

# NEPHROMA

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[From *Flora of Australia* volume 57 (2009)]

*Nephroma* Ach., *Lichenogr. Universalis* 101, 521 (1810); from the Greek *nephros* (a kidney), in reference to the shape of the apothecia.

Type: *N. polaris* Ach., *nom. illeg.* [= *N. arcticum* (L.) Torss.]

Thallus foliose, dorsiventral, heteromerous, variously lobed, membranous or coriaceous, spreading, 2–30 cm wide, corticate on both surfaces. Lobes variable, initially flattened against the substratum, becoming upturned at the apices and spreading outward once fertile, irregularly branched (habit of initial lobes often imposed by substratum topography); fertile lobes usually imbricate, occasionally palmate; margins entire, denticulate, phyllidiate or irregularly incised. Upper surface greenish yellow, brownish red or greyish brown, or ±greyish (in shade), smooth, wrinkled or (strongly) faveolate-impressed, dull or glossy, ±maculate; isidia or phyllidia present or absent; soredia and pseudocyphellae absent. Photobiont a green alga (*Coccomyxa*) or a cyanobacterium (*Nostoc*); green-photobiont species often with internal cephalodia of cyanobacteria near the lower surface (in Australian species), or externally on the upper surface. Medulla white (occasionally ±pigmented), of loosely woven hyphae. Lower surface black, pale brown or whitish, bullate or not, glabrous or tomentose, smooth or ±undulate where internal cephalodia are present. Ascómata apothecia, at lobe apices of the lower surface, broadly rounded and resembling fingernails, or ±reniform; disc slightly raised or not, pale brown or dark reddish brown, often becoming discoloured or darkened, matt or glossy, epruinose; margins entire, phyllidiate or irregularly incised. Paraphyses simple. Asci 8-spored; apical cap amyloid; ocular chamber well-developed. Ascospores 1–3-septate, straight, narrowly ellipsoidal or fusiform-ellipsoidal, mostly pale brown, less commonly hyaline. Pycnidia marginal, immersed or not, pedicellate or not, simple or branched (neither branched nor pedicellate in Australian species). Conidia bacilliform.

C.M.Wetmore, The lichen genus *Nephroma* in North and Middle America, *Publ. Mus. Michigan State Univ., Biol. Ser.* 1: 369–452 (1960); J.S.Murray, Studies of New Zealand lichens. Part III – The Peltigeraceae, *Trans. Roy. Soc. New Zealand* 88: 381–399 (1960); S.E.Moroney, K.J.Ronaldson, A.L.Wilkins, T.G.A.Green & P.W.James, Depsidone constituents from the *quintaria* group of *Nephroma* species, *Phytochemistry* 20: 787–789 (1981); D.J.Galloway, *Flora of New Zealand Lichens* 312–316 (1985); P.W.James & F.J.White, Studies on the lichen genus *Nephroma* I. The European and Macaronesian species, *Lichenologist* 19: 215–268 (1987); F.J.White & P.W.James, Studies on the genus *Nephroma* II. The southern temperate species, *Lichenologist* 20: 103–166 (1988); O.Eriksson & A.Strand, Relationships of the genera *Nephroma*, *Peltigera* and *Solorina* (Peltigerales, Ascomycota) inferred from 18S rDNA sequences, *Syst. Ascomycetum* 14: 33–39 (1995); K.Lohtander, I.Oksanen & J.Rikkinen, A phylogenetic study of *Nephroma* (lichen-forming Ascomycota), *Mycol. Res.* 106: 777–787 (2002); E.Wiklund & M.Wedin, The phylogenetic relationships of the cyanobacterial lichens in the Lecanorales suborder Peltigerineae, *Cladistics* 19: 419–431 (2003); J.Miadhikowska & F.Lutzoni, Phylogenetic classification of peltigeralean fungi (Peltigerales, Ascomycota) based on ribosomal RNA small and large subunits, *Amer. J. Bot.* 91: 449–464 (2004); S.H.J.J.Louwhoff, The lichen genus *Nephroma* in Australia, *Muelleria* 22: 3–10 (2005); D.J.Galloway, *Flora of New Zealand Lichens. Revised Second Edition* 1: 967–974 (2007).

- 1 Photobiont a green alga; also with internal cephalodia containing cyanobacteria (*Nostoc*); thallus yellow to green, occasionally greenish brown ..... 1. **N. australe**
- 1: Photobiont a cyanobacterium; cephalodia absent; thallus red-brown, or greyish brown, greyish red or bluish..... 2

- 2 Upper surface strongly faveolate-reticulate; lower surface creamish buff, bullate (*1:*) .....  
 ..... **2. N. cellulorum**
- 2: Upper surface smooth or weakly depressed; lower surface dark brown to black, undulate..... 3
- 3 Thallus margin denticulate, ±flattened, with elongate mostly terete phyllidia, these rarely extending to the upper surface; lower surface tomentose; dorsal surface of apothecia scabrid (*2:*)..... **3. N. helveticum**
- 3: Thallus margin not denticulate; upper surface and margins with scattered or clustered ±flattened phyllidia; lower surface glabrous or occasionally ±subpubescent; dorsal surface of apothecia smooth and faveolate ..... **4. N. rufum**