeus's summary (1751) that a hair's width was 1/12 of a Paris line and equal to 0.18 mm (= 180 µm), which seems inordinately robust but obviously an estimate given the limited capacity for fine measurements at the time. Or perhaps that 18th century Europeans had thicker hair, which is beyond my capacity to research. The last decade has seen my own hair becoming thinner, but I will assume that is a density measure, not the actual fibres. My own thumb at 22 mm diameter also falls short of the full inch (25.4 mm), so I'm clearly not 'standard'.

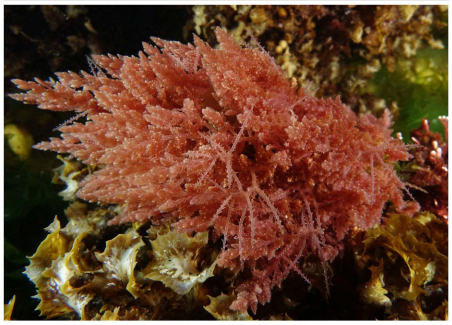


Figure 1. *Asparagopsis armata*, with fronds 'twice as thick as a hog's bristle'.

The following table gives the original phrase, the reference and species of alga described, the scientific names of the source species, and then the range of quill, bristle, or hair diameters, arranged from smallest to largest. Note: For entertainment purposes only.

Table 1. A quick guide to quirky units of measurement in algae.

Unit of measure	Source	Subject (current genus)	Species (unit)	Diameter	Source
'scarcely thicker than human hair'	Turner 1809	*Fucus asparagoides* (Bonnemaisonia)	*Homo sapiens*	16–42 µm	Jiang *et al.* 2021
'twice as thick as a hog's bristle'	Harvey 1855	*Asparagopsis armata*	*Sus scrofa domesticus*	18–49 µm; 70–170 µm	Jiang *et al.* 2021; artist's brush
'thickness of a wren's quill'	Turner 1809	*Fucus hamulosus* (Hypnea)	*Troglodytes troglodytes*	0.61–0.77 mm	Featherbase
'not thicker than a pack thread'	Turner 1809	*Fucus forsteri* (Laurencia)	Probably hemp or jute	0.5–1 mm	Womersley 2003
'thickness of a sparrow's quill'	Turner 1809	*Fucus valentiae* (Hypnea)	*Passer domesticus*	0.897–1.032 mm	Zeidler 1966

'thickness of a blackbird's quill'	Turner 1809	*Fucus membranifolius* (Phyllophora)	*Turdus merula*	1.56–1.83 mm	Featherbase
'half a line wide'	Turner 1809	*Fucus myagroides* (Myagropsis)	Barley	2.25 mm	Stearn 1992
'as thick as a blackbird's or crow's quill'	Turner 1809	*Fucus ovalis* (Gastroclonium)	*Corvus corone*	3.56–4.31 mm	Jenni *et al.* 2020
'as thick as a small goose quill'	Turner 1809	*Fucus agarum* (Agarum)	*Anser anser*	3.6–5.4 mm	Featherbase
'as thick as a swan's quill'	Turner 1811	*Fucus cabrera* (Carpomitra)	*Cygnus olor*	7.79–7.85 mm	Mathiasson 1973
'that of a finger'	Turner 1809	*Fucus pyriferus* (Macrocystis)	*Homo sapiens*	16.2–20 mm	Self

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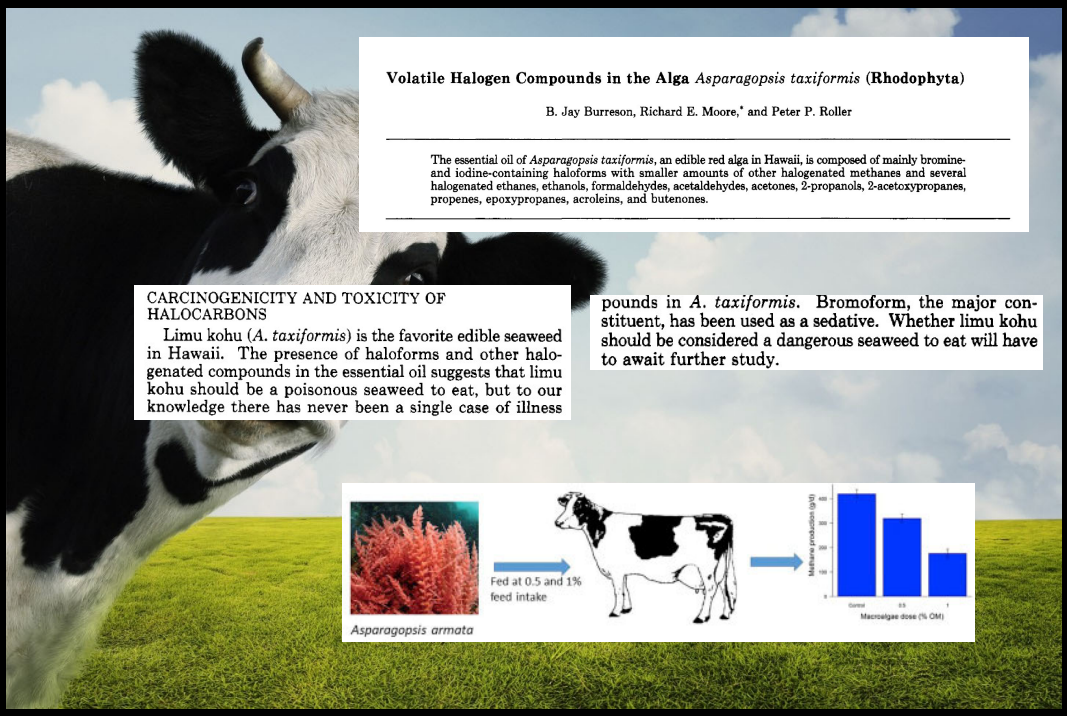
Womersley, H.B.S. (2003). *The marine benthic flora of southern Australia – Part IIID Ceramiales - Delesseriaceae, Sarcomeniaceae, Rhodomelaceae*. Canberra & Adelaide: Australian Biological Resources Study & State Herbarium of South Australia.

Zeidler, K. (1966): Untersuchungen über Flügelbefiederung und Mauser des Haussperlings (Passer domesticus L.). *Journal of Ornithology* **107**: 113–153.

Inch the width of a human thumb, decreed by King Edward II in 1324 to be the length of three grains of barley, dry and round, placed end to end, lengthwise.



Volatile Halogen Compounds in the Alga *Asparagopsis taxiformis* (Rhodophyta)

B. Jay Burreson, Richard E. Moore,* and Peter P. Roller

The essential oil of *Asparagopsis taxiformis*, an edible red alga in Hawaii, is composed of mainly bromine- and iodine-containing haloforms with smaller amounts of other halogenated methanes and several halogenated ethanes, ethanols, formaldehydes, acetaldehydes, acetones, 2-propanols, 2-acetoxypropanes, propenes, epoxypropanes, acroleins, and butenones.

CARCINOGENICITY AND TOXICITY OF HALOCARBONS

Limu kohu (*A. taxiformis*) is the favorite edible seaweed in Hawaii. The presence of haloforms and other halogenated compounds in the essential oil suggests that limu kohu should be a poisonous seaweed to eat, but to our knowledge there has never been a single case of illness

pounds in *A. taxiformis*. Bromoform, the major constituent, has been used as a sedative. Whether limu kohu should be considered a dangerous seaweed to eat will have to await further study.

Haliseris pardalis, now known as *Dictyopteris australis*

"a beautiful and distinct species, elegantly marked in dotted lines like a leopard's skin"

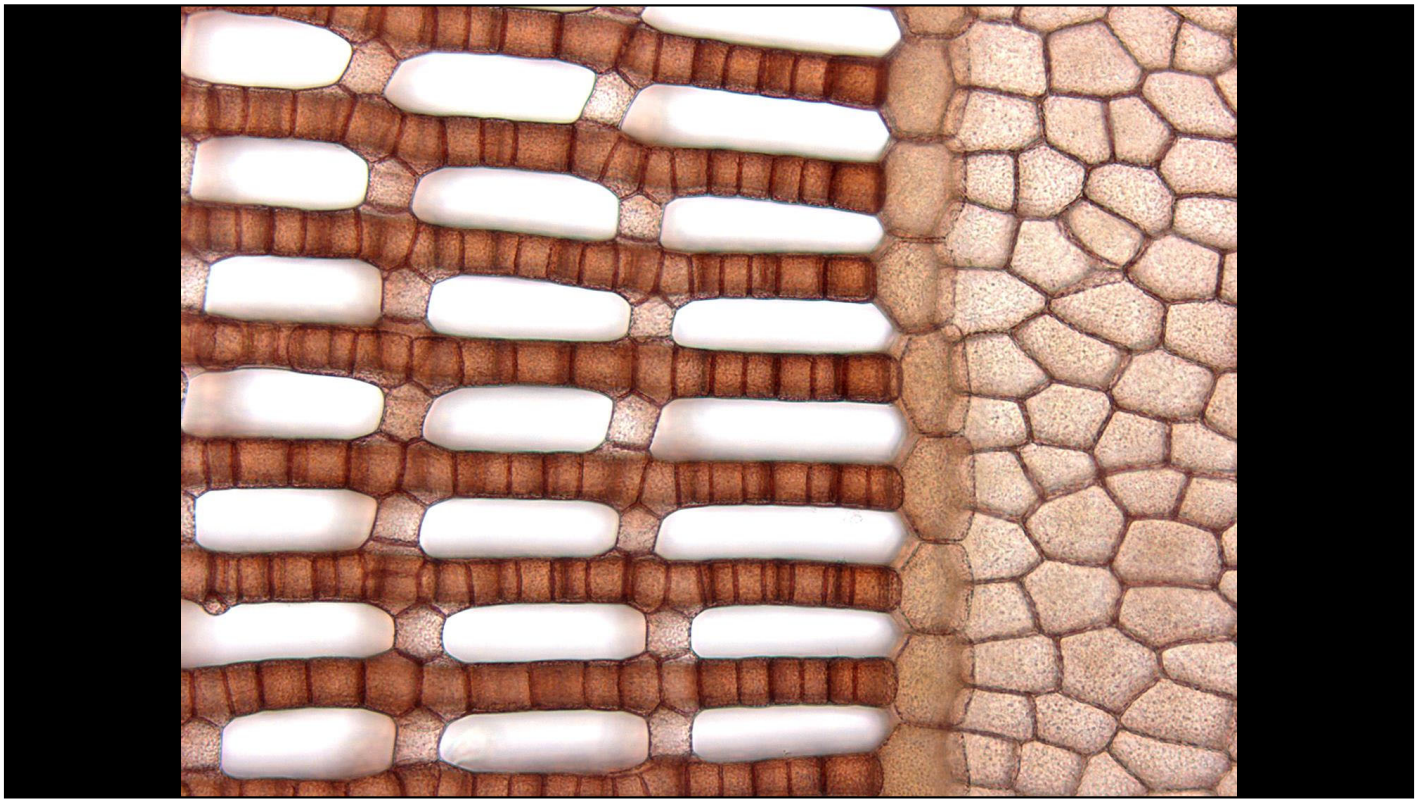
Asparagopsis armata, currently the topic of much research

Caulerpa geminata, currently a synonym of *C. sedoides*, a Turner species

Halymenia kallymenioides, now in *Cryptonemia*

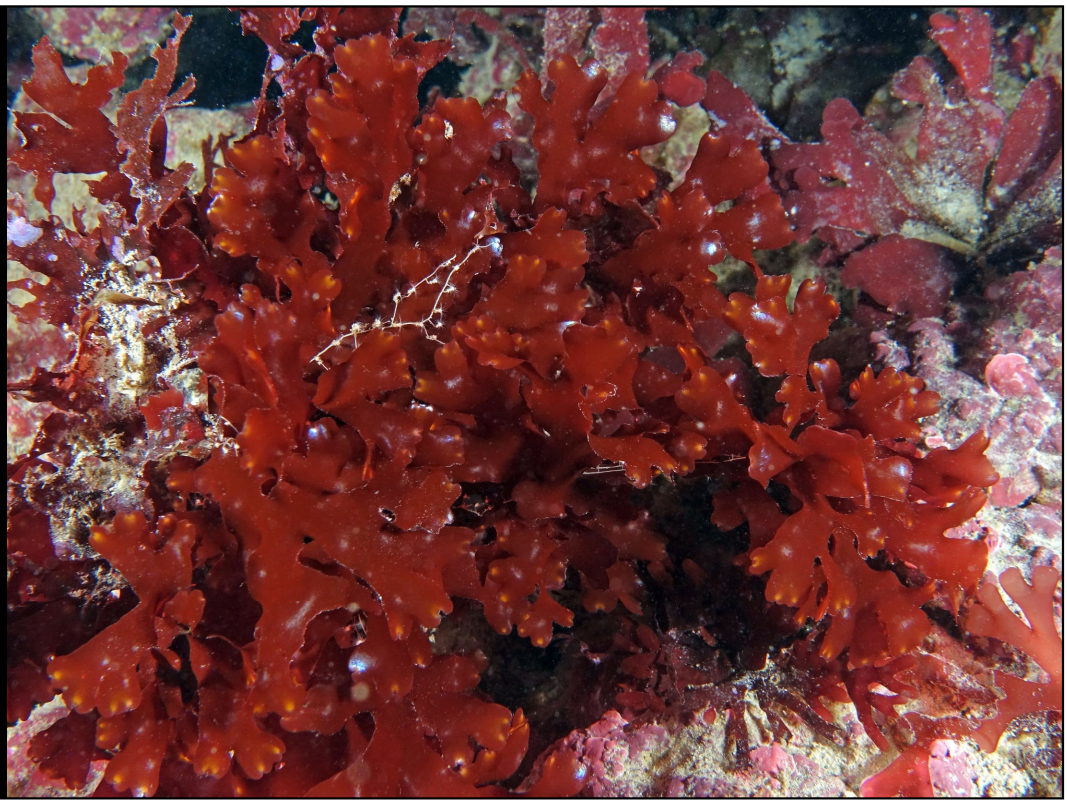
Horea halymenioides, now in *Gloioderma*

Martensia denticulata



Kallymenia cribrosa, now in *Leiomenia*
"A very remarkable species, elegantly perforated, like an *Agarum*"

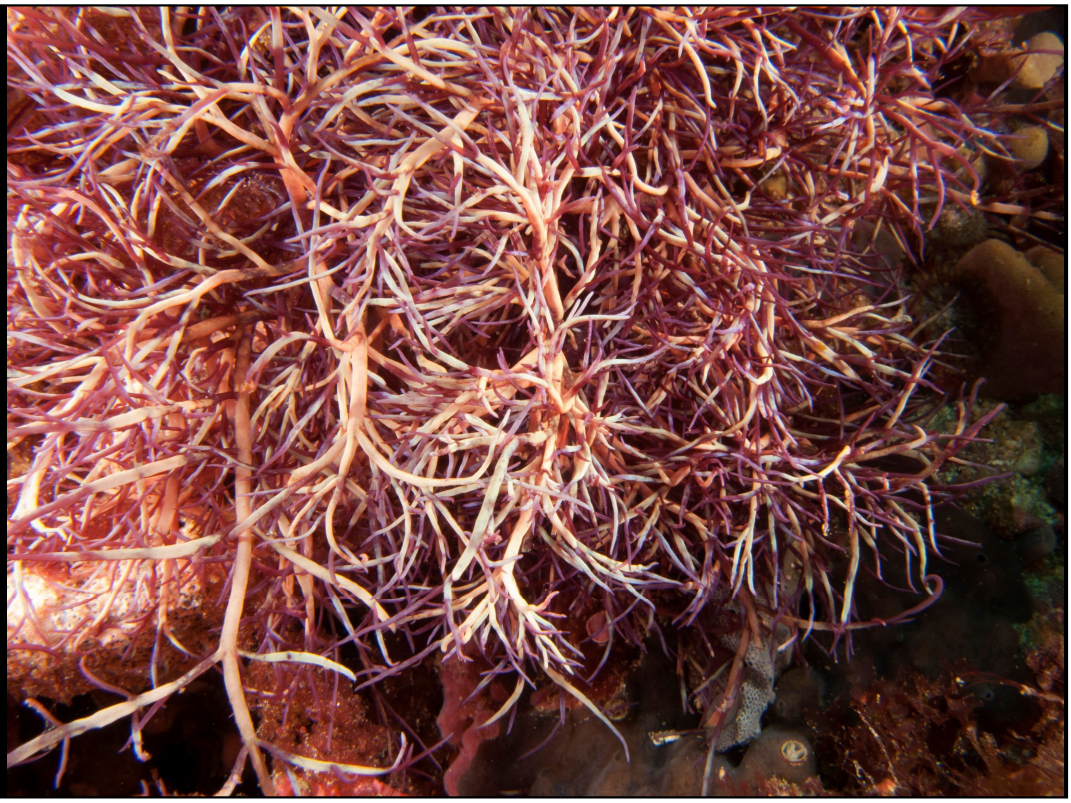
Hennedya crispa, A new genus and species



Griffithsia monilis "resembles beautiful strings of ruby-coloured beads"

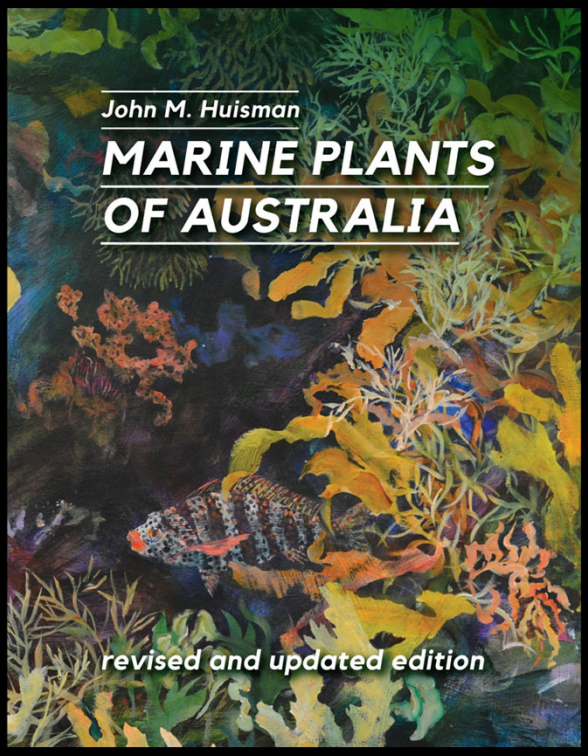
Cruoria australis, now in *Rhodopeltis*, originally thought to be a 'parasite' on *Amphiroa australis*

Sarcomenia hypneoides, now in *Platysiphonia* "gray and iridescent when living, but turn a brilliant rosy red after a few minutes' exposure to the air"



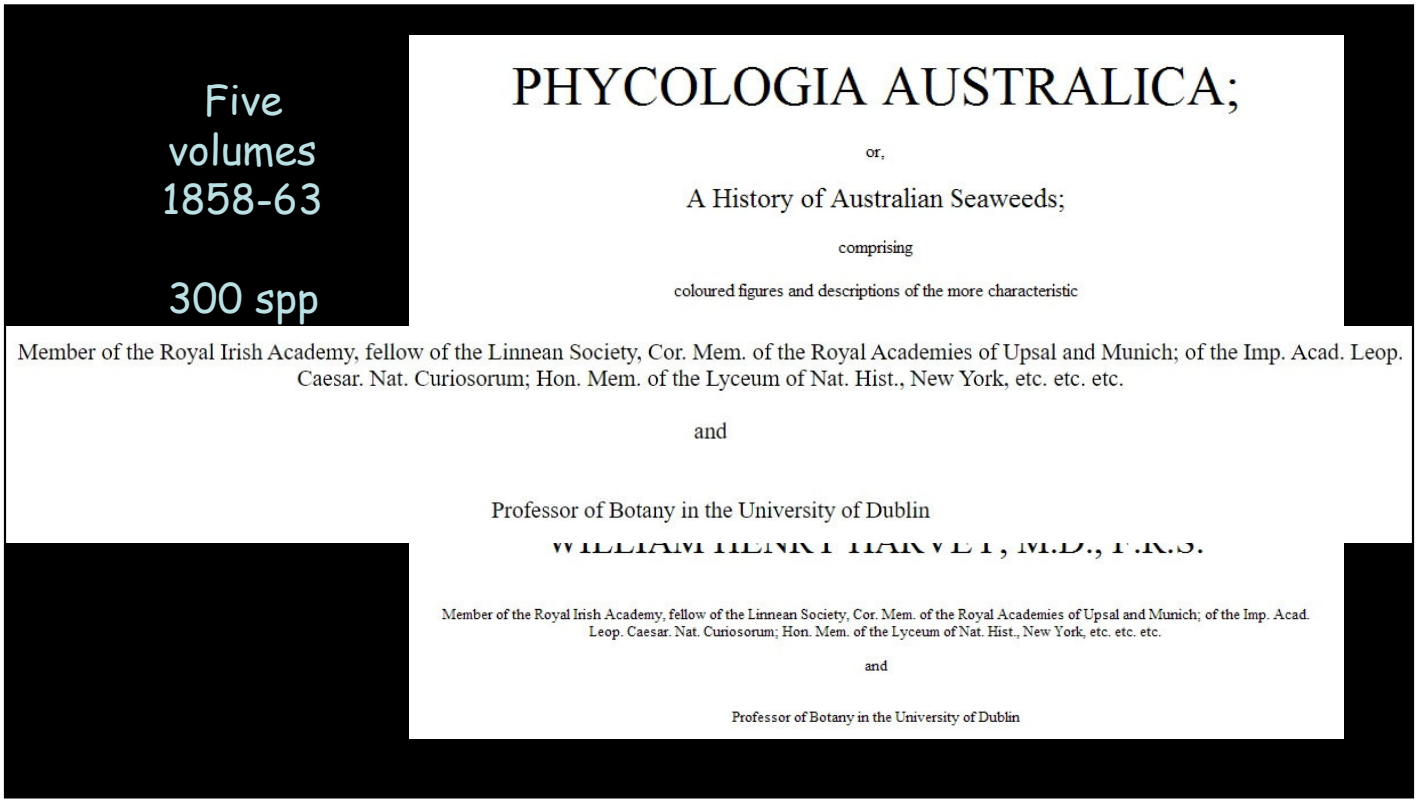
Penicillus nodulosus
Recorded by Harvey as *P. arbuscula?*, noting "abundant on shallow, sand covered reefs at Rottnest". Not seen at Rottnest since, the most southern off Cervantes (c. 200 km north)

Shameless plug!
Over 640 species illustrated



Five volumes 1858-63

300 spp



PHYCOLOGIA AUSTRALICA;

or,

A History of Australian Seaweeds;

comprising

coloured figures and descriptions of the more characteristic

Member of the Royal Irish Academy, fellow of the Linnean Society, Cor. Mem. of the Royal Academies of Upsal and Munich; of the Imp. Acad. Leop. Caesar. Nat. Curiosorum; Hon. Mem. of the Lyceum of Nat. Hist., New York, etc. etc. etc.

and

Professor of Botany in the University of Dublin

WILLIAM HENRY HARVEY, M.D., F.R.S.

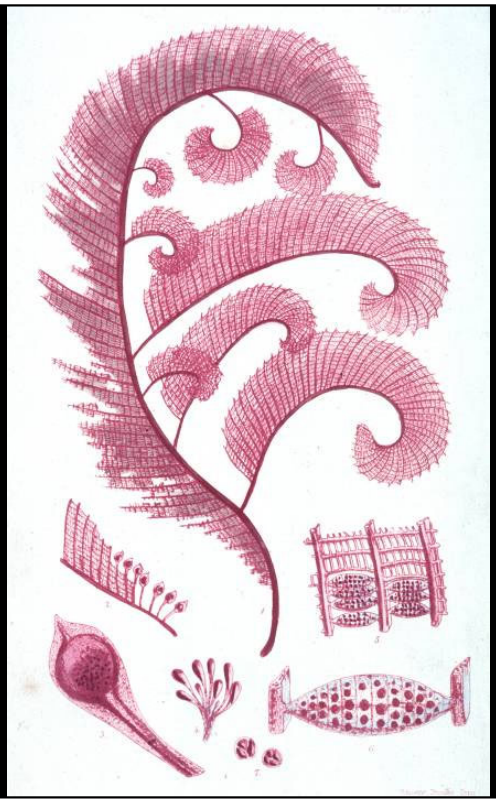
Member of the Royal Irish Academy, fellow of the Linnean Society, Cor. Mem. of the Royal Academies of Upsal and Munich; of the Imp. Acad. Leop. Caesar. Nat. Curiosorum; Hon. Mem. of the Lyceum of Nat. Hist., New York, etc. etc. etc.

and

Professor of Botany in the University of Dublin

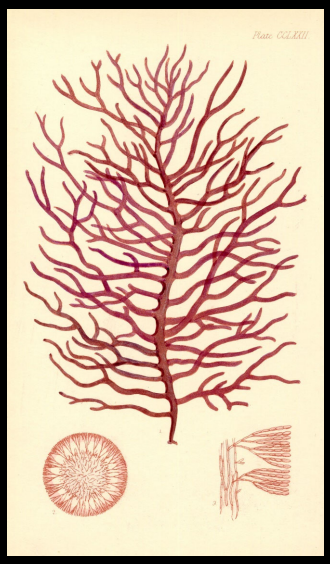
On his return to Dublin Harvey embarked on his most significant contribution, Phycologia Australica, with 300 species of Australian seaweeds illustrated with beautiful colour plates. You can see here Harvey's qualifications….

Claudea elegans, from Harvey's 'Phycologia Australica'



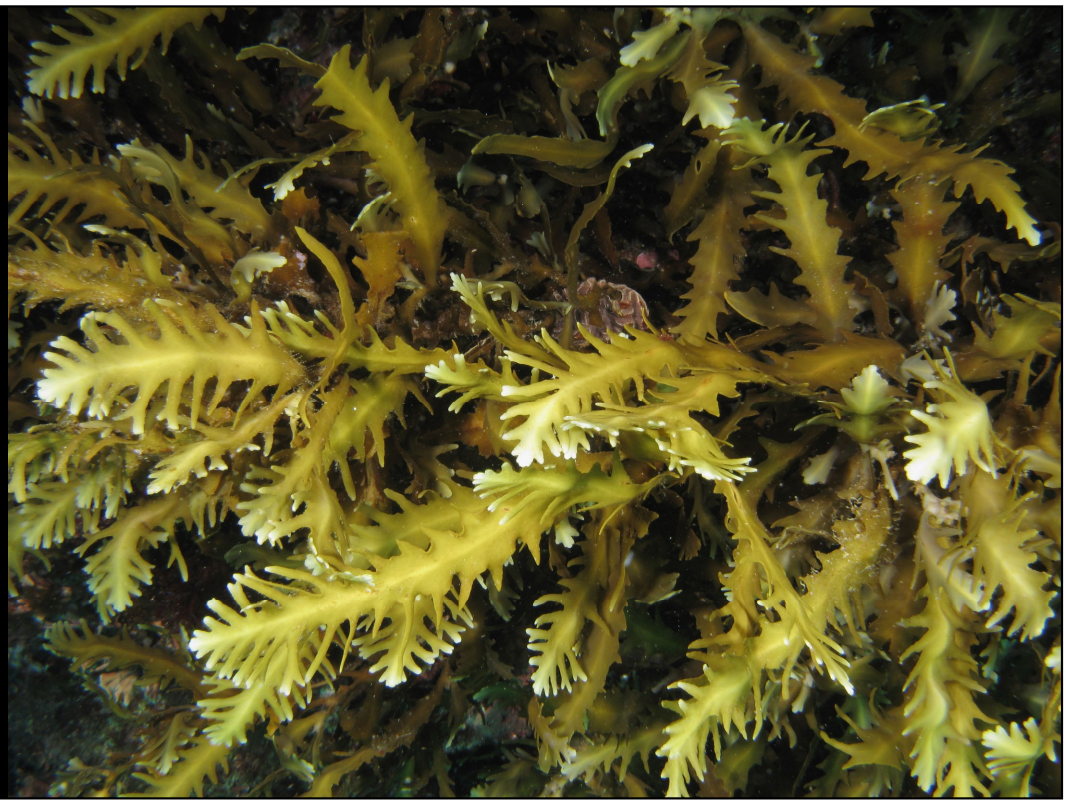
Claudea elegans, with its stunning net-like thallus

Helminthocladia australis



Harvey continued to describe new species, this is Helminthocladia australis.

Platythalia quercifolia



Other examples: Platythalia quercifolia.

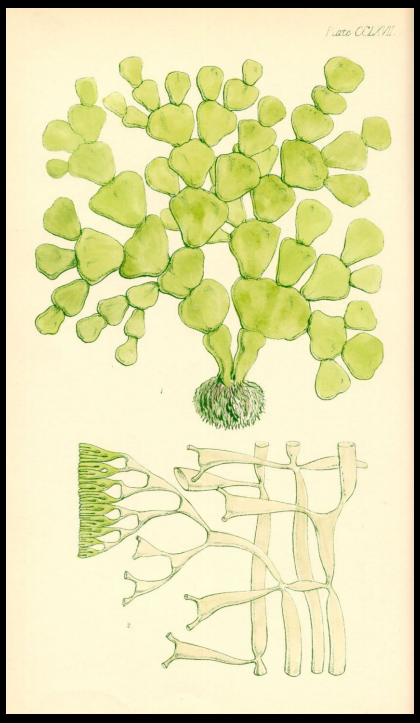
Caulerpa scalpelliformis

Other examples: Platythalia quercifolia.

H.B.S (Bryan) Womersley
(1922-2011)

Six volumes 1984-2003
1137 spp.

No



From Harvey's 'Phycologia Australica'

Distributed as *Halimeda macroloba*, but subsequently placed in *H. cuneata*, a South African species

Harvey distributed numerous sets of specimens as his Algae Australicae Exsiccatae.

Halimeda cuneata (or is it?)

Australian species placed by Womersley in Halimeda cuneata, a South African species

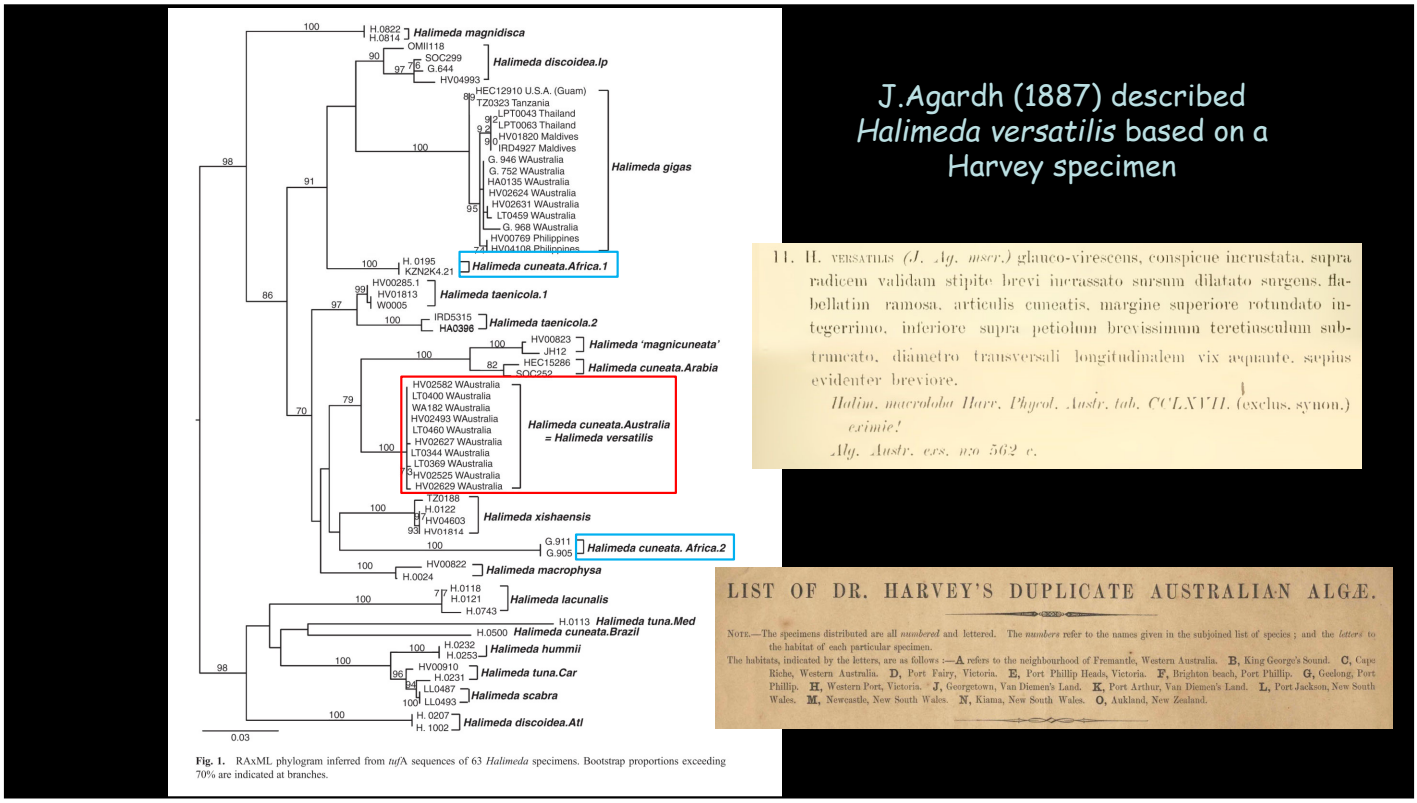


Fig. 1. RAxML phylogram inferred from *tufA* sequences of 63 *Halimeda* specimens. Bootstrap proportions exceeding 70% are indicated at branches.

J.Agardh (1887) described *Halimeda versatilis* based on a Harvey specimen

11. H. VERSATILIS *(J. Ag. mscr.)* glauco-virescens, conspicue incrustata, supra radicem validam stipite brevi incrassato sursum dilatato surgens, flabellatim ramosa, articulis cuneatis, margine superiore rotundato integerrimo, inferiore supra petiolum brevissimum teretiusculum subtruncato, diametro transversali longitudinalem vix aequante, sepius evidenter breviore.

Halim. macroloba Harv. Phycol. Austr. tab. CCLXVII. (exclus. synon.) *eximie!*

Alg. Austr. exs. n:o 562 c.

LIST OF DR. HARVEY'S DUPLICATE AUSTRALIAN ALGÆ.

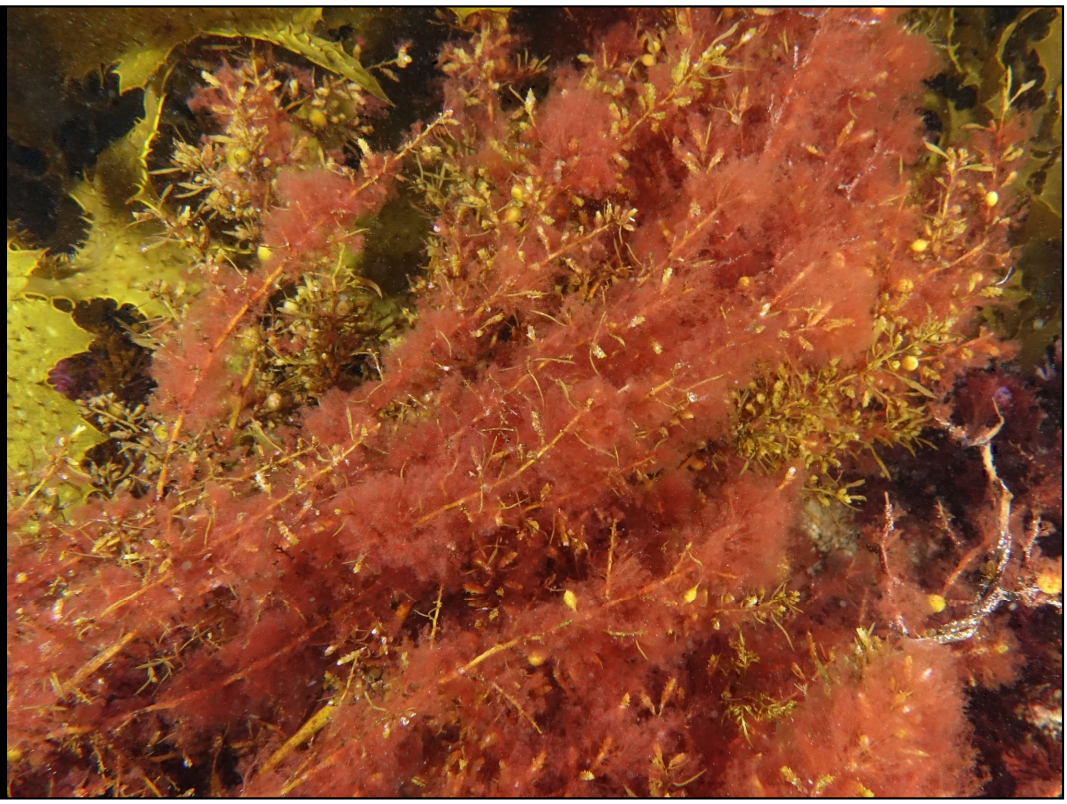
NOTE.—The specimens distributed are all *numbered* and lettered. The *numbers* refer to the names given in the subjoined list of species; and the *letters* to the habitat of each particular specimen.

The habitats, indicated by the letters, are as follows:—**A** refers to the neighbourhood of Fremantle, Western Australia. **B**, King George's Sound. **C**, Cape Riche, Western Australia. **D**, Port Fairy, Victoria. **E**, Port Phillip Heads, Victoria. **F**, Brighton beach, Port Phillip. **G**, Geelong, Port Phillip. **H**, Western Port, Victoria. **J**, Georgetown, Van Diemen's Land. **K**, Port Arthur, Van Diemen's Land. **L**, Port Jackson, New South Wales. **M**, Newcastle, New South Wales. **N**, Kiama, New South Wales. **O**, Auckland, New Zealand.

Except molecular analysis shows it to be separate to the South African species. J. Agardh in 1887 described the new species based on Harvey specimen from Cape Riche

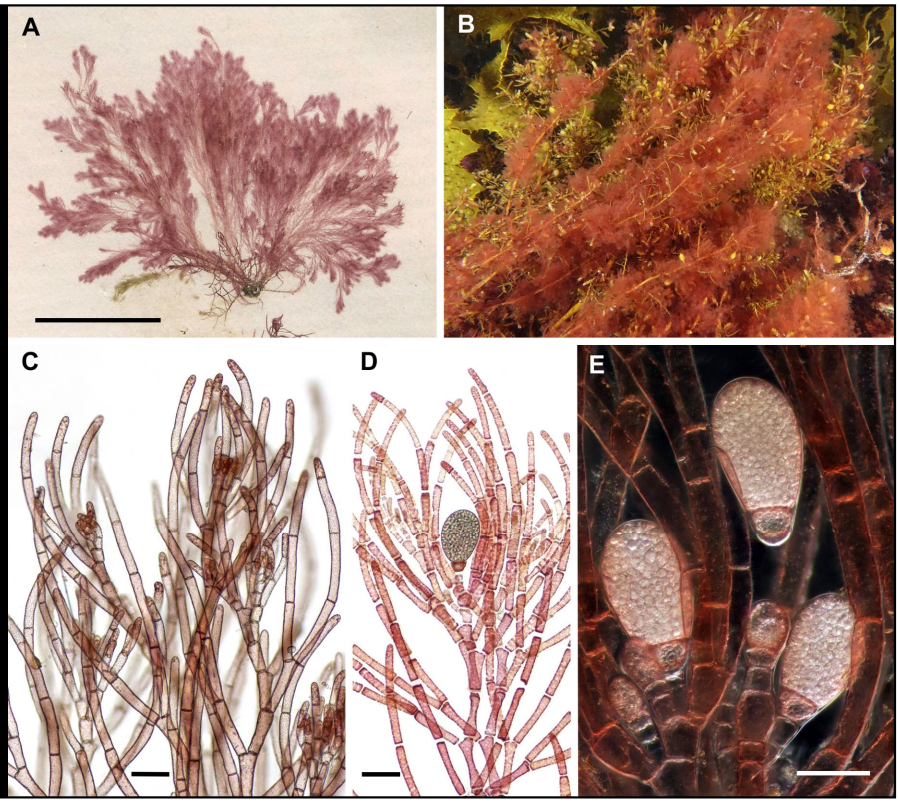
Harvey described 22 species of *Callithamnion* and 2 species of *Corynospora*, but several have remained poorly known and, as noted by Womersley (1996: 233), "must remain doubtful".

Corynospora gracilis



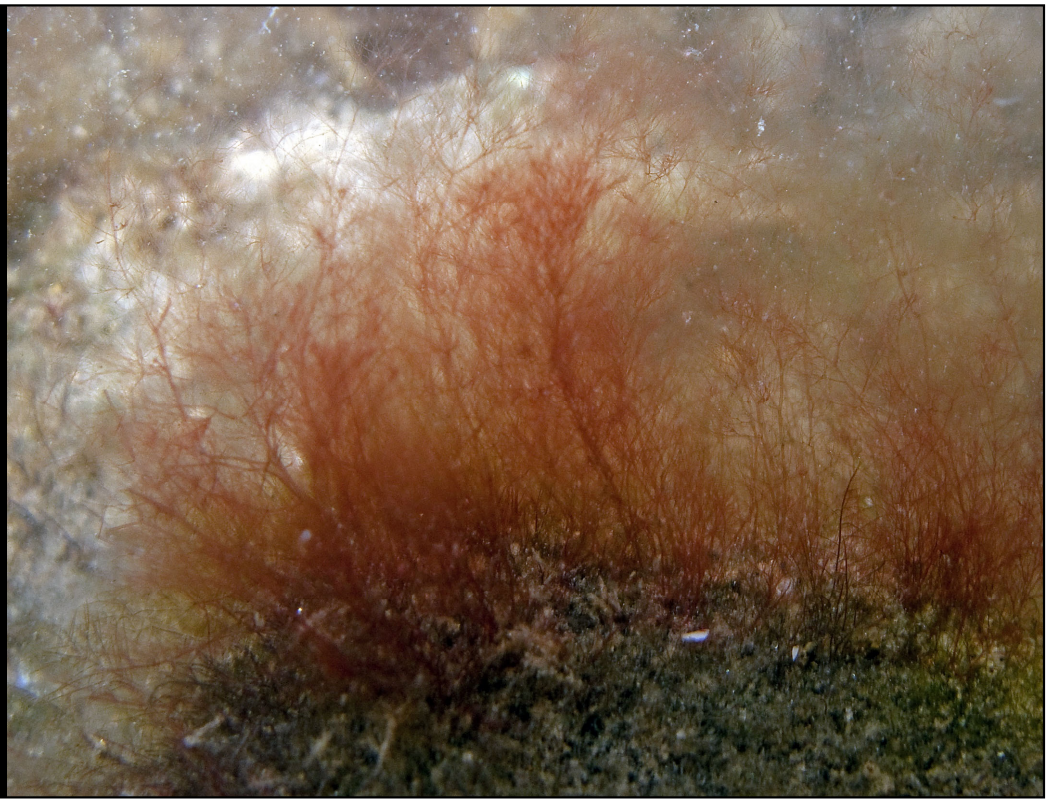
Now to a subject dear to me, the 'fuzzy red algae'. We have embarked on a study to finally, after nearly 170 years, try and give these species a home.

Recent collections from Cape Peron, just south of the Garden Island type locality match Harvey's collections. Unfortunately, they are not sexually reproductive, but have distinctive two-celled propagules, pointing to the genus *Guiryella*

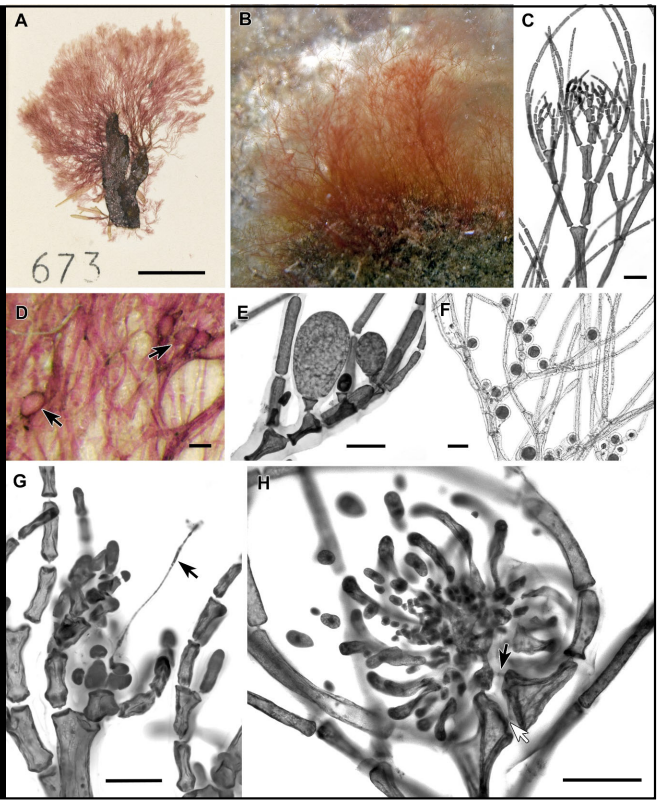


A major problem is that many Harvey specimens in this group are sterile and cannot be easily characterised. Plus we have limited access to type material, so there has been some detective work. Harvey specimens in Dublin are not available for loan, but other herbaria hold duplicates.

Corynospora australis, common at Nornalup Estuary on the south coast of Western Australia



Coryonospora australis is currently included in *Mazoyerella*, after being placed in *Monosporus* and *Neomonospora*. Collections from Nornalup match Harvey's collections. And are sexually reproductive, pointing to *Desikacharyella*.



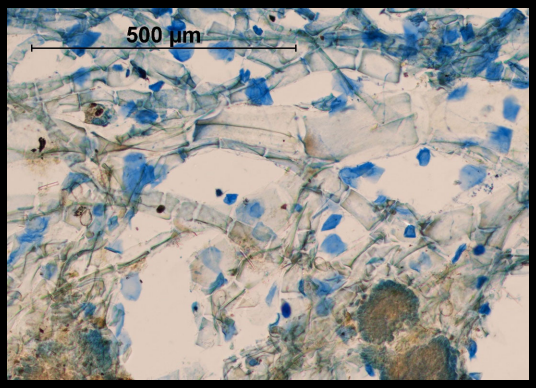
Is it actually different to Corynospora gracilis. Thankfully a Harvey specimen in MEL has propagules. Has a secondary pit connection forming between the lower end of the involucral filament arising from the hypogenous cell and the subhypogenous cell

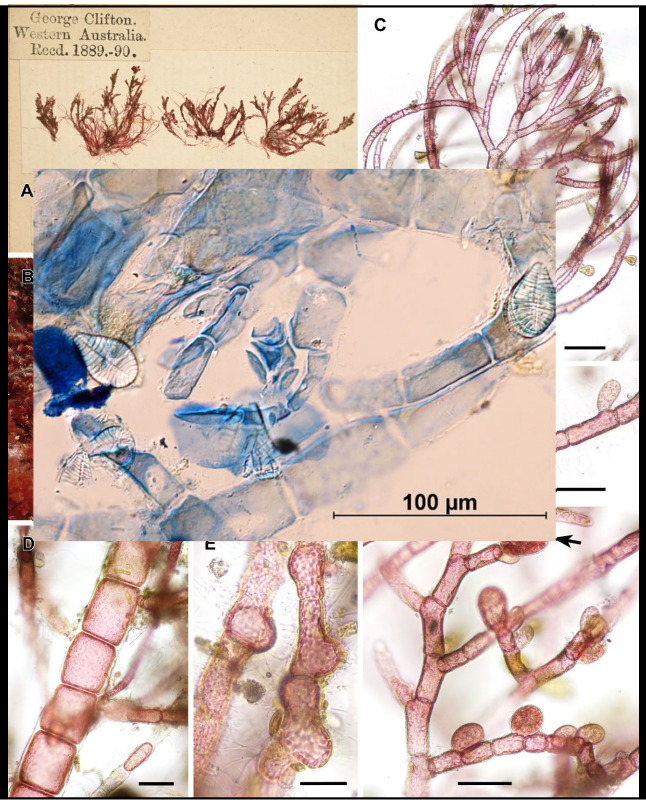
Then things get a little more complicated…

Specimens can be of limited value, so we need to take in all information and make a call

Callithamnion crispulum, on shaded rock at Cape Peron, south of Perth

Callithamnion crispulum, recent collections with tetrasporangia and octosporangia.

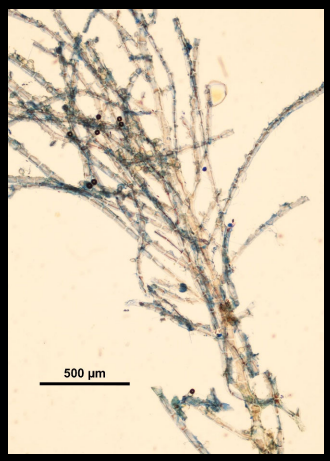


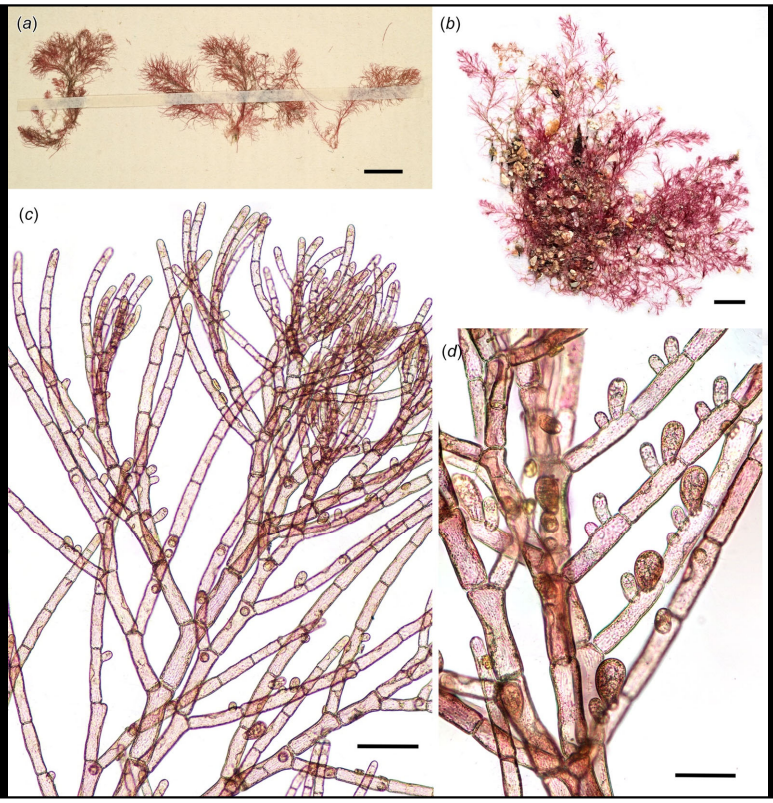


Slide material prepared by Bryan Womersley in the South Australian Herbarium. Tetrahedral tetrasporangia, becoming octosporangia

Callithamnion scopula, from "crevices of rocks, at half-tide, Rottnest"

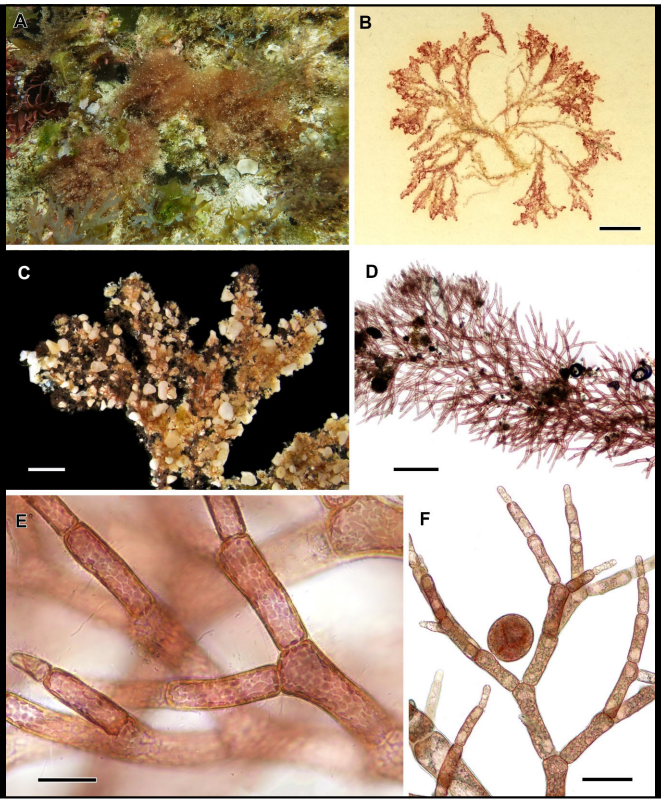
Callithamnion scopula, recent collections.



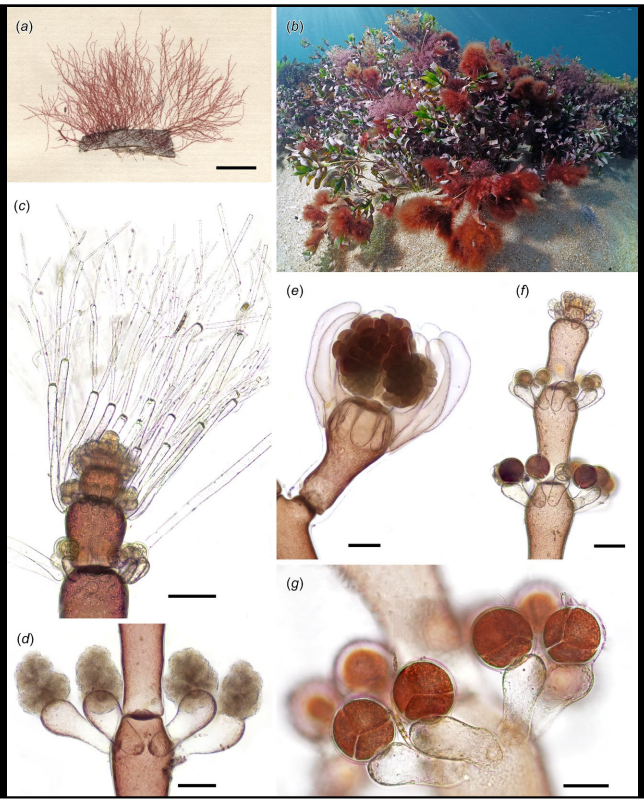


Callithamnion multifidum, on exposed sand-covered rock at Cape Peron, south of Perth.

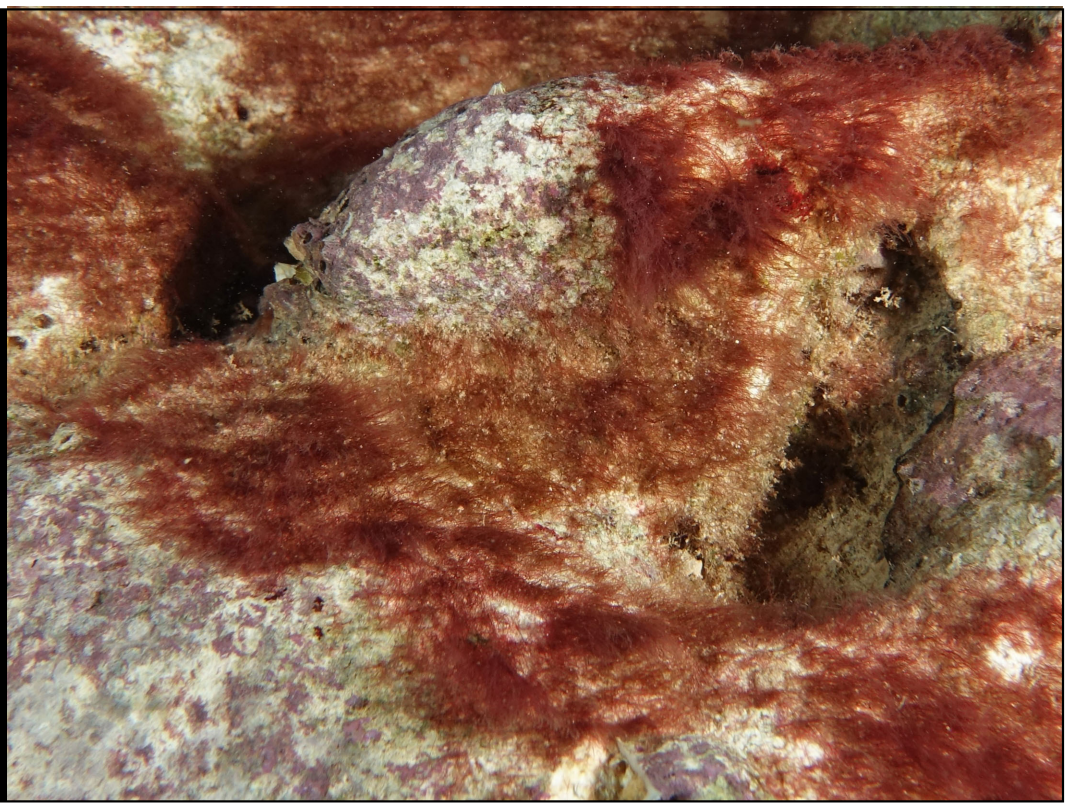
Callithamnion multifidum, very distinctive as it accumulates sand grains. Harvey (1855) noted "generally buried in the sand, the grains of which adhere closely to the filaments".



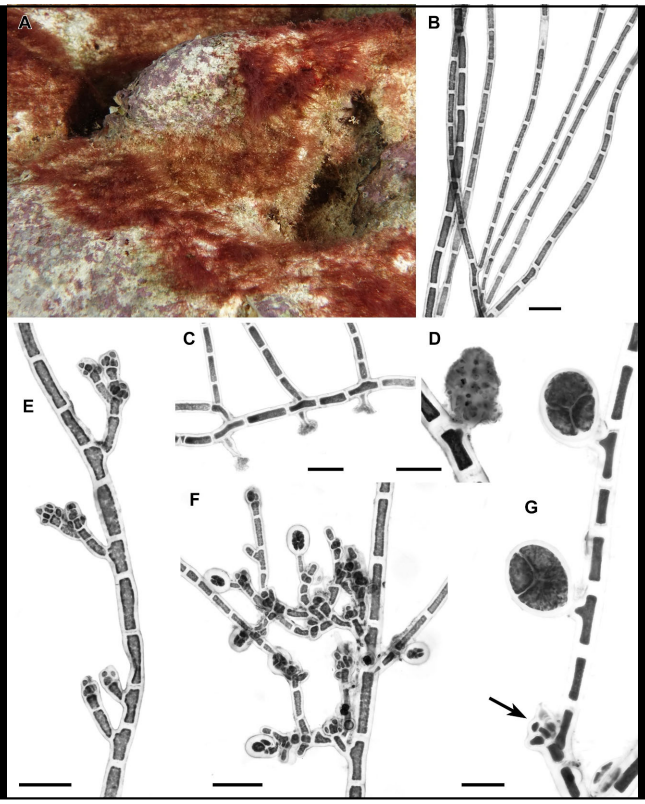
Anotrichium thyrsigerum, previously not recognised as a distinct species



But not everything can be a Harvey species.

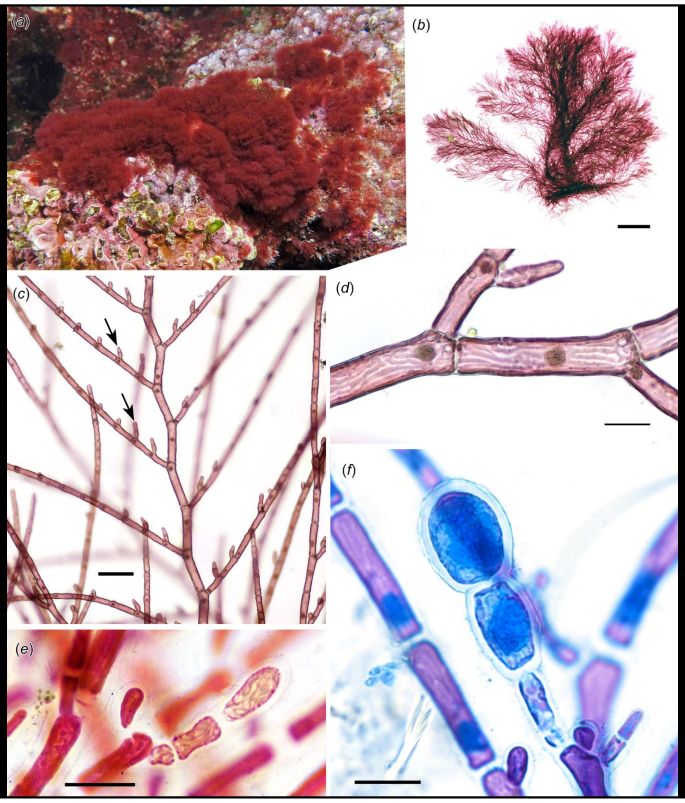


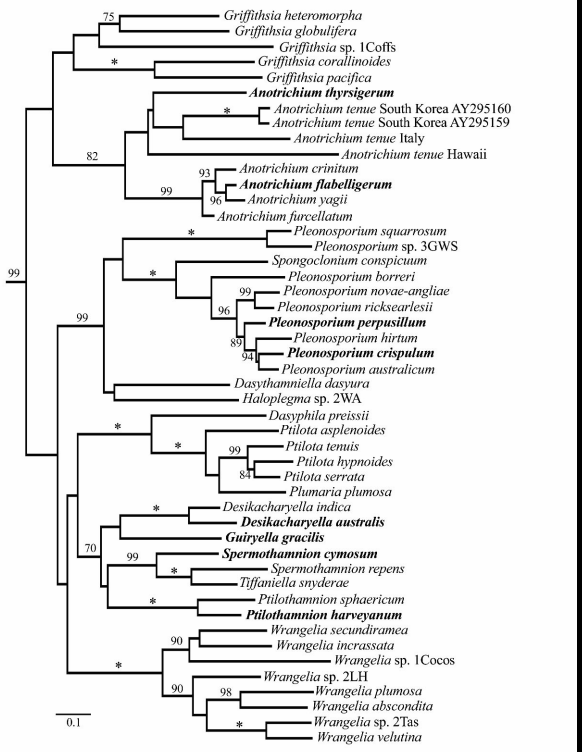
An unusual species, possibly a *Ptilothamnion*, with female, male and tetrasporangia on the same thallus.

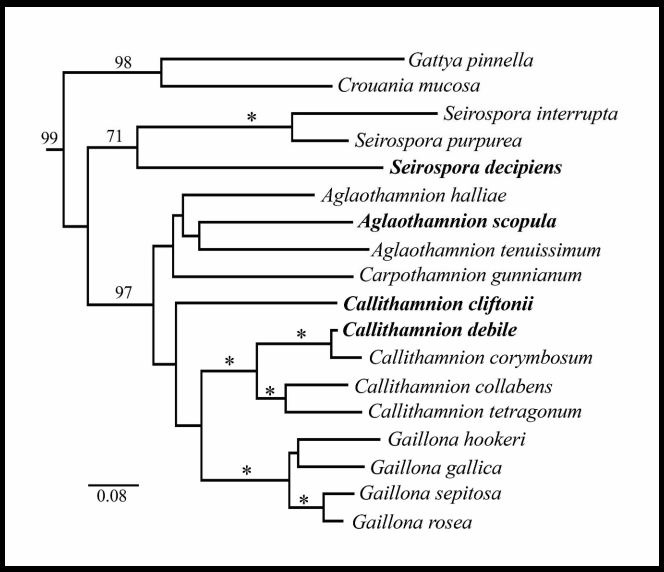


Seirospora decipiens, on shaded rock at Cape Peron, south of Perth

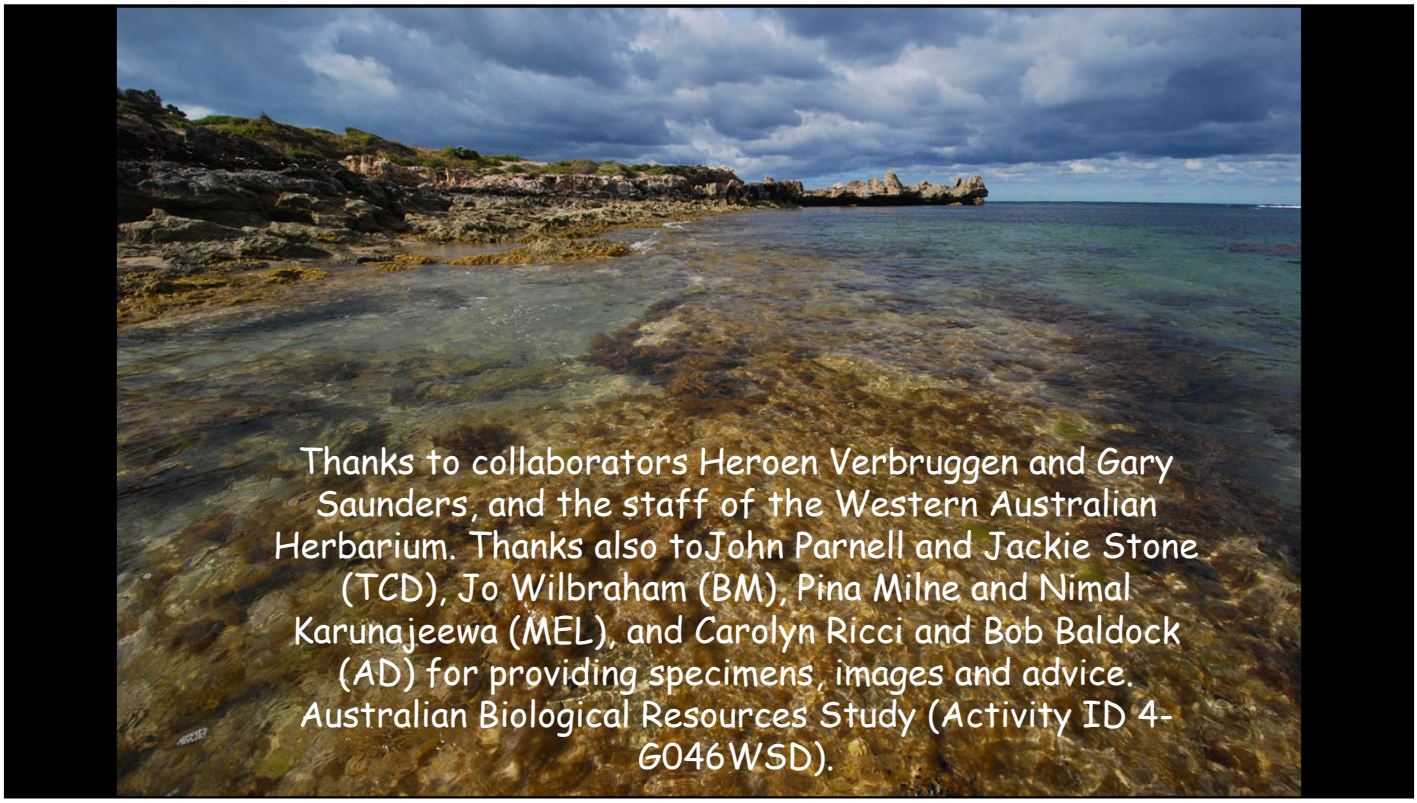
Seirospora decipiens, never found reproductive




Griffithsia heteromorpha
Griffithsia globulifera
Griffithsia sp. 1Coffs
Griffithsia corallinoides
Griffithsia pacifica
Anotrichium thyrsigerum
Anotrichium tenue South Korea AY295160
Anotrichium tenue South Korea AY295159
Anotrichium tenue Italy
Anotrichium tenue Hawaii
Anotrichium crinitum
Anotrichium flabelligerum
Anotrichium yagii
Anotrichium furcellatum
Pleonosporium squarrosum
Pleonosporium sp. 3GWS
Spongoclonium conspicuum
Pleonosporium borreri
Pleonosporium novae-angliae
Pleonosporium ricksearlesii
Pleonosporium perpusillum
Pleonosporium hirtum
Pleonosporium crispulum
Pleonosporium australicum
Dasythamniella dasyura
Haloplegma sp. 2WA
Dasyphila preissii
Ptilota asplenoides
Ptilota tenuis
Ptilota hypnoides
Ptilota serrata
Plumaria plumosa
Desikacharyella indica
Desikacharyella australis
Guiryella gracilis
Spermothamnion cymosum
Spermothamnion repens
Tiffaniella snyderae
Ptilothamnion sphaericum
Ptilothamnion harveyanum
Wrangelia secundiramea
Wrangelia incrassata
Wrangelia sp. 1Cocos
Wrangelia sp. 2LH
Wrangelia plumosa
Wrangelia abscondita
Wrangelia sp. 2Tas
Wrangelia velutina
0.1


Gattya pinnella
Crouania mucosa
Seirospora interrupta
Seirospora purpurea
Seirospora decipiens
Aglaothamnion halliae
Aglaothamnion scopula
Aglaothamnion tenuissimum
Carpothamnion gunnianum
Callithamnion cliftonii
Callithamnion debile
Callithamnion corymbosum
Callithamnion collabens
Callithamnion tetragonum
Gaillona hookeri
Gaillona gallica
Gaillona sepitosa
Gaillona rosea
0.08

Harvey species	Current name (if different)	Final placement
Corynospora australis	*Mazoyerella australis*	*Desikacharyella australis*
Corynospora gracilis	*Anotrichium gracile*	*Guiryella gracilis*
Callithamnion scopula	*Spongoclonium scopula*	*Aglaothamnion scopula*
Callithamnion crispulum		*Pleonosporium crispulum*
Callithamnion pusillum	*Callithamnion perpusillum*	*Pleonosporium perpusillum*
Callithamnion multifidum	*nom. illeg.*	*Callithamnion cliftonii*
Callithamnion debile	*Spongoclonium debile*	*Callithamnion debile*
Callithamnion flabelligerum	Taxonomic synonym of *Anotrichium licmophorum*	*Anotrichium flabelligerum*
Callithamnion thyrsigerum	*Anotrichium tenue* var. *thyrsigerum*	*Anotrichium thyrsigerum*
Callithamnion cymosum	*Spermothamnion cymosum*	*Spermothamnion cymosum*



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And of course…W.H.Harvey (1811-1866).

In his lifetime he described over 800 species and 75 genera of algae.