

Nephrolepis flexuosa

SYNONYMS

Nephrolepis var. pseudolauterbachii Hovenkamp et Miyam. appears to be a new name for the same species in the Polynesian part of its range;
Nephrolepis auriculata (L.) Trimen

FAMILY

Nephrolepidaceae

AUTHORITY

Nephrolepis flexuosa Colenso

FLORA CATEGORY

Vascular – Native

ENDEMIC TAXON

No

ENDEMIC GENUS

No

ENDEMIC FAMILY

No

STRUCTURAL CLASS

Ferns

NVS CODE

NEPFLE

CHROMOSOME NUMBER

2n = 164

CURRENT CONSERVATION STATUS

2017 | At Risk – Naturally Uncommon | Qualifiers: RR, SO

PREVIOUS CONSERVATION STATUSES

2012 | At Risk – Declining | Qualifiers: RR, SO

2009 | At Risk – Declining | Qualifiers: RR, SO

2004 | Range Restricted

DISTRIBUTION

Indigenous. New Zealand: Kermadec Islands (Raoul Island), North Island (Kawerau south to Rotorua Lakes District to Lake Taupō / Taupō Moana, reaching its southern limit at Tokaanu near Tūrangi). Also Norfolk Island, Lord Howe Island, Fiji, Cook Islands (Rarotonga). This species may also be in Australia, Samoa and Sri Lanka and it is probably wide ranging throughout the Indian Ocean and Pacific Ocean.

HABITAT

Abundant in coastal forest and scrub on Raoul Island, otherwise in New Zealand confined to the North Island where it is only known from active geothermal fields from about Kawerau south to the Rotorua Lakes District to Lake Taupo, where it reaches a world southern limit at Tokaanu near Turangi.

WETLAND PLANT INDICATOR STATUS RATING

FACU: Facultative Upland

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



Craters of the Moon. Photographer: John Smith-Dodsworth, Licence: CC BY-NC.



Craters of the Moon. Photographer: John Smith-Dodsworth, Licence: CC BY-NC.

DETAILED DESCRIPTION

Rhizomes short, erect, stoloniferous. **Stolons** without tubers. **Fronds** pinnate, at first erect but tending to droop with age (0.1)–0.8–1–(1.5) m × (10)–20–(50) mm (including stipes); yellow-green to dark green, narrowly lanceolate, gradually tapering toward apex; rachis bearing subulate scales, margins fringed with many short hair-like processes. **Pinnae** in 50–60–(80) or more pairs, deltoid-oblong or oblong, subsessile, closely adjacent and overlapping rachis, often with an enlarged basal auricle. **Sterile pinnae** (5)–10–15–(25) × (4)–6–(10) mm; margins entire to subentire, crenulate or serrated towards apex. **Fertile pinnae** distinctly shorter, margins crenulate (rarely serrated). **Sori** submarginal, indusia reniform, opening toward pinna apex.

SIMILAR TAXA

Frequently confused with the naturalised and highly aggressive *N. cordifolia*, from which it is easily distinguished by its non-tuberous habit. Both species also differ by their chromosome number, $2n = 82$ in *N. cordifolia* and $2n = 164$ in *N. flexuosa*, and by their spore morphology and size. *N. flexuosa* tends to have narrower more gracile fronds which are typically drooping, while those of *N. cordifolia* are wider, stouter and invariably rigidly erect.

FLOWERING

Spore bearing fronds may be found throughout the year

FLOWER COLOURS

No flowers

FRUITING

Spore bearing fronds may be found throughout the year

PROPAGATION TECHNIQUE

Easy from division of whole plants, and also from fresh spores, which take about 6-8 months to fertilise and produce young plants.

THREATS

Very common on Raoul Island. In the North Island it is confined to active geothermal fields where it can be locally common, though more often than not it is scarce. At least one population near Kawerau is threatened by the spread of *N. cordifolia* which has become well established at that site. Many populations are threatened by the spread of blackberry (*Rubus fruticosus* agg.) and other weeds, and at least one has gone extinct over the last ten years.

ETYMOLOGY

nephrolepis: Kidney scale

flexuosa: Flexuous

WHERE TO BUY

Very rarely available from some specialist native plant nurseries.

TAXONOMIC NOTES

Hovenkamp & Miyamoto (2005) treat *Nephrolepis flexuosa* as a synonym of *N. cordifolia* var. *cordifolia*. For *N. cordifolia* they indicate that the presence or absence of tubers has no taxonomic importance. They then recognise a distinct non-tuberous variety *N. cordifolia* var. *pseudolauterbachii* from the mid Pacific islands. However plants of var. *pseudolauterbachii* from Fiji had already been referred to *N. flexuosa* by de Lange et al. (2005), treated in that paper as distinct from *N. cordifolia* s.s. because of its lack of tubers, larger spores and distinctive tetraploid chromosome number ($2n = 164$). Thus the relegation of *N. flexuosa* by Hovenkamp & Miyamoto (2005) into synonymy with diploid *N. cordifolia*, yet apparent recognition of it (*N. flexuosa*) as the tetraploid var. *pseudolauterbachii* is inconsistent. At this stage NZPCN see no reason not to retain *N. flexuosa* as a valid indigenous New Zealand species.

ATTRIBUTION

Fact Sheet by P.J. de Lange 7 December 2005. Description based on Brownsey and Dodsworth (2000) supplemented with observations made from herbarium specimens.

REFERENCES AND FURTHER READING

- Brownsey PJ, Smith-Dodsworth JC. 2000. New Zealand Ferns and Allied Plants. David Bateman, Auckland, NZ. 168 p.
- de Lange PJ, Gardner RO, Sykes WR, Crowcroft GM, Cameron EK, Stalker F, Christian ML, Braggins JE. 2005. Vascular flora of Norfolk Island: some additions and taxonomic notes. *New Zealand Journal of Botany* 43(2): 563–596. <https://doi.org/10.1080/0028825X.2005.9512975>.
- Hovenkamp PH, Miyamoto F. 2005. A conspectus of the native and naturalized species of *Nephrolepis* (Nephrolepidaceae) in the world. *Blumea* 50: 279–322. <https://doi.org/10.3767/000651905X623003>.

NZPCN FACT SHEET CITATION

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MORE INFORMATION

<https://www.nzpcn.org.nz/flora/species/nephrolepis-flexuosa/>