

Pakau pennigera

COMMON NAME

gully fern, feather fern, piupiu

SYNONYMS

Cyclosorus pennigera (G. Forst.) Ching; *Thelypteris pennigera* (G. Forst.) Allan; *Dryopteris pennigera* var. *hamiltoni* (Colenso) Cheeseman; *Polypodium pennigerum* var. *hamiltonii* Colenso; *Polypodium pennigerum* var. *giganteum* Colenso; *Polystichum pennigerum* (G.Forst.) Gaudich. in Freyc.; *Phegopteris cunninghamii* Mett.; *Polypodium pennigerum* G.Forst.; *Polypodium subsimilis* Colenso; *Goniopteris pennigera* (G.Forst.) J.Sm.; *Lastrea pennigera* (G.Forst.) C.Presl; *Nephrodium pennigerum* (G.Forst.) C.Presl; *Cyclosorus pennigerus* (G.Forst.) Ching; *Dryopteris pennigera* (G.Forst.) C.Chr.; *Goniopteris forsteri* T.Moore; *Aspidium cunninghamii* Kunze; *Aspidium novae-zeelandiae* Ettingsh.; *Aspidium pennigerum* (G.Forst.) Sw.; *Pneumatopteris pennigera* (G. Forst.) Holttum

FAMILY

Thelypteridaceae

AUTHORITY

Pakau pennigera (G. Forst.) S.E. Fawc. et A.R. Sm.

FLORA CATEGORY

Vascular – Native

ENDEMIC TAXON

No

ENDEMIC GENUS

No

ENDEMIC FAMILY

No

STRUCTURAL CLASS

Ferns

NVS CODE

PNEPEN

CHROMOSOME NUMBER

2n = 144

CURRENT CONSERVATION STATUS

2017 | Not Threatened | Qualifiers: TO

PREVIOUS CONSERVATION STATUSES

2012 | Not Threatened

2009 | Not Threatened

2004 | Not Threatened

DISTRIBUTION

Indigenous. New Zealand: Manawatāwhi / Three Kings Islands, North Island, South Island, Chatham Islands. Also Australia.

HABITAT

Coastal to montane, usually in dense forest in riparian habitats or in gullies, or on frequently flooded ground. A common fern under willows (*Salix* spp.). Often found along waterways in urban wasteland, Although usually found in shaded situations *Pakau* will tolerate considerable exposure provided its roots are in a permanently damp situation.



Stokes Valley, Lower Hutt. Photographer: Jeremy R. Rolfe, Date taken: 02/07/2010, Licence: CC BY.



Pneumatopteris pennigera. Photographer: Wayne Bennett, Licence: CC BY-NC.

WETLAND PLANT INDICATOR STATUS RATING

FACU: Facultative Upland

Occasionally is a hydrophyte but usually occurs in uplands (non-wetlands).

DETAILED DESCRIPTION

Delicate, terrestrial fern. **Rhizome** slender, erect, 0.3–1.0 m tall, scaly; scales broad, brown, glabrous. **Fronde** 0.4–1.2 m long, pale yellow-green to bright green. **Stipe** 0.15–0.3–(0.45) m long, pale brown or green-brown. **Lamina** narrowly elliptic to elliptic, to 0.3–1.1–(1.5) m long; pinnae to 36 pairs; basal 4–5 pairs gradually reduced; lowest pinnae 10–30 mm long, 15–30 mm wide; largest pinnae c. 100 mm long, 30 mm wide at auriculate base, lobed more than ½-way to costae; lobes oblique, tapering, minutely dentate; costules 5–7 mm apart; veins usually 6 pairs, 1 pair anastomosing, with next acroscopic vein sometimes passing to the sinus membrane. Lamina ± glabrous, aside from pale brown ovate scales on abaxial surface of costae of emergent and young fronds, and sparse brown acicular hairs and colourless capitate hairs on adaxial surface of rachis, costae and margins. **Sori** inframedial, exindusiate; sporangia without capitate hairs near annulus.

SIMILAR TAXA

Within the New Zealand Thelypteridaceae *Pakau* is superficially similar to *Christella* (with which it sometimes grows). From *Christella* it is most reliably distinguished by abaxially glabrous fronds (hairy in *Christella*) and absence of an indusia (present in *Christella*).

PROPAGATION TECHNIQUE

Easily grown provided it is planted in a permanently moist soil, in a shaded site, and sheltered from frost.

ETYMOLOGY

pakau: Pākau, or pākaurōharōha, is derived from the common name for the fern Pakau pennigera (hitherto known as *Pneumatopteris pennigera*) in Te Reo Māori

TAXONOMIC INFORMATION

Pakau is a monotypic genus erected by Fawcett & Smith (2021) to accommodate *Pneumatopteris pennigera*. *Pakau* differs from *Pneumatopteris* by having exindusiate sori, by the presence of costal scales, and by the absence of rudimentary proximal pinnae.

ATTRIBUTION

Fact sheet prepared for NZPCN by P.J. de Lange (13 November 2012). Description adapted from Bostock (1998) and Brownsey & Smith-Dodsworth (2000).

REFERENCES AND FURTHER READING

Bostock PD. 1998. Thelypteridaceae. *Flora of Australia* 48, *Ferns Gymnosperms and allied groups*: 327–358.

ABRS/CSIRO Victoria, Australia.

Brownsey PJ, Smith-Dodsworth JC. 2000. *New Zealand Ferns and Allied Plants*. David Bateman, Auckland, NZ. 168 p.

Fawcett S, Smith AR. 2021. A generic classification of the Thelypteridaceae. *Sida, Bot. Misc.* 59. BRIT Press, Fort Worth Botanic Garden | Botanical Research Institute of Texas, U.S.A. 102 p.

Ford M. 2020. *Pneumatopteris pennigera* – a record-breaking gully fern? *Trilepidea* 194: 8.

NZPCN FACT SHEET CITATION

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MORE INFORMATION

<https://www.nzpcn.org.nz/flora/species/pakau-pennigera/>