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
2018 | At Risk – Naturally Uncommon

PREVIOUS CONSERVATION STATUSES
2012 | At Risk – Declining | Qualifiers: RR, SO
2009 | At Risk – Declining | Qualifiers: RR, SO
2004 | Range Restricted

Craters of the Moon. Photographer: John Smith-Dodsworth

Craters of the Moon. Photographer: John Smith-Dodsworth

DISTRIBUTION
Indigenous. Known with certainty from New Zealand, Raoul, Norfolk and Lord Howe Islands, and also Fiji and Rarotonga. This species may also be in Samoa and Sri Lanka and it is probably wide ranging throughout the Indian and Pacific Oceans. It may also be in Australia.

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.

FEATURES
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 x (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) x (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 black berry (*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 ar. *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 (2*n* = 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, P.J.; Smith-Dodsworth, J.C. 2000: New Zealand ferns and allied plants. David Bateman Ltd, Auckland
de Lange, P.J.; Gardner, R.O.; Sykes, W.R.; Crowcroft, G.M.; Cameron, E.K.; Stalker, F.; Christian, M.L.; Braggins, J.E. 2005: Vascular flora of Norfolk Island: some additions and taxonomic notes. *New Zealand Journal of Botany 43*: 563-596.
Hovenkamp, P.H.; Miyamoto, F. 2005: A conspectus of the native and naturalized species of *Nephrolepis* (Nephrolepidaceae) in the world. *Blumea 50*: 279-322.

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MORE INFORMATION

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