CATAGONIACEAE

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Catagoniaceae W.R.Buck & Ireland, *Nova Hedwigia* 41: 115 (1985).

Type: *Catagonium* Müll.Hal. ex Broth.

Dioicous. Pleurocarpous. Stems simple to irregularly monopodially branched, terete to complanate-foliate; rhizoids papillose; pseudoparaphyllia lacking; branch primordia *Bryum* type, subtype AA. Leaves conduplicate to strongly concave; alar cells lacking; costa absent or short and double. Peristome hypnoid.

Although this family is monotypic, *Catagonium* has traditionally been placed in either the Plagiotheciaceae or the Phyllogoniaceae. Lin (1983), undertook a phenetic analysis of genera traditionally aligned with the Phyllogoniaceae as well as some that show gametophytic or sporophytic resemblance to genera of the Phyllogoniaceae, but unquestionably belonging to other families. Lin transferred *Catagonium* back to Plagiotheciaceae, as in analyses of both gametophytic and sporophytic characters, as well as the combined analysis, species of *Catagonium* clustered with those of *Plagiothecium*.

The hypnoid peristome sets *Catagonium* apart from the Phyllogoniaceae, which have an isobryoid structure. Moreover, the absence of differentiated alar cells, as well as the stem-borne, papillose rhizoids preclude placement in the Plagiotheciaceae. Buck & Ireland (1985) accommodated *Catagonium* in the newly described Catagoniaceae, the only moss family with a hypnoid peristome which has members with conduplicate leaves.

References

Buck, W.R. & Ireland, R.R. (1985), A reclassification of the Plagiotheciaceae, *Nova Hedwigia* 41: 89–125.

Lin, S.-H. (1983), A taxonomic revision of Phyllogoniaceae (Bryopsida). Part I, *J. Taiwan Mus.* 36(2): 37–86.

Lin, S.-H. (1984), A taxonomic revision of Phyllogoniaceae (Bryopsida). Part II, *J. Taiwan Museum* 37(2): 1–54.

CATAGONIUM

Catagonium Müll.Hal. ex Broth., *in* H.G.A.Engler & K.A.E.Prantl, *Nat. Pflanzenfam.* I, 3: 1087 (1908); latinised from the Greek *cata-* (down, against, very) and *gone* (a seed), perhaps in reference to the long-exserted sporangia, and to set it apart from *Cryptogonium*, with which it used to be placed in the same family, and which has immersed capsules.

Type: *C. politum* (Hook.f. & Wilson) Broth. [= *C. nitens* (Brid.) Cardot]

Plants glossy, small to medium-sized, in dense yellow-green to brownish green mats. Stems simple or irregularly branched, terete to complanate-foliate; branches rarely long-attenuate and flagelliform; in cross section with 1–4 layers of small thick-walled cells, internally with large thin-walled cells; central strand lacking or poorly defined. Stem and branch leaves similar, erect-spreading, lanceolate-ovate to oblong-ovate, conduplicate to strongly concave, mostly abruptly acuminate to short-piliferous, scarcely altered when dry; margin entire throughout or serrulate towards the apex; costa short and double or lacking. Laminal cells

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linear, slightly vermicular, thin-walled, not pitted, often shorter towards the apex; alar cells undifferentiated, concolorous.

Perigonia small, often near the bases of stems; bracts oblong-ovate, concave, abruptly short-acuminate, ecostate. Perichaetia scattered on stems; perichaetial leaves oblong-ovate, long-acuminate to short-piliferous, ecostate. Calyptra cucullate, smooth, naked, with an entire basal margin. Capsules long-exserted, erect or inclined, cylindrical, slightly asymmetrical, smooth; stomata present at the base of the capsule, phaneropore, slightly bulging; annulus revoluble, consisting of 1–3 rows of small thin-walled cells; operculum conical to conical-rostrate. Exostome teeth narrowly triangular, bordered, scarcely shouldered; outer face horizontally striate, papillose above; inner face smooth, papillose above; endostome finely papillose, with a high basal membrane; processes narrow, keeled, perforate, shorter than the exostome teeth; cilia 1–3, shorter than the processes. Spores spherical to ellipsoidal, smooth to papillose.

Catagonium is a genus of four mainly Southern Hemisphere species. It occurs throughout the austral region except Antarctica and some islands in the Subantarctic, the Indian Ocean and the Pacific. The genus is most diverse in South America, the only continent with more than one species, from where its distribution extends into the Northern Hemisphere, one species occurring in Central America and the Caribbean.

Catagonium nitens (Brid.) Cardot, *Hist. Phys. Madagascar, Mousses* 496 (1915) subsp. **nitens**

Leskea nitens Brid., *Muscol. Recent.*, Suppl. 2: 50 (1812). T: "In insulis Borboniae et Franciae…", [Réunion and Mauritius], *J.B.G.G.M.Bory de Saint Vincent*; holo: B, not located.

Hypnum politum Hook.f. & Wilson, *London J. Bot.* 3: 553 (1844); *Acrocladium politum* (Hook.f. & Wilson) Mitt., *J. Linn. Soc., Bot.* 12: 531 (1869); *Acroceratium politum* (Hook.f. & Wilson) Mitt., *Trans. & Proc. Roy. Soc. Victoria* 19: 86 (1882); *Catagonium politum* (Hook.f. & Wilson) Dusén ex Broth., *in* H.G.A.Engler & K.A.E.Prantl, *Nat. Pflanzenfam.* I, 3: 1088, 1237 (1908). T: Hermite Island, Cape Horn, Chile, *J.D.Hooker*; lecto: NY, *fide* S.-H.Lin, *op. cit.* 5; isolecto: BM, H; Kerguelen Island, *J.D.Hooker 258*; syn: BM, NY.

Orthorrhynchium hampeanum Müll.Hal., *Linnaea* 36: 29 (1869); *Cryptogonium hampeanum* Hampe, *Fragm.* 11 (Suppl.): 49 (1881). T: Sealers Cove, Wilsons Promontory, Vic., *F.Mueller*; lecto: H, *fide* S.-H.Lin, *op. cit.* 6, as "holotype".

Illustrations: G.A.M.Scott & I.G.Stone, *The Mosses of Southern Australia* 377, pl. 72 (lower) (1976), as *C. politum*; S.-H.Lin, *op. cit.* 10, pl. 7; D.H.Norris & T.Koponen, *Ann. Bot. Fenn.* 24: 213, fig. 8a–e (1987); J.Beever, K.W.Allison & J.Child, *Mosses of New Zealand*, 2nd edn 147, fig. 79 (1992); D.Meagher & B.Fuhrer, *A Field Guide to the Mosses & Allied Plants of Southern Australia* 35 (2003).

Plants forming smooth yellowish green to green mats. Stems 3–10 cm long; branches 1.0–2.5 mm long, strongly complanate-foliate. Leaves oblong-ovate, 1.6–1.8 mm long, 0.45–0.60 mm wide, becoming smaller at the branch apices, asymmetrically conduplicate, smooth, slightly narrowed towards the insertion, acuminate with the acumen straight to decurved. Mid-laminal cells linear, 85–160 × 3–4 μm, slightly vermicular, thin-walled, not pitted. Capsules inclined.

Occurs in south-eastern N.S.W., A.C.T., in Vic. as far west as the Otways, and in Tas.; grows in wet forest and subalpine vegetation at elevations up to 2020 m, on earth walls and rocks. Also in Lord Howe Island, New Guinea, New Zealand, Subantarctic islands (but not Macquarie Island), southern South America, southern Africa and Réunion.

N.S.W.: Rutherfords Ck, near Pipers Lookout, c. 12 km WNW of Bemboka, *K.R.Thiele 1010* (MEL). Vic.: Wirrawilla Rainforest Walk, Sylvia Creek Rd, Toolangi S.F., *V.Stajsic 2307* (MEL). Tas.: St Columba Falls, *I.G.Stone 3255* (MEL).

Catagonium nitens is immediately distinguishable from other mosses in the southern part of its Australian range by its silky, strongly complanate fronds. However, the northern part of its distribution overlaps with that of *Camptochaete leichhardtii*, which also possesses strongly complanate fronds and often has conduplicate lateral leaves. Indeed, all reports of *Catagonium nitens* from Queensland have turned out to be based on misidentified *Camptochaete*. *Catagonium nitens* is most reliably separated from *C. leichhardtii* by the longer and narrower, thin-walled laminal cells and the absence of differentiated alar cells.

Judging from Lin's (1984) description, Australian plants occupy the lower end of the size range for *C. nitens*. Lin (1984) also recognised *C. nitens* subsp. *maritimum* (Hook.) S.H.Lin, which is restricted to South Africa and has terete-foliate stems and branches.