

FILAMENTOUS RED ALGAE PART IX tribe Polyzonieae – one-sided red algae

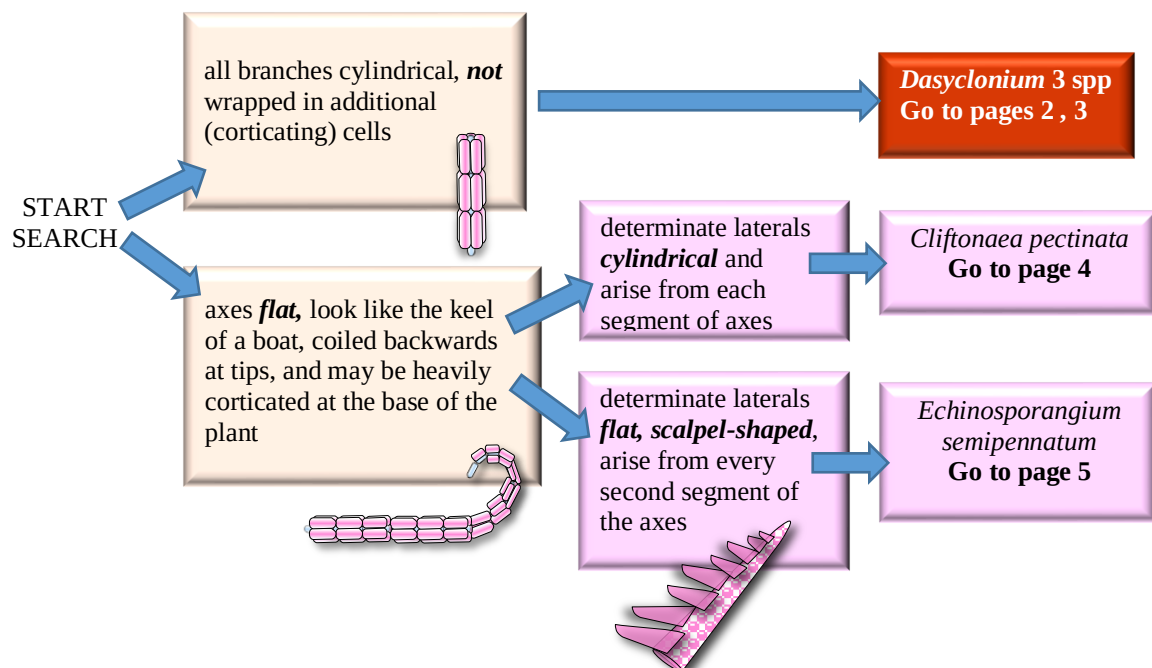
This key	Formal classification of algae relies on investigating microscopic reproductive features in detail. Often a complete set of reproductive stages is unavailable in the specimens to be investigated, making identification very difficult if the technical systematic literature is used. Fortunately, some algae grow in specific places and some have recognizable shapes that allow them to be sorted directly into the level of Family, Tribe or Genus and so shortcut a systematic search through intricate and often unavailable reproductive features. The pictured key below uses this artificial way of searching for a name. Then you can proceed to the appropriate fact sheets or further keys to refine your identification.
Limitations	The key generally starts with the large and obvious and then proceeds to the smaller and obscure species.
Images used below	Unfortunately, to use this key, microscopic investigation of specimens is essential. 
Scale	Unless acknowledged otherwise, all images have been made from pressed specimens or the extensive slide collection of the algal unit, State Herbarium of S Australia, collections generated by the late Professor Womersley and his workers over some 60 years. Images with dark backgrounds have been taken using phase contrast or interference microscopy to highlight transparent structures. Other images may be stained dark blue.
Names	The coin used as a scale is 24 mm or almost 1" across. scientific names follow those found in Womersley, H B S. (2003). <i>The Marine Benthic Flora of Southern Australia Part IIID</i> as it continues to provide the most comprehensive and accessible account. * Denotes the use of a descriptive name, an invention to aid identification and not generally used. § Denotes a common name used by Edgar, G J (2012) <i>Australian Marine Life. 2nd edition</i> . Reed New Holland. <i>Algaebase</i> Website has been checked for possible name changes.

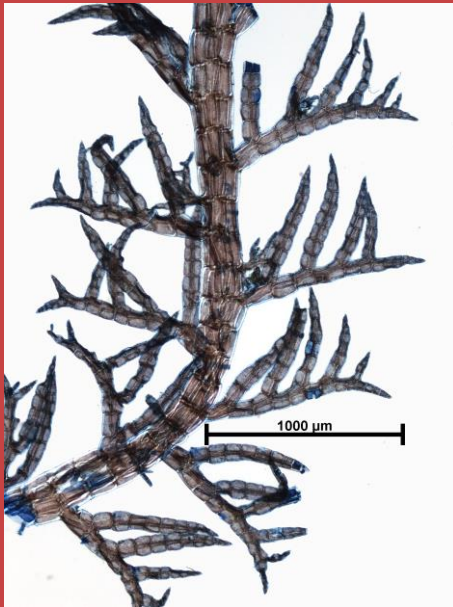
VEGETATIVE FEATURES OF THE TRIBE: POLYZONIEAE

*one-sided Red algae

Plants consist of continuously growing (indeterminate) axes with short side branches (laterals of determinate growth)

- determinate laterals arise in definite, repeated patterns
- determinate laterals branch **on one side only** (are pectinate) 
- axes (at least near tips) have each central filament cell ringed by up to 6 cells (pericentrals) equal in length to filament cells. This gives young axes a segmented appearance.
- plants often grow on other algae (are epiphytic) and may have both recognisable prostrate and erect parts



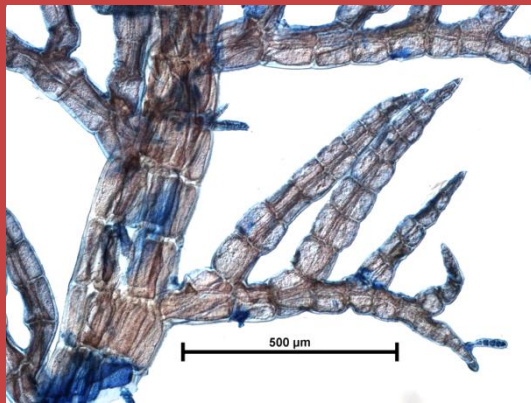


Dasyclonium incisum

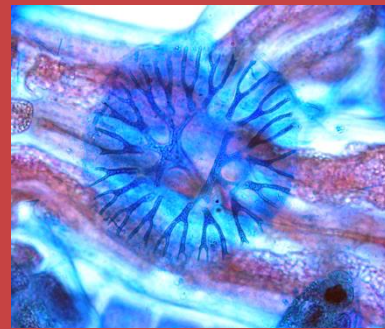


determinate laterals:-

- up to 1mm long, segments *boxy*, $L/B = 1$
- are branched on the upper (adaxial) side
- all branches have a central filament the cells of which are each ringed by 2-3 pericentral cells *except* for the very end cell which is naked and pointed



plants consist of filaments, creeping on the surface of other algae and seagrasses, attached by branched haptera (see opposite) In addition, there are erect axes up to 10cm long



Dasyclonium flaccidum

determinate laterals:-

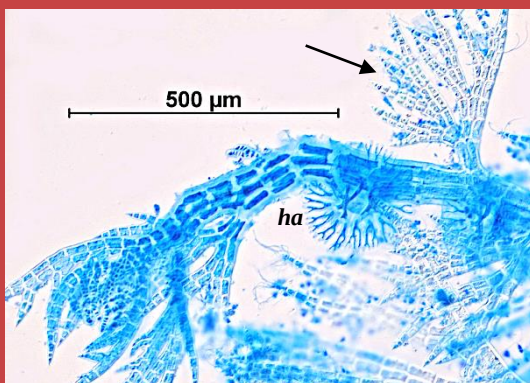
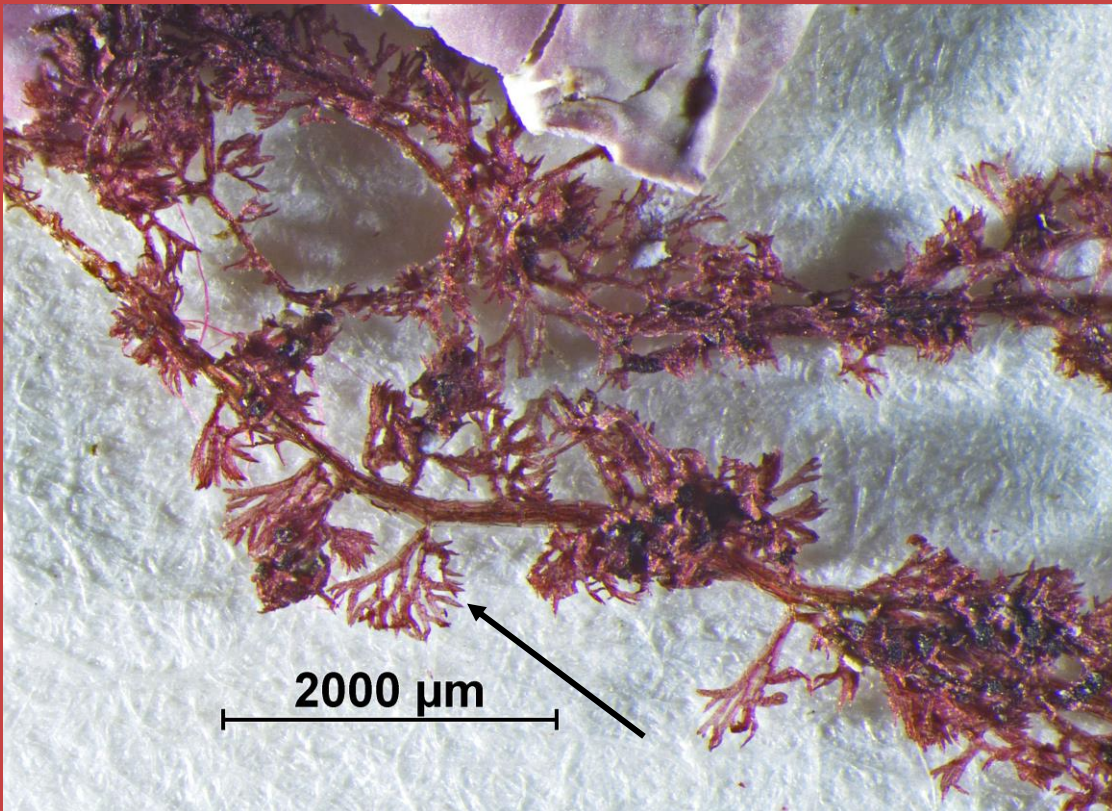
- up to 2mm long, segments *elongate*, $L/B = 2-3$
- are branched on the upper (adaxial) side
- filaments *lack* pericentral cells for some distance from tips



Dasyclonium harveyanum



- basal cells of determinate laterals are themselves branched — whole lateral appears *fan-shaped* (arrowed, below)
- found only in Victoria, Tasmania and New Zealand



Dasyclonium harveyanum near plant tip:
fan-shaped determinate lateral (arrowed),
twinned root-like haptera (*ha*)



Dasyclonium harveyanum branching pattern:
determinate laterals, (basal cells branched,
arrowed) and twinned root-like haptera (*ha*)

Cliftonaea pectinata
 §Feather leafweed



- axis is like a boat keel
- keel axis is coiled backwards at the tip
- cylindrical, unbranched, hair-like determinate branches arise on one side of the keel



Echinosporangium semipennatum
* Red hacksaw blades



- axis is like a boat keel
- keel axis is coiled backwards at tips
- determinate branches are flat, unbranched, and shaped like a scalpel blade
- determinate branches arise on one side of the keel
- the plant base is thick (heavily corticated)
- found at present only from southern Western Australia to Port Elliot, South Australia

Above:
pressed specimen
showing the shape of
determinate laterals.
(The flat laterals
have been spread
horizontally from
their erect position
on the edge of the
keel due to the
pressing process)

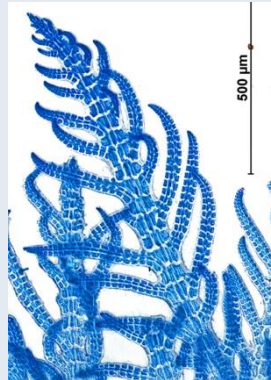


DASYCLONIUM LOOK ALIKES



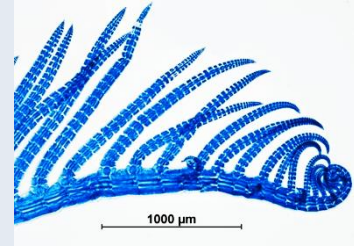
Ditria expleta (Tribe: Herposiphonieae)

- determinate laterals paired, in 2 opposite rows of the axis



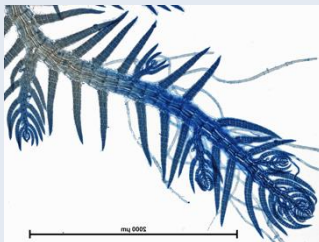
Dipterosiphonia
(Tribe: Herposiphonieae)

- determinate laterals in 2 opposite rows



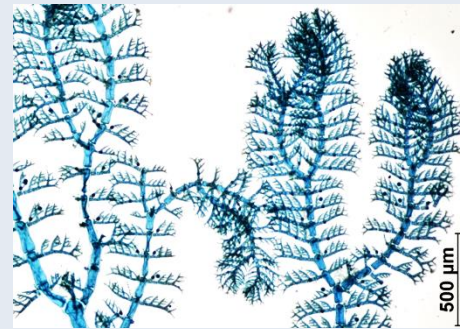
Herposiphonia spp
(Tribe: Herposiphonieae)

- determinate laterals erect, but in special sequences with indeterminate laterals
- tips coiled backwards



Herposiphoniella plurisegmenta
(Tribe: Herposiphonieae)

- determinate laterals spreading, but in special sequences with indeterminate laterals



Pterothamnion spp
(Tribe Pterothamnieceae of the Family Ceramiaceae)

- determinate laterals spreading, opposite, producing short branches on one side
- all filaments naked – pericentral and corticating cells absent

SPECIES/GENERA DESCRIBED ABOVE

species	author/s	page
<i>Cliftonaea pectinata</i>	(Harvey) Harvey	4
<i>Dasyclonium flaccidum</i>	(Harvey) Kylin	2
<i>Dasyclonium harveyanum</i>	(Decaisne ex Harvey) Kylin	3
<i>Dasyclonium incisum</i>	(J. Agardh) Kylin	2
<i>Dipterosiphonia</i>		6
<i>Ditria expleta</i>	Huisman	6
<i>Echinosporangium semipennatum</i>	(Lamouroux ex Poiret) Kylin	5
<i>Herposiphonia</i>		6
<i>Herposiphoniella plurisegmenta</i>	Womersley	6
<i>Pterothamnion</i>		6

REFERENCES

Algaebase <http://www.algaebase.org/> accessed February 2025

Edgar, G. J. (2008) *Australian Marine Life. Second edition.* Sydney. New Holland

Womersley, H.B.S. (2003) The marine benthic flora of southern Australia Part IIID. ABRS and the State Herbarium of South Australia