

# Two new species of *Blechnum* (Blechnaceae) from Lord Howe Island: *B. geniculatum* and *B. howeanum*

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## Abstract

T.C. Chambers and P.A. Farrant (Royal Botanic Gardens, Sydney, NSW Australia 2000) 1993. Two new species of *Blechnum* from Lord Howe Island: *B. geniculatum* and *B. howeanum*. *Teloepa* 5(2): 329–333. The two new species, *B. geniculatum* and *B. howeanum*, are described; notes on their distribution and habitat are included.

### 1. *Blechnum geniculatum* Chambers & Farrant, sp. nov.

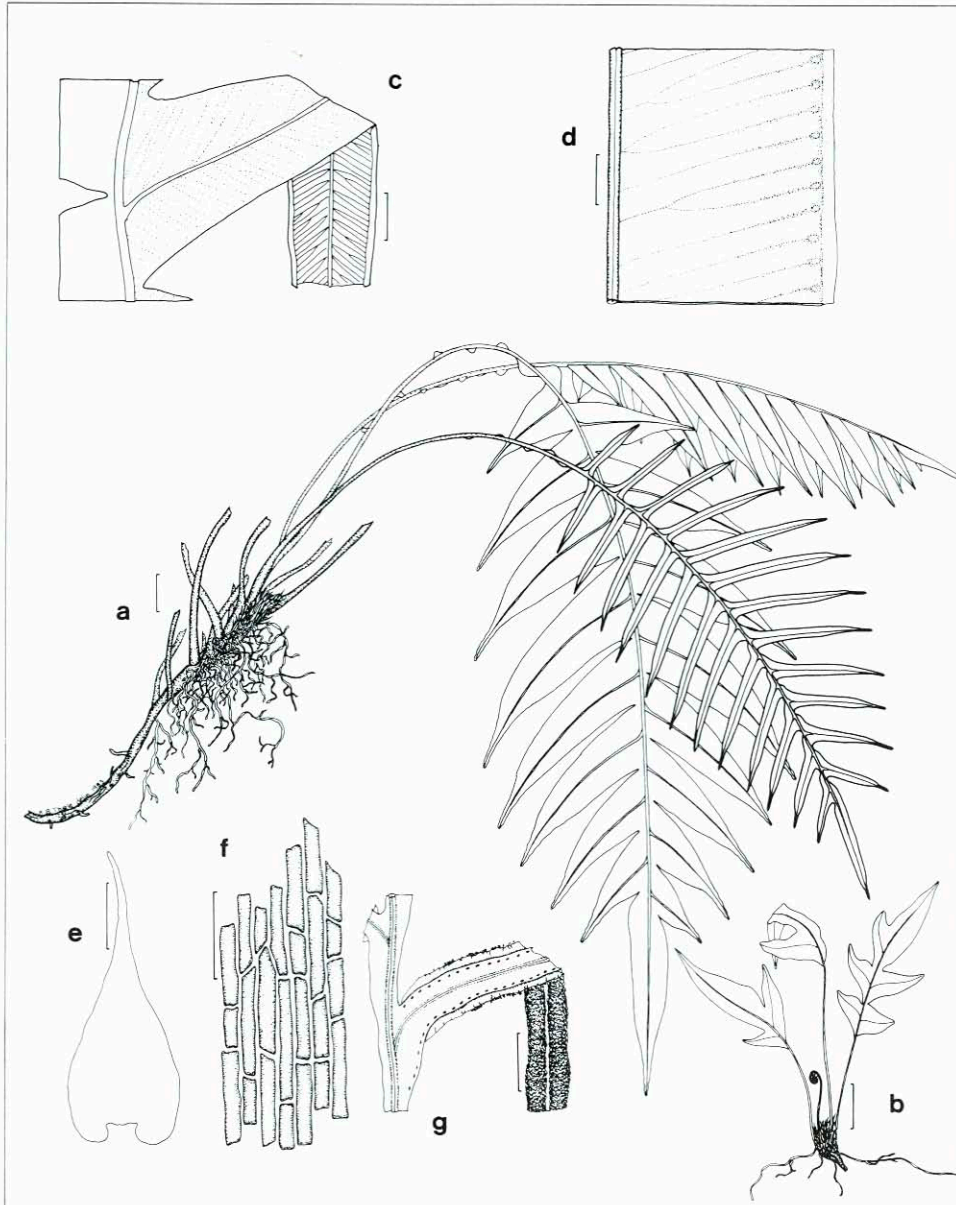
Apex rhizomatis dense squamatus. Frondes dimorphae pendulae; rhachis geniculata prope basim laminae, lamina cupulam inversam formanti. Pinnae steriles lanceolatae, falcatae, aristatae ad apices, ad rhachis omnino adnatae, contiguae (spatio parvo vel nullo inter easdem); pinna terminalis ad basim pinnatifida quam pinnae subterminales grandior; pinnae abrupte deminutae ad basim laminae ad 2–5 paria pinnarum breviorum vel loborum rotundatorum. Pinna terminalis frondis fertilis 3–5 cm longa, ad basim lobata; pinnae subterminales breviores 1–2.5 cm longae.

TYPE: LORD HOWE ISLAND: 600 m north of tableland on west side of Mt Lidgbird, J. Pickard 3632, 20 July 1978. Holo NSW. Iso K, MELU n.v.

Rhizome shortly erect, up to 2 cm in diameter and densely clothed with bases of old stipes, or creeping, up to 3 mm in diameter and with a few spaced stipe bases; *apex densely scaly*; scales broadly oblong to ovate, acuminate, 6–20 mm × 1.5–2.0 mm, dark reddish brown, shiny, concolorous, margins entire. *Fronds dimorphic, pendant with lamina forming an inverted 'cup' due to geniculation of rhachis near base of lamina*, to 80 cm long and 20 cm or more wide. *Stipes* to 32 cm (similar for sterile and fertile fronds), varying in length from one-fifth to just over half the lamina length, dark purple, brown or stramineous, glabrous. *Lamina* ovate to ovate-lanceolate, strongly geniculate near the base, pinnatisect, to 23 (sterile) or 14 (fertile) pairs of pinnae. *Rhachis and costae* brown or stramineous, glabrous or with sparse fine multicellular hairs on the undersurface of the pinna midribs and lateral veins and occasionally on the leaf surface itself. *Sterile pinnae* lanceolate, falcate, aristate at apices, fully adnate to rhachis, contiguous (with little or no space between them), coriaceous, to 8 cm long and 2 cm wide; *pinnae at the base of lamina* abruptly reduced to 2–5 pairs of short pinnae or rounded lobes; *terminal pinna* larger than the subterminal few pairs and sometimes lobed at its base; margins entire, slightly thickened, sometimes revolute; veins immersed, paler than the leaf tissue in dried specimens and more visible on the undersurface, close together and parallel, often once furcate. *Fertile pinnae* linear, aristate, adnate to rhachis, patent, pinnae distant and fairly evenly spaced on rhachis, leathery, to 4 cm long and 4 mm wide; several pairs of very reduced rudimentary pinnae at the base of the lamina, very distant, 1–5 cm apart on the rhachis; *terminal pinna* 3–5 cm long and sometimes lobed at its base, *subterminal pinnae* shorter, 1–2.5 cm long; margins entire; sori covering underside of pinnae except at aristate apices; indusium brown, more or less entire; spores bilateral, c. 30 µm × 40 µm. Figure 1.

DISTRIBUTION AND HABITAT: *Blechnum geniculatum* is restricted to the summits of Mts Gower and Lidgbird, the two mountains on Lord Howe Island. The species is rare. It has been collected from damp heavily shaded banks in moss forest and from wet scrubland areas below permanent water seepages from cliffs.

SPECIMENS EXAMINED: LORD HOWE ISLAND: Summit plateau of Mt Gower, Green 1655, Nov 1963 (A, NSW); Mt Gower Plateau, Green 1996, Sep 1971 (K).



**Figure 1.** *Blechnum geniculatum*. a, habit, bar = 1 cm; b, young plant, bar = 2 cm; c, base of sterile pinna, bar = 5 mm; d, detail of sterile pinna, bar = 2 mm; e, scale from stipe of sterile frond, bar = 2 mm; f, cell details from mid-region of scale, bar = 0.1 mm; g, base of fertile pinna, bar = 4 mm [all drawn from the holotype sheet].

NOTES: *Blechnum geniculatum* belongs to the *B. vulcanicum* group of species and has hairs that are characteristic of the group (however, these hairs are sparse, very fragile and may have rubbed off on many parts of specimens).

Within the *B. vulcanicum* group, *B. geniculatum* is closest to the poorly known and rarely collected *B. borneense* C. Chr., a species which has a disjunct distribution ranging from Borneo (where the type was collected) to Papua New Guinea. However, *B. borneense* has not yet been found in Vanuatu or in New Caledonia and a disjunct distribution between Lord Howe Island and New Guinea seems unlikely.

*B. geniculatum* differs from *B. borneense* in several respects. Its name is based on its most distinctive feature – geniculation (bending of the rhachis) near the base of the lamina. Since the pinnae are crowded and the pairs of pinnae fold inward, each frond forms a distinct ‘cup’. This is especially noticeable in the field and may not be evident on some herbarium specimens. The type is a pressed specimen and the rhachis curves in the illustration (Figure 1), rather than bending at an angle. Hence this does not clearly illustrate the geniculate feature characteristic of fresh material of the species: fresh unpressed material would usually show fronds that are strongly bent (and only at the base of the lamina) rather than curved. Because the bases of the basal pinnae overlap, if a frond of fresh unpressed material were to be inverted, there would be a ‘cup’ at the base that would hold a millilitre or so of water (P. Green, pers. comm.).

In *B. geniculatum* the terminal lobe of fertile fronds is often not much longer than the length of the subterminal pinnae, whereas for *B. borneense* the terminal lobe may be several times longer. *B. geniculatum* also has a more prominent rhizome apex, with numerous, dense, long, finely acuminate, imbricate dark brown scales.

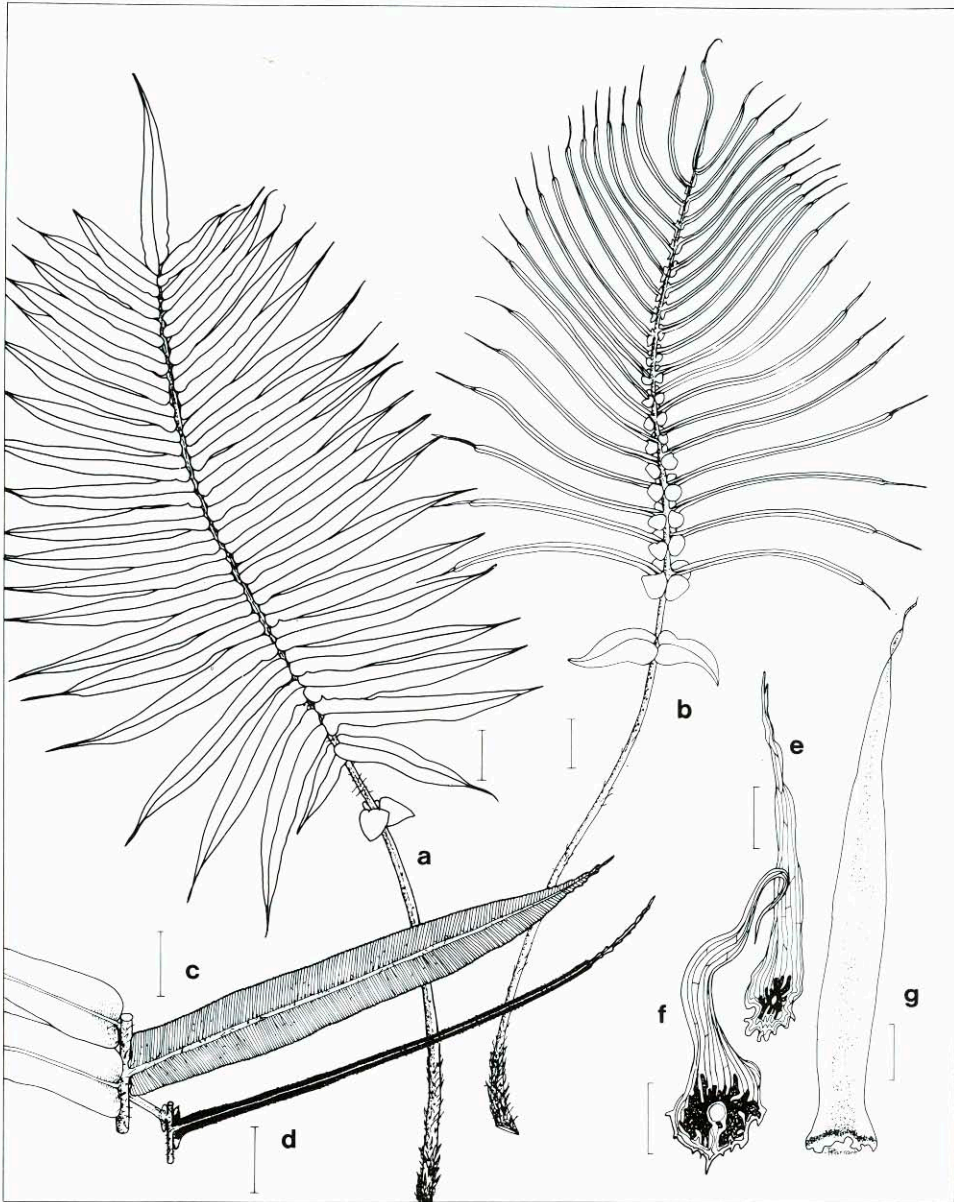
## 2. *Blechnum howeanum* Chambers & Farrant, sp. nov.

Aliquae vel omnes squamae grandiores in rhachidi et in costis macula atra distincta, pro parte vel omnino basim latam tegenti. Pinnae steriles basi auriculato-hastatae et pinnae basales per paria pluria ad auriculas deminuentes. Pinnae fertiles apicibus sterilibus valde aristatis et basibus sterilibus auriculato-hastatis in dimidio inferiore frondis.

TYPE: LORD HOWE ISLAND: Erskine Valley, A.N. Rodd 3700, 1 Sept 1981. Holo NSW.

Rhizome shortly erect to suberect or shortly creeping; scales acuminate, to 20 mm x 3 mm, red-brown, margins entire and sometimes paler. Fronds dimorphic, erect, to 1 m long and 44 cm wide. Stipes to 43 cm (similar for sterile and fertile fronds), purplish black at base, brown, pinkish brown or stramineous above; scales densely clothing the base of stipe and similar to those of the rhizome; scales on upper stipe sparser, shorter (to 10 mm long), thinner, pale reddish brown, acuminate, and mostly entire; sometimes clumps of matted pale fine hairs and scales scattered over the upper stipe. Lamina lanceolate, ovate or deltoid, pinnate, to 24 pairs of pinnae (sterile fronds) or 30 (fertile fronds). Rhachis and costae stramineous, or pale pinkish brown, sometimes darker; scales light or reddish brown, variable in shape, but mostly long and thin (to c. 10 mm long), broad at their bases, usually unbranched except at their bases, some or most of the larger scales with a distinct black spot which covers part or all of the broad base of the scale, small scales extending from costae to lower pinnule surface; sometimes clumps of matted pale fine hairs and scales. Sterile pinnae oblong-lanceolate, auriculate-hastate at rhachis, acuminate-aristate at apices, those towards the base of the frond shortly petiolate, basisopic halves becoming adnate close to apex, adjacent pinnae often overlapping, especially close to rhachis, cartilaginous, to 22 cm long and 2.5 cm wide; basal pinnae becoming reduced, through several pairs, to auricles; terminal pinna usually longer than subterminal pinnae; margins finely toothed and sometimes

crenate, especially towards the apices; veins closely spaced, c. 2 per mm. Fertile pinnae linear, with markedly aristate sterile apices, bases widening to become decurrent along the rachis and markedly auriculate-hastate and sterile in the lower half of the frond (number, size and shape of sterile segments variable), to 26 cm long and 5 mm wide; sori covering underside except for aristate apices; indusium brown with lacinate margins; spores bilateral, c. 40–50  $\mu\text{m}$  x 50–70  $\mu\text{m}$ . Figure 2.



**Figure 2.** *Blechnum howeanum*. **a**, upper (adaxial) surface of sterile frond, bar = 4 cm; **b**, upper (adaxial) surface of fertile frond, bar = 4 cm; **c**, lower (abaxial) surface of sterile pinna, bar = 2 cm; **d**, lower (abaxial) surface of fertile pinna, bar = 2 cm; **e**, scale from costa, bar = 0.5 mm; **f**, scale from rachis, bar = 0.5 mm; **g**, scale from base of stipe, bar = 2 mm [all drawn from holotype].

DISTRIBUTION AND HABITAT: *B. howeanum* is apparently endemic to Lord Howe Island, where it occurs on Mt Gower, Mt Lidgbird, and in some lowland areas such as the Erskine Valley. It inhabits forested areas and mixed lower montane scrub.

SPECIMENS EXAMINED: LORD HOWE ISLAND: *Duff s.n.*, 1882 (NSW); south-eastern side of Mt Lidgbird, *Beaglehole 5397*, Nov 1962 (MEL, 2 sheets); summit of Mt Gower, *Green 1659*, Nov 1963 (A); top of Mt Gower, *Watts s.n.*, Aug 1911 (NSW); towards and on the summit of Mt Gower, *Boorman s.n.*, May 1920 (NSW); Fern Patches, *Pickard 3621*, July 1978 (NSW); summit of Mt Gower, *Game 1/16*, Aug 1965 (NSW); south of Goat House, *Pickard 3436*, Mar 1977 (NSW).

NOTES: *Blechnum howeanum* belongs to a group of species that includes *B. wattsii* Tindale, *B. procerum* (Forst. f.) Sw., *B. minus* (R. Br.) Ettingsh. and one or more as yet unnamed species from New Zealand. *B. wattsii* differs from *B. howeanum* in having dentate scales, without black spots, and basal pinnae slightly if at all reduced. *B. procerum* is a New Zealand species that is much smaller than *B. howeanum* and in which the basal pinnae are not reduced to auricles. *B. minus* is an Australian species with scales that lack black spots, and in which the bases of the pinnae do not broaden to the extent of being auriculate-hastate in the lower half of the frond. Several unnamed New Zealand species have scales with black spots, and the one most similar to *B. howeanum* has the pinnae reduced to auricles suddenly, rather than gradually over several pairs.

We have examined a number of specimens of *B. milnei* from Fiji, collected and determined by Brownlie, and we do not believe that the Lord Howe Island material can be referred to this taxon; the bases of the pinnae in *B. milnei* do not become auriculate-hastate to any significant extent.

The Lord Howe species thus appears to have a unique combination of characters, particularly with regard to frond size, pinnule shape, degree of basal reduction, and scale shape and colour, although some of these features occur separately in related taxa.

### Acknowledgements

This paper is a direct result of matters raised in correspondence by Mr Peter Green (K), and we would like to thank him accordingly. We also wish to thank Dr Peter Wilson (NSW) for help with the Latin diagnoses, Mr Kevin Theile (while at MELU) for his illustration of *Blechnum geniculatum*, and the following herbaria for loan of specimens: A, CHR, MEL.

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