Pictured Key to some common red-mesh algae of southern Australia

Red Algae. With some 800 species, many of which are endemic (found nowhere else), southern Australia is a major centre of diversity for red algae. Classification is based on detailed reproductive features. Many species unrelated reproductively have similar vegetative form or shape, making identification very difficult if the technical systematic literature is used.

This key Fortunately, we can use this apparent problem to advantage - common shapes or morphologies will allow you to sort ***some*** algae directly into the level of genus or Family and so shortcut a systematic search through intricate and often unavailable reproductive features. The pictured key below uses this ***artificial*** way of starting the search for a name. It's designed to get you to a possible major group in a hurry. Then you can proceed to the appropriate fact sheets within this website.

Scale: the coin used as a scale is 24mm or almost 1" wide. Microscope images of algae are usually blue stained.

The algae in this key are made entirely or partly of a meshwork of threads or filaments which in some species is visible only with the aid of a magnifying glass.

1a. meshwork of threads visible to the unaided eye. Figs 1-7
…….…. 2.

1b. meshwork microscopic or obscure to the unaided eye, plants with a felty texture Figs. 8-24
…….…….. 4.

2a. plant delicate, a ragged net of large, naked cells. Microscopic cell grids at web edges continue the growth of the net. Figs 1-2
……. *Halydictyon arachnoidea*.
Family: "uncertain" in the Flora
Family: Dasyaceae in Algae Base
(http://www.algaebase.org/)

2b. plants robust
…… 3

3a. plants flat-bladed, of solid blades with a broad meshwork on upper fringes. Figs 3-5.
…….. *Martensia elegans*
Family: Delesseriaceae

3b. plants with one-sided meshes, toothed at edges, on narrow stalks. Figs 6, 7
……. *Claudea elegans*
Family: Delesseriaceae

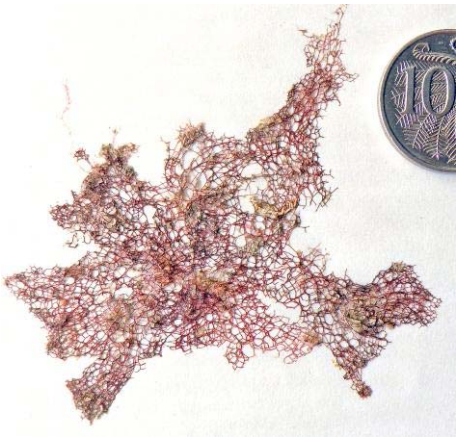


Fig.1: *Halydictyon arachnoidea*

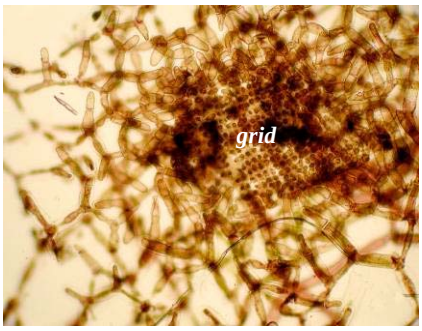


Fig.2: *Halydictyon arachnoidea*: microscope view of the cell grid (*grid*) which continues the growth of the net

Fig. 3: *Martensia elegans*

Fig. 4: detail of the meshwork fringe of *Martensia elegans*

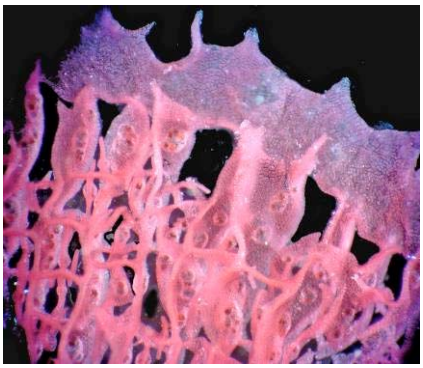


Fig. 5: back-lit microscope view of the meshwork fringe of *Martensia elegans* with small ball-shaped sporangial sacs on the mesh and toothed edge to the fringe

Fig. 6: *Claudea elegans*

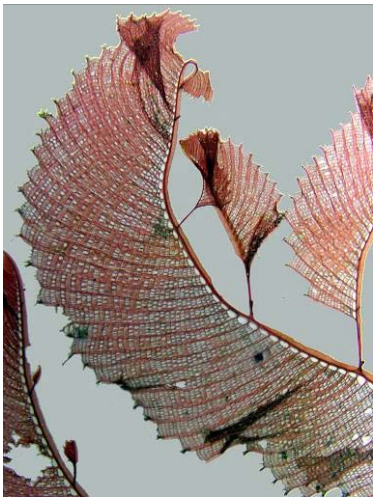


Fig. 7: *Claudea elegans*: detail of one-sided meshwork, side branches arising from narrow stalks

4a. blades with ***prominent*** mid-vein. Figs 8-11
…… *Thuretia quercifolia*
Family: Dasyaceae

4b. mid-vein ***obscure***
…… 5.

Figs 8, 9 : *Thuretia quercifolia*: blades showing mid-line veins and toothed edges

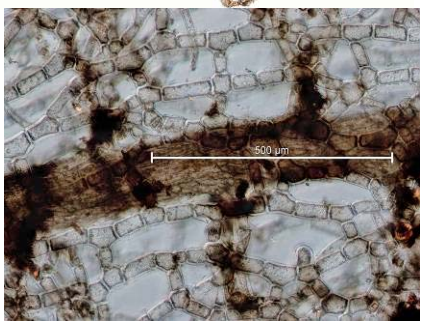


Fig. 10: *Thuretia quercifolia*: microscope view of mid-vein and mesh of cells making up the blade

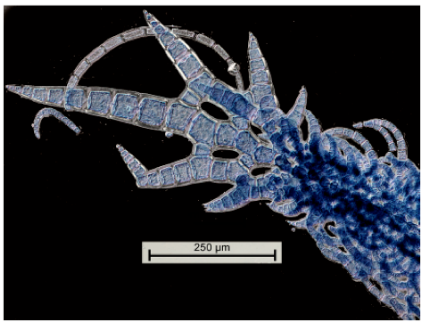


Fig. 11: *Thuretia quercifolia*: microscope detail of a tooth from the blade edge

5a. plants with few, crinkled, irregularly fan-shaped , felty blades, >10mm wide, edged with ***short***, microscopic threads. Figs 12-16.
…… *Haloplegma duperreyii*
Family: Ceramiaceae

5b. plants much-branched, blades narrower or toothed Figs 17- 22
…….. 6.

Fig. 12: *Haloplegma duperreyi*: on sea grass leaves, 10m deep

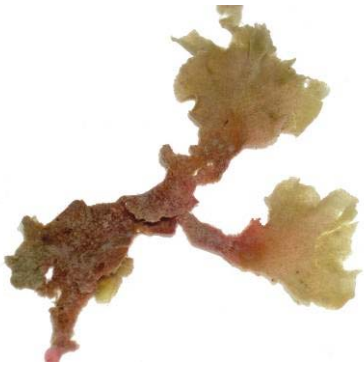


Fig. 13: *Haloplegma duperreyi*

Fig. 14. *Haloplegma duperreyi*: folded blade edges

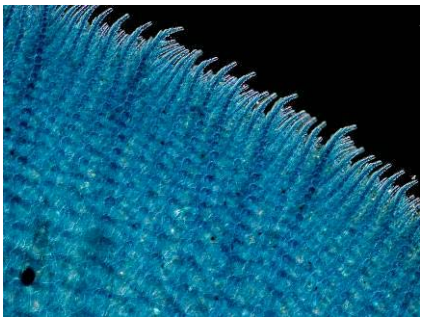


Fig. 15: . *Haloplegma duperreyi*: microscope view of short threads protruding from blade edge

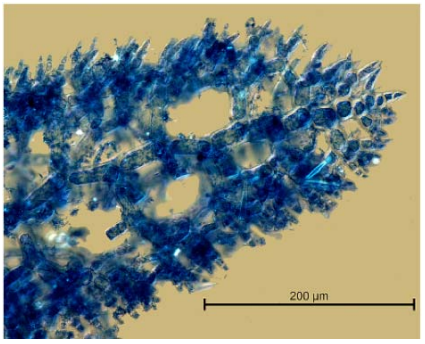


Fig. 16. *Haloplegma duperreyi*: tip with central thread and side branches starting to form a net

6a. main branches (axes) 5-10mm wide, flat, spongy, edges may have soft teeth
Figs 17-20
…….…. *Haloplegma preissii*
Family:Ceramiaceae

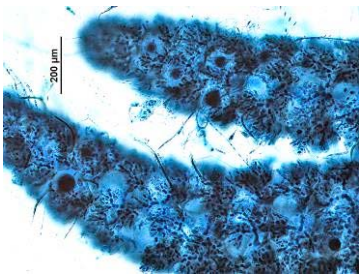
6b. axes 2-4mm wide, cylindrical. Figs 21-24
…… *Thuretia australasica*
Family: Dasyaceae

LOOK-ALIKE ALGA

Some algae consisting initially of threads of naked cells increase in thickness by producing rhizoids or additional threads in a process called cortication.
This may produce a spongy or felty texture, similar to *Haloplegma* or *Thuretia*.
No true meshwork with lines of cells and cross bars is produced, so these species are not included in this key.

Fig. 25. *Dasyphila preissii*: felty and densely coated with rings of branched threads, but not a red-net alga

Figs 26, 27. *Ptilocladia pulchra*: felty and densely coated with rings of branched threads, but not a red-net alga



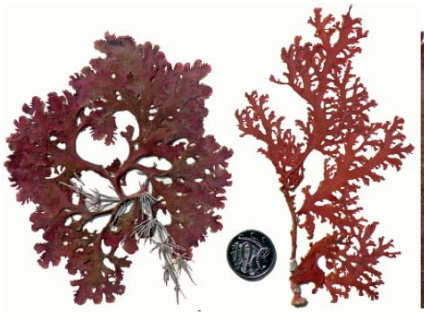


Fig. 17 *Haloplegma preissii* two forms

Fig. 18. *Haloplegma preissii*: broad bladed form

Fig. 19. *Haloplegma preissii*: narrow form

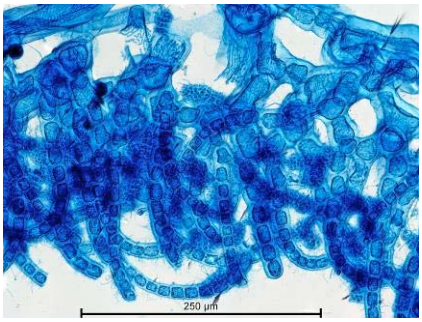


Fig. 20. *Haloplegma preissii* blade edge: long, curved threads protruding

Figs 21, 22: *Thuretia australasica*

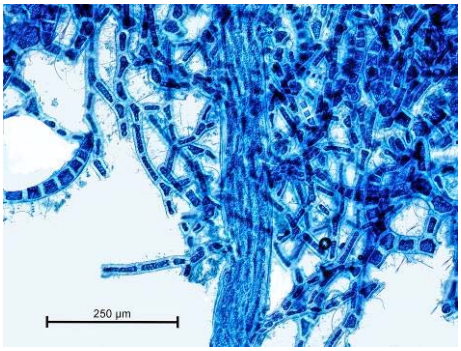


Fig. 23. *Thuretia australasica*: dissected branch exposing the central thread normally obscured by the network of threads

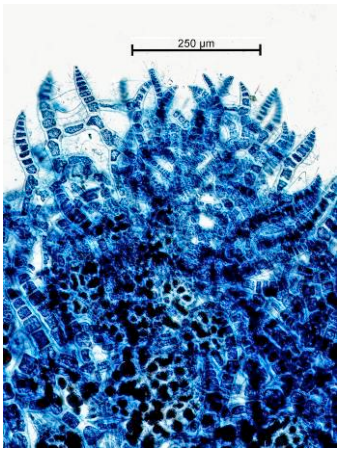


Fig. 24: *Thuretia australasica*: branch tip with nets forming by cross bars in the many threads