

Isoetes kirkii

COMMON NAME

Quillwort

SYNONYMS

Isoetes multiangularis Colenso

FAMILY

Isoetaceae

AUTHORITY

Isoetes kirkii A. Braun

FLORA CATEGORY

Vascular – Native

ENDEMIC TAXON

Yes

ENDEMIC GENUS

No

ENDEMIC FAMILY

No

STRUCTURAL CLASS

Lycophytes (clubmosses, selaginella, quillworts)

NVS CODE

ISOKIR

CHROMOSOME NUMBER

2n = 22

CURRENT CONSERVATION STATUS

2017 | At Risk – Declining | Qualifiers: RR

PREVIOUS CONSERVATION STATUSES

2012 | At Risk – Declining | Qualifiers: RR

2009 | Not Threatened

2004 | Not Threatened

DISTRIBUTION

Endemic. New Zealand: North and South Islands from the upper Waikato River (near Whakamaru) and Rotorua Lakes south to Otago and northern Southland. Historically present in Northland at Lake Omapere and along the Wairua River, and in the lower Waikato at lakes Whangape, Waikare and Waahi.

HABITAT

Lowland and montane, aquatic (rarely subterrestrial) at the bottom of lakes, rivers and streams (rarely growing near shoreline where it may be partially exposed during low water levels). Often forming extensive colonies in fine sediments or coarse sand.

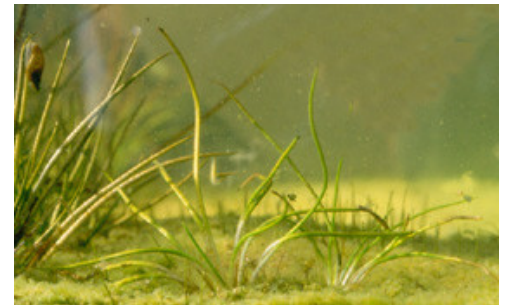
WETLAND PLANT INDICATOR STATUS RATING

OBL: Obligate Wetland

Almost always is a hydrophyte, rarely in uplands (non-wetlands).



Wairakei. Photographer: John Smith-Dodsworth, Licence: CC BY-NC.



Wairakei. Photographer: John Smith-Dodsworth, Licence: CC BY-NC.

DETAILED DESCRIPTION

Aquatic, heterosporous, tufted herb arising from an erect corm. Roots long and stout, dichotomously branched. Leaves mostly sporophyllous, rather brittle, spirally (rarely flabellately) arranged, erect in tufts of up to 30, dark green to yellow-green, usually evenly septate, septae forming air chambers; lamina 30-150(-240) mm long, filiform to linear-filiform, tapered to a finely acute (rarely subacute to obtuse) apex, base swollen, up to 5 mm wide. Leaf appendages ligulate, ligule broadly triangular 0.8-1.2 mm long, located above the sporangium on the adaxial side. Sporangia adaxially located in pockets in leaf bases, large (up to 3 mm long) and conspicuous, broadly oblong, heterosporous, Megaspores white, studded with conspicuous, minute, unequal tubercles; microspores minute, numerous.

SIMILAR TAXA

New Zealand Isoetes are in serious need of a thorough revision. As currently circumscribed the two species *I. alpina* and *I. kirkii* significantly overlap in most features except the megaspore surface which in *I. kirkii* is finely though conspicuously tubercled, while it is usually smooth in *I. alpina*. The megaspores of *I. kirkii* are also usually white, whilst those of *I. alpina* are typically grey to greyish white. A potentially distinct form with a taller (up to 240 mm long), finer filiform, flabellately arranged rather than spirally arranged leaves was known from several sites in Northland. This race is included in the above description of *I. kirkii*. It is now believed to be extinct in the wild, though it is known from cultivated material that was rescued from the last known habit. The race may be worth of formal taxonomic recognition (see comments in de Lange & Rolfe 2010). This race is treated as *Isoetes* aff. *kirkii* (CHR 247118A; Lake Omapere) in de Lange et al. 2009.

FLOWERING

N.A. Spore producing

FLOWER COLOURS

No flowers

FRUITING

N.A. Spore producing

LIFE CYCLE

Spongy megaspores are dispersed by water

PROPAGATION TECHNIQUE

Easily grown in a fish tank or fish pond planted in a coarse mix of sand and peat. Algal blooms are a problem. Plants are very slow growing

ETYMOLOGY

isoetes: From the Greek isos 'equal' and etas 'year', referring to the evergreen, unchanging character of the plant (Johnson and Smith, 1986).

kirkii: After Thomas Kirk (18 January 1828 - 8 March 1898), a NZ botanist and lecturer in natural sciences and regarded as a leader of botanical enquiry in NZ for over three decades. One of his most significant publications was Forest flora of NZ (1889) but he also contributed over 130 papers to the Transactions and Proceedings of the NZ Institute and other journals.

WHERE TO BUY

Not commercially available.

ATTRIBUTION

Fact sheet including description prepared for NZPCN by P.J. de Lange (7 May 2011)

REFERENCES AND FURTHER READING

- de Lange, P.J.; Rolfe, J.R. 2010: New Zealand Indigenous Vascular Plant Checklist 2010. Wellington, New Zealand Plant Conservation Network.
- de Lange, P.J.; Norton, D.A.; Courtney, S.P.; Heenan, P.B.; Barkla, J.W.; Cameron, E.K.; Hitchmough, R.; Townsend, A.J. 2009: Threatened and uncommon plants of New Zealand (2008 revision). *New Zealand Journal of Botany* 47: 61-96.
- Johnson, A. T. and Smith, H. A (1986). *Plant Names Simplified: Their pronunciation, derivation and meaning*. Landsman Bookshop Ltd: Buckenhill, UK.
- Thorsen, M. J.; Dickinson, K. J. M.; Seddon, P. J. 2009. Seed dispersal systems in the New Zealand flora. *Perspectives in Plant Ecology, Evolution and Systematics* 11: 285-309

NZPCN FACT SHEET CITATION

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MORE INFORMATION

<https://www.nzpcn.org.nz/flora/species/isoetes-kirkii/>