SOUTHERN AUSTRALIAN SPECIES OF *PLOCAMIUM* AT A GLANCE

(midscope views are often stained blue, preserved specimens are colourless; the coin scale is 24mm or almost 1” wide)

In this genus, ultimate branches (ramuli) are flat, *paper thin*, occasionally cylindrical but flattened in pressed specimens, pointed, arranged in sets of 2’s, or 3’s, 4’s and 5’s alternating along opposite sides of major branches (axes), repeated also on side branches.

### 1.0: SHORT SIDE BRANCHES (RAMULI) ALTERNATE ALONG MAIN BRANCHES (AXES) IN PAIRS

#### 1.1 MAJOR BRANCHES (AXES) NARROW, ≤ 2 mm WIDE, MATURE FEMALE STRUCTURES (CYSTOCARPS) STALKLESS

major branches (axes) ≈ 1 mm wide, ultimate branches (ramuli) *not* serrated (but can be divided into prong-like branches)

— *Plocamium angustum*

lower member serrated on lower edge

— *Plocamium costatum*
major branches (axes) usually < 3 mm wide; plants delicate, but often large (to 500 mm tall); ramuli pairs variable, the upper one continues growing, repeating the alternating paired branching pattern found in the axes, the lower one is occasionally serrate, or forked many times forming tree like tufts

– *Plocamium mertensii*

major branches (axes) ≈ 4 mm wide; upper ramulus of a pair is stubby, and has finger-like branching, lower one is unbranched and not serrate

– *Plocamium patagiatum*
1.2 MAJOR BRANCHES (AXES) > 2 mm WIDE, MATURE FEMALE STRUCTURES (CYSTOCARPS) ON STALKS (CONTINUED)

clusters of large sporangial structures (stichidia) in forks (axils) of ramuli

major branches (axes) ≈ 2.5 mm wide, with a mid-rib in older parts; plants robust, but small (to 240 mm tall); lower member of the alternating pairs of ramuli is serrate and undivided; sporangial structures are large (250 µm wide)

— *Plocamium dilatatum*

alternating pairs of ramuli ($A_1A_2 - B_1B_2$ etc.). The lower member of the pair is serrate. Axes are developing a central mid-rib

stalked cystocarps
2.0: SHORT SIDE BRANCHES (RAMULI) IN SERIES OF 3, 4 OR 5’s (RARELY PAIRED) ALTERNATING ALONG MAJOR BRANCHES (AXES)

axes ≈ 2 mm wide, thickened below, ramuli in 3’s; stichidia clustered at bases of ramuli forks; cystocarps stalkless and warty — Plocamium preissianum

Ramuli in 3’s, (A₁, A₂, A₃, etc) alternating along axes

warts cystocarps

Ramuli in 5’s, uppermost ramuli in a series are branched, lowest are unbranched, and smooth

Cystocarps smooth; stichidia along inner edges of ramuli forks

Axes ≈ 1 mm wide; ramuli in 3’s, 4’s or 5’s, the several upper ramuli in a series are branched, the lowest is unbranched, cystocarps smooth; stichidia found along edges of forks between ramuli — Plocamium cartilagineum

2.0 Ramuli in 3-5’s continued next page
Algae Revealed: Plocamium at a glance, R N Baldock, State Herbarium, S Australia, March 2013

often growing on other algae (epiphytic).
Axes = 0.5 mm wide, often floppy, ends of branches often re-curved or hooked; short side branches (ramuli) in 3’s, 4’s or 5’s, alternating along axes, the several upper ramuli in a series are branched, the lowest unbranched but the pattern is quickly obscured by additional (adventitious) ramuli; rare sporangial structures (stichidia) on edges of ramuli are forked (sexual stages are unknown)

Alternating series of ramuli in 4’s, (A₁...A₄ – B₁...B₄ etc.), lowest ramulus unbranched, pattern obscured by additional ramuli (ad br)

Forked sporangial structures (stichidia) on the edges of ramuli

Plocamium leptophyllum

*New Zealand*
**PLOCAMNIUM LOOK-ALIKES**

**Calophyllis and Austrophyllis**

these flat-branched species may superficially resemble *Plocamium* but short side branches are

- irregularly forked
- do not occur in series of 2’s, 3’s, 4’s, or 5’s

and,

- reproductive organs form swellings embedded in the flat branches

**Calliblepharis planicaulis**

this has fine alternating side branches, some with hooked ends similar to *Plocamium leptophyllum*, but reproductive organs form swellings embedded in the branches, and the surface has large cells ringed by small cells (rosettes)
Ptilonia spp
These have alternating flat side branches but short side branches are
• irregularly forked, or
• do not occur in series of 2’s, 3’s, 4’s, or 5’s and,
• reproductive organs form apical swellings
• there is a prominent central filament running through the flattened branches

Ptilonia australasicum, branching pattern and terminal cystocarps

Ptilonia subulifera, branching pattern, terminal cystocarps and cross section