BRYOPHYTES of Australia

Goniomitrium Hook.f. & Wilson

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Cite this profile as: Allan J. Fife & Rodney D. Seppelt (2019) Goniomitrium. In: Flora of Australia. Australian Biological Resources Study, Department of the Environment and Energy, Canberra.
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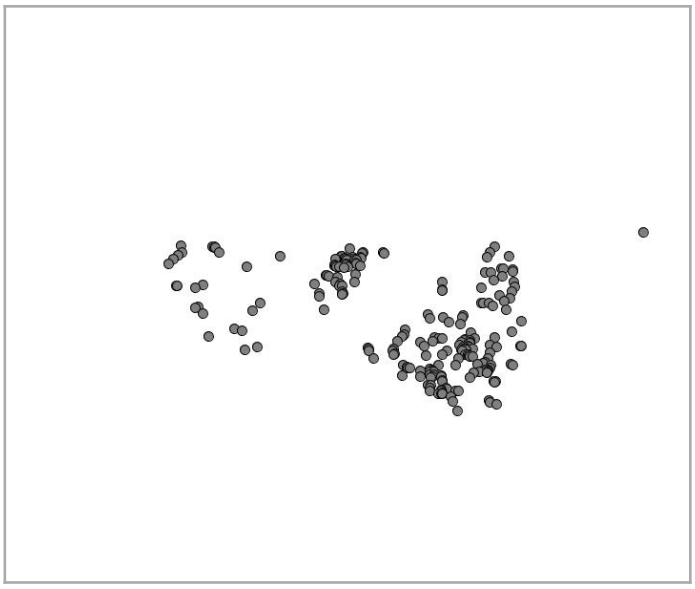
*Goniomitrium Hook.*f. *& Wilson*

Allan J. Fife & Rodney D. Seppelt

Paroicous, synoicous or autoicous. Plants small, brownish green to bright green, forming dense clusters. Stems reddish brown or pale, unbranched, rarely forked, to c. 2 mm tall, in cross-section with a central strand, a medulla of parenchyma and weakly differentiated firmer-walled cortical layers. Stems beset below with reddish brown or cerise rhizoids that rarely bear ovoid tubers. Leaves appressed when dry, erect-spreading to spreading when moist, concave to somewhat keeled, ovate to obovate-spathulate, acute to acuminate-aristate; costa weakly to well developed, rarely absent, usually percurrent to excurrent; margins plane and entire. Upper laminal cells variable, often hexagonal to oblong, frequently some oblate; lower laminal cells more oblong or quadrate and often laxer, sometimes their walls undulate and weakly thickened at the corners; a row of yellowish brown cells frequently present across the leaf base; marginal cells not differentiated.
Male bud-like branch very short, beside the perichaetium. Calyptra broadly mitrate, with a short stout rostrum, with 8 radial pleats, 8-lobed at base, completely covering the immature capsule and often persisting after dehiscence. Setae yellow, 0.2–1.0 mm long, smooth, straight, not twisted. Capsules erect, symmetrical, ellipsoidal to globose (before dehiscence), globose to somewhat pyriform (after dehiscence), c. 1 mm long, operculate, gymnostomous, yellowish brown, strongly and irregularly wrinkled when dry, with a weakly differentiated neck to 1/5 the length of the capsule; mouth transverse, equal to or slightly less than the diameter of capsule; exothecial cells irregularly polygonal, c. 30–50 µm wide, with thin non-cuneate walls, c. 6 suboral rows oblate and firmer-walled; operculum plano-convex, not rostrate, falling with a portion of the columella attached, composed of irregularly arranged thin-walled cells; annulus weakly differentiated, composed of a single row of small firm-walled isodiametric to oblong cells, persistent; stomata numerous, weakly immersed. Spores ellipsoidal, yellowish brown to golden, minutely verrucate, the surface appearing reticulate; in polar view oval, occasionally almost isodiametric; in lateral view convex on the distal side, plane to slightly concave on the proximal side, with a long narrow aperture area or laesura, 60–110 µm in greater diam.

Distribution: One species and its two subspecies occur in Australia. These were recognised as distinct species by Scott & Stone (1976), Catcheside (1980) and Stone (1981) but, based on there being considerable overlap in morphological features, *G. enerve* is considered to be a subspecies of *G. acuminatum*.
Goniomitrium is a genus of five species, although there are reasonable grounds for considering it to be monotypic.



Etymology: From the Greek *gonia* (an angle or corner) and the Latin *mitra* (a turban or head-dress), in reference to the angled calyptra.

Nomenclature And Typification: ***Goniomitrium*** Hook. & Wilson, *London J. Bot.* 5: 142 (1846). Type: not designated. *Rehmanniella* Müll.Hal., *Bot. Centralbl*. 7: 347 (1881). T: *R. africana* Müll.Hal. [= *G. acuminatum* subsp. *africanum* (Müll.Hal.) Fife].

Taxonomic Notes: Goniomitrium speluncae P. de la Varde was described from sterile material, and its affinities must remain in doubt. Of the four remaining taxa, *G. seroi* Casas de Puig from Spain is similar to *G. acuminatum* but the spores are smaller (37–50 µm). *Goniomitrium africanum* (Müll.Hal.) Broth., differs from Australian *G. acuminatum* in having shorter upper laminal cells with undulate walls in the upper part of the lamina, stouter and more excurrent costae, conspicuously redder rhizoids and spores 50–75 µm. Fife (1985) reduced *G. africanum* to a subspecies of *G. acuminatum*, although Magill (1987) retained it as a distinct species.

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Images

Fig. 1: '*Goniomitrium acuminatum*' by Fagg, M. (© Fagg, M.)

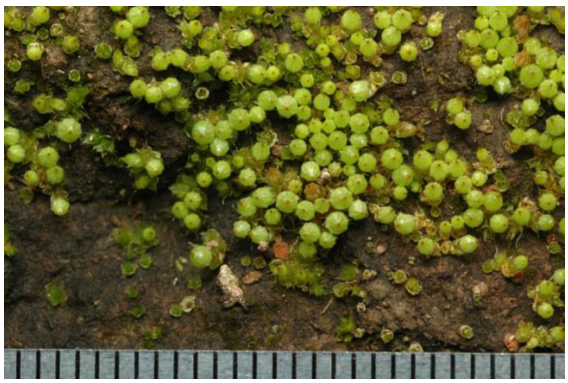

Fig. 2: '*Goniomitrium acuminatum subsp. enerve*' by Fagg, M. (© Fagg, M.)

Fig. 3: '*Goniomitrium acuminatum*' by Fagg, M. (© Fagg, M.)

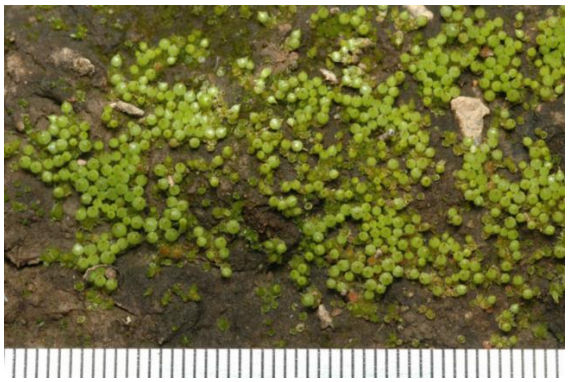

Fig. 4: '*Goniomitrium acuminatum*' by Fagg, M. (© Australian National Botanic Gardens)

Fig. 5: '*Goniomitrium acuminatum*' by Fagg, M. (© Australian National Botanic Gardens)

Fig. 6: '*Goniomitrium acuminatum*' by Fagg, M. (© Australian National Botanic Gardens)

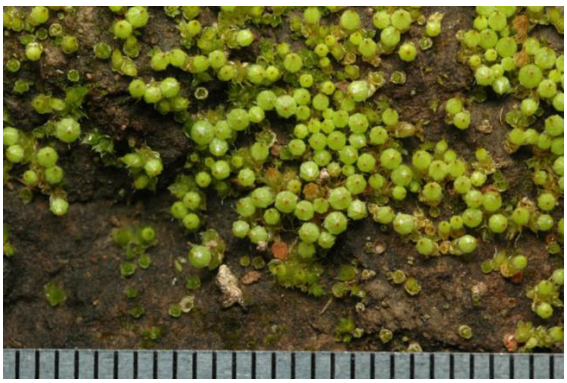

Fig. 7: '*Goniomitrium acuminatum*' by Fagg, M. (© Australian National Botanic Gardens)

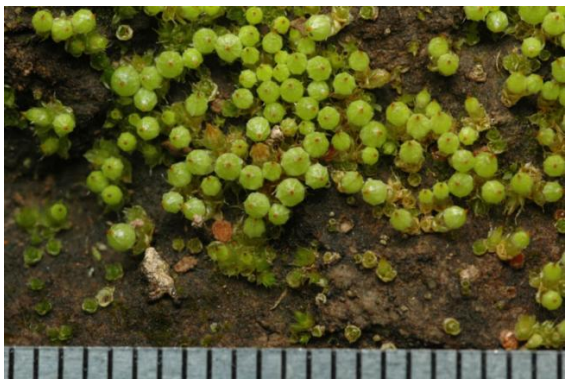

Fig. 8: '*Goniomitrium acuminatum subsp. enerve*' by Fagg, M. (© Fagg, M.)

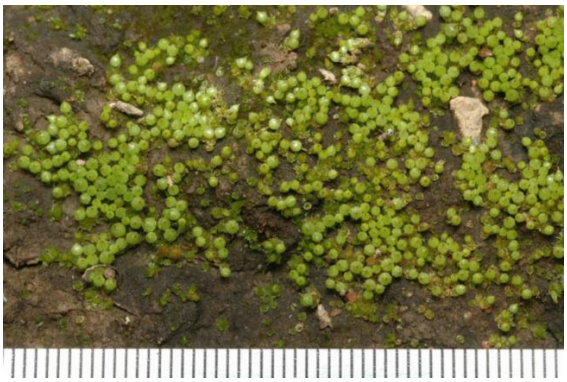

Fig. 9: '*Goniomitrium acuminatum subsp. enerve*' by Fagg, M. (© Fagg, M.)

Fig. 10: '*Goniomitrium acuminatum*' by Lepp, H. (© Lepp, H.)

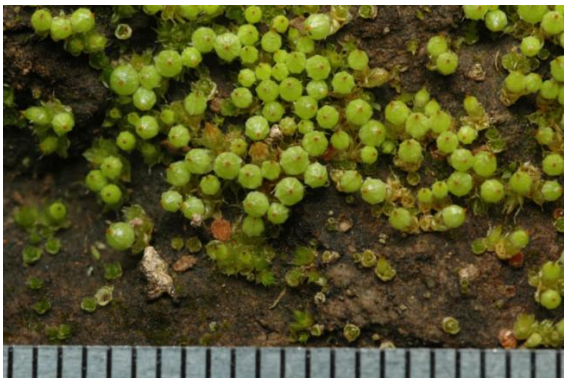

Fig. 11: '*Goniomitrium acuminatum*' by Fagg, M. (© Australian National Botanic Gardens)

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