Flora of Australia

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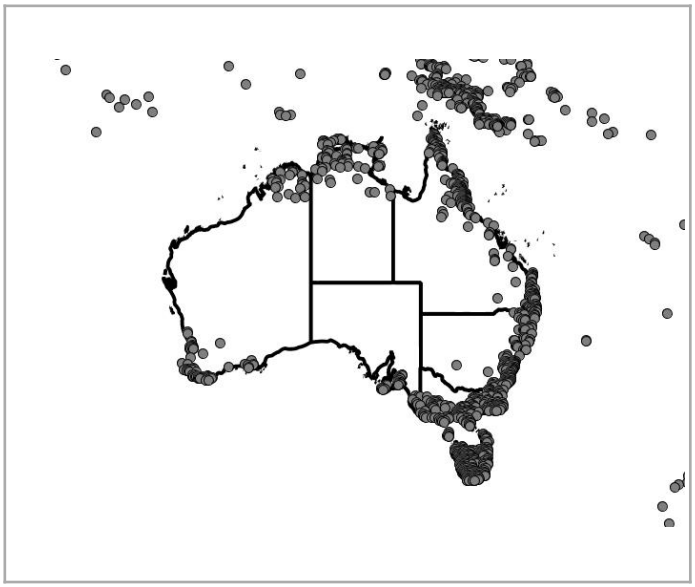
Lycopodiaceae P.Beauv. ex Mirb.

- Chinnock, R.J. in McCarthy, P.M. (ed.) (1998), Lycopodiaceae. *Flora of Australia* 48

R.J. Chinnock

Epiphytic terrestrial or lithophytic erect to pendulous homosporous herbs and climbers. Stems dichotomously branched, rarely with lateral branching, protostelic or sometimes partly solenostelic (*Phylloglossum*), usually with a few fleshy dichotomously-branched roots. Leaves eligulate, simple, with 1 medial vein, arranged in alternating spirals or irregular whorls, or appearing decussate, homophyllous or heterophyllous, isophyllous or anisophyllous. Sporophylls similar to foliage leaves or modified and aggregated into strobili. Sporangia solitary in leaf axils or on the upper side of sporophyll bases, unilocular, subglobular to reniform, dehiscing by transverse slits. Spores subglobose to tetrahedral. Gametophyte monoecious, tuberous, subterranean and holosaprophytic or terrestrial, photosynthetic and hemisaprophytic.

Distribution: A family here treated as consisting of four genera; all represented in Australia.



Notes: Apart from *Phylloglossum*, which has always been universally accepted, *Lycopodium* has been recognised as either one large polymorphic genus, e.g. Bierhorst (1971), Tryon & Tryon (1982), or subdivided into as many as 12 genera, e.g. Rothmaler (1964), Holub (1983, 1985 and other papers).
Within *Lycopodium s. lat.* there is considerable variation in branching patterns of which Øllgaard (1979) recognised three basic types, each corresponding to what he considered to be genera. Leaves are also very variable in form,

and may be homophyllous or heterophyllous, and either equal in size or different at the same point on the stem. The sporophylls may remain unmodified, although often greatly reduced, or become highly specialised and aggregated into well-defined, stalked strobili, with the sporangia in some cases enclosed within cavities. In addition, vegetative anatomy, sporangial structure and spores also show great variation.
Until recently, attempts to subdivide *Lycopodium s. lat.* have never been satisfactory. However, the classification proposed by Øllgaard (1987) is, I believe, the first acceptable subdivision of this genus, and is followed here. This is a compromise between, on the one hand, the monogeneric view (*Lycopodium s. lat.*), which is still widely held, and on the other, the subdivision of the genus into as many as 12 segregate genera, which has resulted in considerable confusion in the past.
Øllgaard (1989) covers names at all levels of classification and details of type material.
Some authors have also subdivided the genera between two families, Lycopodiaceae and Huperziaceae (e.g. Rothmaler 1964; Holub 1985).

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Images

Fig. 1: '*Lycopodium deuterodensum*' by Fagg, M. (© Fagg, M.)

Fig. 2: '*Lycopodium deuterodensum*' by Fagg, M. (© Fagg, M.)

Fig. 3: '*Lycopodium deuterodensum*' by Fagg, M. (© Fagg, M.)

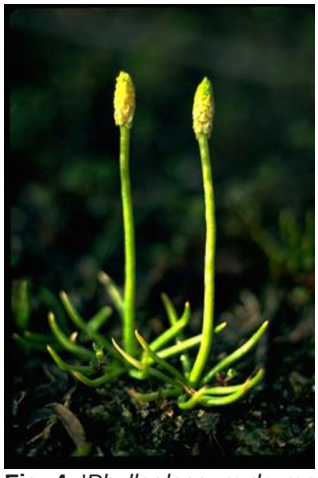

Fig. 4: '*Phylloglossum drummondii*' by Fagg, M. (© Australian National Botanic Gardens)

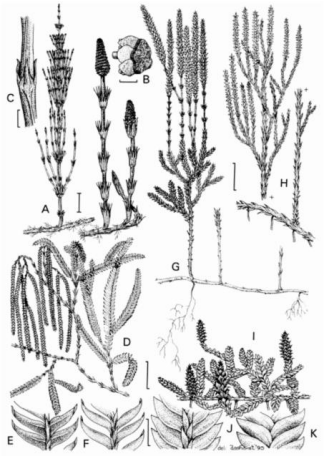

Fig. 5: '*Lycopodium fastigiatum*' by G.R.M.Dashorst. (© Commonwealth of Australia)

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

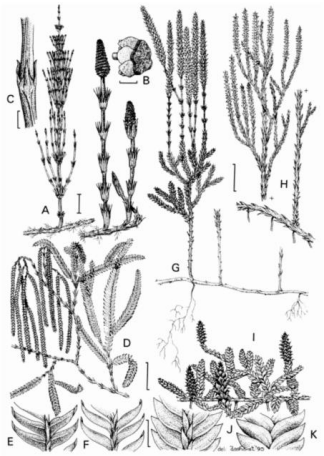

Fig. 7: '*Lycopodium deuterodensum*' by G.R.M.Dashorst. (© Commonwealth of Australia)

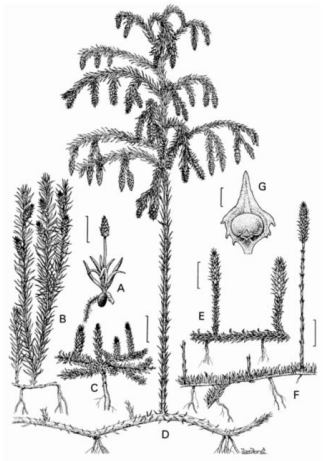

Fig. 8: '*Lycopodiella cernua*' by G.R.M.Dashorst. (© Commonwealth of Australia)

Fig. 9: '*Phylloglossum drummondii*' by Fagg, M. (© Fagg, M.)

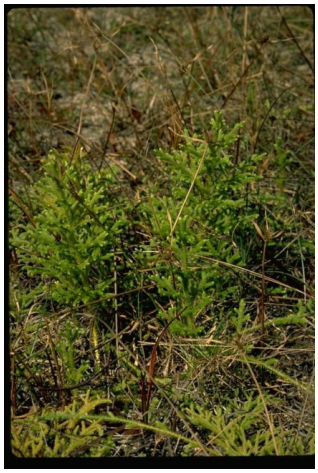

Fig. 10: '*Lycopodiella cernua*' by Hill, R. (© Director of National Parks)

Fig. 11: '*Lycopodium deuterodensum*' by Fagg, M. (© Fagg, M.)

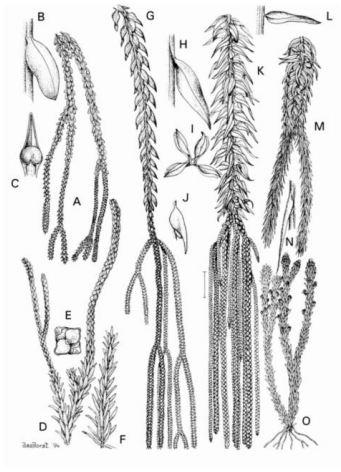

Fig. 12: '*Huperzia australiana*' by G.R.M.Dashorst. (© Commonwealth of Australia)

Fig. 13: '*Huperzia squarrosa*' by Fagg, M. (© Australian National Botanic Gardens)

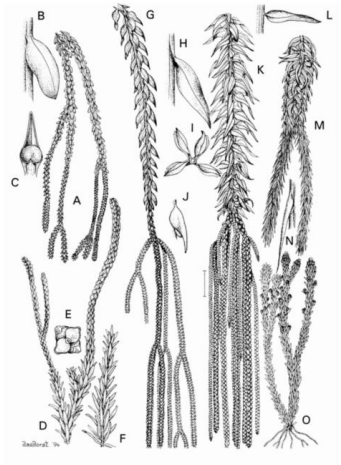

Fig. 14: '*Huperzia squarrosa*' by G.R.M.Dashorst. (© Commonwealth of Australia)

Fig. 15: '*Lycopodium cernuum*' by Fagg, M. (© Australian National Botanic Gardens)

Fig. 16: '*Lycopodium fastigiatum*' by Fagg, M. (© Fagg, M.)

Fig. 17: '*Lycopodium deuterodensum*' by Fagg, M. (© Australian National Botanic Gardens)

Fig. 18: '*Lycopodium deuterodensum*' by Hill, R. (© Australian National Botanic Gardens)

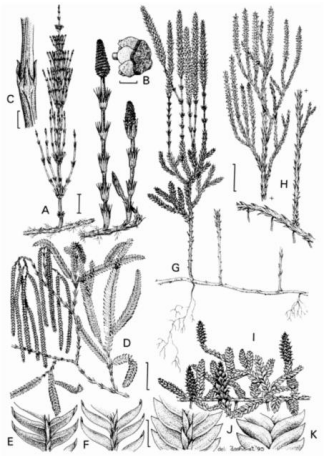

Fig. 19: '*Lycopodium volubile*' by G.R.M.Dashorst. (© Commonwealth of Australia)

Fig. 20: '*Huperzia phlegmaria*' by Fagg, M. (© Australian National Botanic Gardens)

Flora of Australia: vascular plants Lycopodiaceae key

From: **McCarthy, P.M.** (1998). Lycopodiaceae. In: *Flora of Australia* **48**. Australian Biological Resources Study, Canberra.

1	Leaves fleshy, in a cluster on a subterranean tuberous stem; strobilus on a simple leafless fleshy peduncle	Phylloglossum: Phylloglossum drummondii
1	Leaves borne on elongate stems; strobili, if present, borne on simple or compound leafy peduncles	2
2	Stems isotomously branched, without elongate indeterminate main stems (but sometimes heteroblastic); roots usually forming a basal tuft; sporophylls and vegetative leaves alike, or the sporophylls, if smaller, persisting, not subpeltate and ephemeral; spores foveolate-fossulate	Huperzia
2	Stems anisotomously branched throughout, differentiated into elongate indeterminate rhizomatous or creeping climbing or trailing main stems and usually determinate branchlet systems; sporophylls modified, ephemeral, very dissimilar to vegetative leaves, usually subpeltate and aggregated into compact terminal strobili; spores reticulate, rugose, baculate or scabrate	3
3	Strobili erect, sessile or pedunculate, borne on branchlet systems arising in a dorso-lateral position on the main stem or pendulous and pedunculate; spores reticulate, baculate or scabrate	Lycopodium
3	Strobili pendulous and sessile or erect and terminating simple (or rarely up to twice forked) branches which arise dorsally on the creeping stem, or erect and seemingly lateral and subsessile on overtopping vegetative shoots; spores rugose	Lycopodiella

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