



# Auckland's threatened plants Vol. VIII



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Made on the New Zealand Plant Conservation Network website – [www.nzpcn.org.nz](http://www.nzpcn.org.nz)

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## Introduction

This book was compiled from information stored on the website of the New Zealand Plant Conservation Network ([www.nzpcn.org.nz](http://www.nzpcn.org.nz)).

This website was established in 2003 as a repository for information about New Zealand's threatened vascular plants. Since then it has grown into a national database of information about all plants in the New Zealand botanic region including both native and naturalised vascular plants, threatened mosses, liverworts and fungi.

Funding to develop the website was provided by the New Zealand Government's Terrestrial and Freshwater Biodiversity Information System Programme (TFBIS).

The species information used on the website has come from a variety of sources. The indigenous vascular plant text was written largely by Dr Peter de Lange (former Network Vice President). Peter based the descriptions on a wide range of sources including the Flora of NZ Series (Allan 1961, Moore and Edgar 1970 and Webb et al 1987) as well as numerous other taxonomic treatments. For a full bibliography of information sources see the References at the end of this book.

Where no published treatment was available Peter used herbarium specimens and his own knowledge of the flora to prepare species pages. Various other contributors have provided text and additional information to many species pages including botanists such as Mike Thorsen, John Barkla, Cathy Jones, Simon Walls, Nick Singers and many others. The threatened fungi text was written by Eric Mackenzie and Peter Buchanan (Landcare Research).

More than 200 photographers have kindly provided images to illustrate the website and for use in this book especially John Smith-Dodsworth, Jeremy Rolfe, Peter de Lange, Wayne Bennett and Gillian Crowcroft.

## The New Zealand Botanic Region

The information on the Network website, from which this book was compiled, is for species that are indigenous to or naturalised within the New Zealand Botanic Region as defined by Allan (1961). The New Zealand botanic region encompasses the Kermadec, Manawatawhi/Three Kings, North, South, Stewart Island/Rakiura, Chatham, Antipodes, Bounties, Snares, Auckland Campbell island/Motu Ihupuku and Macquarie.

## About the Network

The Network has more than 800 members worldwide and is New Zealand's largest non-governmental organisation solely devoted to the protection and restoration of New Zealand's indigenous plant life.

The vision of the New Zealand Plant Conservation Network is that '*no indigenous species of plant will become extinct nor be placed at risk of extinction as a result of human action or indifference, and that the rich, diverse and unique plant life of New Zealand will be recognised, cherished and restored*'.

Since it was founded in 2003 the Network has undertaken a range of conservation initiatives in order to achieve its vision.

That work has included:

- Training people in plant conservation
- Publishing plant books, reports and posters
- Raising money for the David Given Threatened Plant Research Trust to pay for plant conservation research scholarships
- Advocacy to raise awareness of the importance of plant life in general and especially New Zealand's status as a Global Centre of Plant Diversity
- Lobbying central and regional government and business to protect indigenous plant life
- Educating people about plant life through the Network website
- Connecting people through the monthly newsletter, the Network conference and the annual general meeting

## What is a threatened plant?

The NZ Threatened Plant Committee was formed in 1991 and ever since then it has met at regular intervals to review the status of indigenous vascular plants. It is made up of a small group of botanists that between them have an extensive knowledge of the native plants of New Zealand. This group is chaired by Dr Peter de Lange of the New Zealand Department of Conservation.

This committee applies a set of criteria to each native plant to determine its conservation status. The resulting list of species classified as threatened is published in the NZ Journal of Botany (see for example de Lange et al. 2009). The main threat categories used are: Extinct, Critical, Endangered, Vulnerable, Declining. Other categories used are: Recovering, Relict, Naturally Uncommon, Coloniser, Vagrant and Data Deficient. For vascular plants the threat status used in this book is taken from the 2009 conservation assessment (see de Lange et al 2009).

More recently other committees have been established to review the status of non-vascular plants but their lists are yet to be published.

## *Streblus smithii*

### Common Name(s):

Three Kings milk tree

### Current Threat Status (2012):

At Risk - Naturally Uncommon

### References and further reading:

May, V. 1988. *Streblus (paratrophis) smithii* an assisted immigrant. Auckland Botanical Society Journal, 43: 65-67

May, V. 1997. *Streblus smithii (Paratrophis smithii)*. Auckland Botanical Society Journal, 52: 64-65.

### For more information, visit:

[http://nzpcn.org.nz/flora\\_details.asp?ID=697](http://nzpcn.org.nz/flora_details.asp?ID=697)



**Caption:** Cultivated (October)

**Photographer:** John Smith-Dodsworth



**Caption:** Cultivated (October)

**Photographer:** John Smith-Dodsworth

# *Stuckenia pectinata*

## Common Name(s):

fennel-leaved pondweed, sago pondweed

## Current Threat Status (2012):

Naturally Uncommon

## Distribution:

Indigenous to New Zealand where it has been collected from the North, South and Chatham Islands. A cosmopolitan species known from throughout the world. No critical study on its worldwide variation seems to have been done.

## Habitat:

Usually in brackish water, such as in slow moving tidal streams or lagoons, but also found in shallow lowland pools.

## Features\*:

Aquatic rhizomatous herb. Rhizomes forming extensive networks in soft sediment, forming swollen bulb-like buds in autumn. Branches numerous, slender, delicate (rather brittle), 0.1-3 m or more long. Stipulate, with stipules fused to leaf base, forming a sheathing ligulate stem for 10-40 mm, the free portion (ligule) membraneous, 5 mm long. Leaves all submersed, 50-120 x 1 mm, dark green to brown-green, entire, narrow-linear (with transverse veins visible), tapering to an acute, membraneous tip. Peduncles slender, of varying length. Inflorescence a discontinuous brown spike 20-40 mm, with the lower flower clusters (whorls) well separated. Fruit, an achene 3 x 2.5 mm, light pinkish brown, turgid and rounded, without keel or beak.

## Flowering:

January - February

## Fruiting:

January - March

## Threats:

Probably more overlooked than actually threatened. Nevertheless there is some evidence that this species has declined for sites where it was formerly common over the least 20 or so years, and it remains absent from large stretches of apparently suitable habitat where it was once known 100 or more years ago. The main threat seems to be wetland modification and or drainage, particularly of those brackish wetland systems, or where streams and rivers enter the sea. However, the species can survive some modification and has even been collected in recently established channels, and within pools of water on the floor of gravel quarries. Thus this species may prove to be naturally uncommon rather than genuinely declining. Further field survey is needed to clarify its exact status.

## \*Attribution:

Fact sheet prepared for NZPCN by P.J. de Lange (January 2006). Description adapted from Moore & Edgar (1970)

## References and further reading:

Moore, L.B.; Edgar, E. 1970: Flora of New Zealand. Vol. II. Government Printer, Wellington.

## For more information, visit:

[http://nzpcn.org.nz/flora\\_details.asp?ID=195](http://nzpcn.org.nz/flora_details.asp?ID=195)



**Caption:** Close up of fennel-leaved pondweed

**Photographer:** Rohan Wells



**Caption:** Fennel-leaved pondweed

**Photographer:** Rohan Wells

# *Tetragonia tetragonoides*

## Common Name(s):

kokihi, New Zealand spinach, tutae-ikamoana

## Current Threat Status (2012):

At Risk - Naturally Uncommon

## Distribution:

Indigenous. Kermadec, Three Kings, North, South, Stewart and Chatham Islands. Also present in Australia, the western Pacific, Malesia, Japan and southern South America.

## Habitat:

A species of the coastal strand zone often growing along beaches amongst driftwood, and sea weed but also in sand dunes, on boulder and cobble beaches, on cliff faces and rock ledges and in some areas such as the Kermadec Islands an conspicuous and important associated of the vegetation of many of the outer islands in the archipelago. Partly because it has been cultivated as a vegetable this species often appears in landfills or as a casual weed of urban areas. Indeed some wild occurrences near urban coastal settlements may stem from discarded plants or seed in garden waste.

## Features\*:

Widely trailing perennial herb forming dense patches, circular mats, or rarely mounds of interlacing branches up to 1 m thick. Branches up to 1 m long, bright to dark green or yellow green, subterete, numerous, woody near base, decumbent, trailing not or only rarely rooting at nodes. Petioles firmly fleshy up to 20 mm long. Leaves 15-80 x 10-60 mm, dark green to yellow green, darker above and paler beneath, ovate-rhomboid, rhomboid to triangular, obtuse to subacute, entire or rarely slightly sinuate or shallowly lobed, both surfaces very densely though finely papillose. Flowers solitary or paired, mostly perfect sometimes unisexual, subsessile, 7-8 mm diameter, perianth dark yellow to pale yellow (rarely yellow-green). Calyx-tube broadly turbinate, lobes broad-triangular, obtuse. Stamens variable but between 10-20. Ovary 3-8-celled, styles 3-8. Fruit 8-10(15) mm long, subturbinate, angled, woody horns 2-4 apical, sharp to blunted-ended, seeds 4-10.

## Flowering:

October-February

## Fruiting:

November - March

## Threats:

It is threatened by disturbance of coastal sands and stony beaches.

## \*Attribution:

Fact Sheet prepared for NZPCN by P.J. de Lange 1 February 2008. Description based on Allan (1961)

## References and further reading:

Allan, H.H. 1961: Flora of New Zealand. Vol. I. Wellington, Government Printer.

Wilcox, M.D. New Zealand spinach in Mangere. Auckland Botanical Society Journal, 56: 82

## For more information, visit:

[http://nzpcn.org.nz/flora\\_details.asp?ID=325](http://nzpcn.org.nz/flora_details.asp?ID=325)



**Caption:** Te Whakaru, Chatham Island

**Photographer:** John Sawyer



**Caption:** Tutukaka, Tetragonia tetragonoides

**Photographer:** Lisa Forester

# *Thelymitra formosa*

## Common Name(s):

Sun Orchid

## Current Threat Status (2012):

At Risk - Naturally Uncommon

## Distribution:

Endemic. North, South and Stewart Islands

## Habitat:

Mainly found in lowland to montane wetlands, scrub and open forest. Occasionally colonises roadside banks.

## Features\*:

Very stout, robust, usually solitary (sometimes colonial) orchid which at flowering is up to 0.8 m tall. Stem dark red-green or dark green (sometimes glaucous) stout, smooth. Leaf 100-400 x 10-20 mm, linear-lanceolate to lanceolate, usually dark green to red-green, channelled and finely ridged, rather fleshy (almost succulent) and thick, sheathing high up stem. Inflorescences 10-15-flowered. Perianth 9-13 mm long, light to dark blue, without stripes or spots. Sepals, petals and labellum similar, all narrowly-obovate. Column-arms flattened, more or less channelled, with yellow or orange fringes and cilia arising from margins, each arm projecting from inner face of side lobule, usually standing much taller than anther; post anther lobe shorter than anther, erect, margins yellowish red and more or less thickened into finger-like callii; side lobules taller than anther, pinkish or yellowish, fleshy, with subulate erect projections on margins and with similar or more elongated tubercles across the surface.

## Flowering:

November - January

## Fruiting:

December - March

## Threats:

An apparently naturally uncommon, biologically sparse species. Based on old herbarium specimens it does not appear to have ever been common at any particular location.

## \*Attribution:

Fact Sheet prepared for NZPCN by P.J. de Lange 14 April 2007. Description subsequently published in Rolfe & de Lange (2010).

## References and further reading:

Rolfe, J.R.; de Lange, P.J. 2010: Illustrated guide to New Zealand sun orchids, *Thelymitra* (Orchidaceae). Jeremy Rolfe, Wellington.

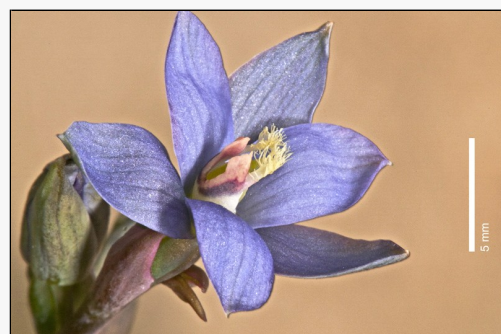
## For more information, visit:

[http://nzpcn.org.nz/flora\\_details.asp?ID=326](http://nzpcn.org.nz/flora_details.asp?ID=326)



**Caption:** Stokes Valley, Lower Hutt. Dec 2011.

**Photographer:** Jeremy Rolfe



**Caption:** Stokes Valley, Lower Hutt. Dec 2011.

**Photographer:** Jeremy Rolfe



# *Thelymitra ixioides*

## Common Name(s):

spotted sun orchid

## Current Threat Status (2012):

At Risk - Naturally Uncommon

## Distribution:

Indigenous. North and South Islands. Also in Australia.

## Habitat:

Coastal to montane (up to 900 m a.s.l.). In open ground, especially clay pans within gumland scrub but also colonising roadside banks, road gravel, stable dune slacks, and well-lighted but sparsely vegetated ground under taller scrub and forest. Sometimes in beech (*Nothofagus Blume*) forest or on the margins of montane streams. Rarely in peat bogs.

## Features\*:

Terrestrial, tuberous, glabrous, spring to summer-green perennial herb, either solitary or in small colonies of 2-4 plants. Plant at flower up to 700 mm tall. Leaf solitary, fleshy, deeply channelled and more or less longitudinally ribbed, 50-120 mm long, reddish-green to almost silvery reddish-green near base otherwise yellow-green to dark green, linear-lanceolate, base closely sheathing, undersides finely rugose. Flowering stem stiffly erect, wiry, reddish green to silvery-green. Bracts 1-2(-3), foliaceous, closely-sheathing, fleshy, bases dark reddish-green to silvery reddish-green otherwise green to yellow-green. Raceme bearing (1-)5(-20) flowers (usually much less). Flowers 11-18 mm diameter, blue, segments widely spreading, dorsal sepal and petals with darker blue or purple spots. Sepals and petals very broad. Labellum distinctly rounded. Column up to 5 mm long, erect, bluish grading to dark purple near apex; column arms flattened, cilia white, largely marginal, column arms projecting from anterior margin of the side lobule, cilia white or mauve; post anther lobe slightly taller than anther, erect, not cucullate, the back and apex bearing numerous violet or yellow finger-like calli (the tallest yellow or orange); side lobules distinct, usually taller, yellow, margins mostly lacinate.

## Flowering:

September - December

## Fruiting:

November - March

## Threats:

Not Threatened but hardly common either. Probably better classified as biologically sparse. This species rarely occurs in any abundance at any particular site and is very vulnerable to roadworks, animal browse, loss through succession to taller forest and because it has attractive flowers - plant collectors.

## \*Attribution:

Description adapted from Moore and Edgar (1970).

## References and further reading:

Moore, L.B.; Edgar, E. 1970: Flora of New Zealand. Vol. II. Government Printer, Wellington.

## For more information, visit:

[http://nzpcn.org.nz/flora\\_details.asp?ID=2272](http://nzpcn.org.nz/flora_details.asp?ID=2272)



**Caption:** Pinehaven, Upper Hutt. Nov 2008.

**Photographer:** Jeremy Rolfe



**Caption:** Waikumete, Auckland. Oct 2009.

**Photographer:** Jeremy Rolfe

# *Thelypteris confluens*

## Common Name(s):

Marsh fern, swamp fern

## Current Threat Status (2012):

At Risk - Naturally Uncommon

## Distribution:

Indigenous. In New Zealand found in the North Island only from Te Pahi to the Waitakere Ranges in the west and Bay of Plenty in the east. Mainly near the coast but extending inland within wetlands associated with geothermally active systems. Outside New Zealand reported widely from Africa, India and Australia but apparently now highly threatened and close to extinction in Australia.

## Habitat:

Coastal, lowland and geothermally active eutrophic wetlands. Often found growing on the margins of lakes and slow flowing streams where it grows within "floating suds" that have developed from organic matter trapped amongst rafts of swamp millet grass (*Isachne globosa*) and raupo (*Typha orientalis*).

## Features\*:

Long-rhizomatous, tufted fern. Often winter dormant and summer-green in cooler habitats. Stipes 100-500 mm long, yellow-brown, wiry, clad in sparse scales. Fronds 150-350 x 50-130 mm, pale green, yellow-green to dark-green, stiffly erect, rather brittle, fertile fronds slightly smaller than sterile. Pinnae in 15-20(-30) pairs, the longest 30-70 x 7-12 mm, fertile shorter and narrower, divided almost to midrib into onlong, round-ended, ultimate segments. Indusia with sparse to dense glandular hairs.

## Flowering:

Spore bearing fronds may be found throughout the year

## Fruiting:

Spore bearing fronds may be found throughout the year

## Threats:

Formerly common in lowland coastal wetlands, this species remains abundant only in those more remote western wetlands from the Kaipara Harbour north to Te Pahi. It is close to extinction and highly threatened in the Bay of Plenty, with perhaps the largest populations now left on remote Matakana Island. The main threat seems to come from wetland drainage, eutrophication and the often associated spread of faster, taller growing weeds. The species is also popular with fern collectors, and some of the better known and more accessible populations have been depleted or destroyed through fern collection. According to the recent Australian Fern Flora treatment of this species the best populations in Australasia now occur in New Zealand. Its future is not assured in Australia.

## \*Attribution:

Fact sheet prepared for NZPCN by P.J. de Lange (21 April 2011). Description adapted from Brownsey & Smith-Dodsworth (2000).

## References and further reading:

Brownsey, P.J.; Smith-Dodsworth, J.C. 2000: New Zealand Ferns and Allied Plants. Auckland, David Bateman

Cameron, E.K., Bellingham, R.M. 1998. *Thelypteris confluens* an addition to the Waitakeres. *Auckland Botanical Society Journal* 53: 38.

## For more information, visit:

[http://nzpcn.org.nz/flora\\_details.asp?ID=208](http://nzpcn.org.nz/flora_details.asp?ID=208)



**Caption:** *Thelypteris confluens* at Karikari Beach

**Photographer:** Bill Campbell



**Caption:** *Thelypteris confluens* on fringe of small raupo wetland at Karikari Beach

**Photographer:** Bill Campbell

## *Thismia rodwayi*

### Common Name(s):

Thismia

### Current Threat Status (2012):

At Risk - Naturally Uncommon

### Distribution:

Indigenous. In New Zealand recorded only from the North Island where it has been reported from near the Hokianga Harbour, Waipoua and Trounson Forest, Hakarimata Range, Mt Pirongia, Te Kauri Scenic Reserve, Walter Scott Reserve, near Taumarunui, Taurewa, near Ketetahi Springs (Tongariro), Taurewa, and at Opepe Scenic Reserve. Easily overlooked. Present in Australia.

### Habitat:

A saprophytic plant that has been found in coastal to montane forest and shrubland, where it usually grows in deep leaf litter near the base of trees. It has been found in association with a wide variety of tree and shrub species but most recent records come from cut over forest margins or regenerating forest.

### Features\*:

Saprophytic, reddish, pinkish or pinkish-white glabrous plant growing within deep leaf litter. Roots sparse, 1-1.5 mm diameter, branching at 10-20 mm intervals, with each fork producing an unbranched erect set 5-20 mm long. Scale leaves sparse, ovate, acute with the largest three just below flower, these 5 x 2 mm. Flower up to 20 mm long, solitary, terminal red, red-orange rarely white with orange striping. Perianth-tube 10 x 8 mm, turbinate, translucent; outer lobes 4 x 1 mm, narrow-triangular, erect or reflexed; inner lobes 4-5 x 2.5 mm, arching inwards and firmly connate above to form a mitre with broad fenestrae in its sides, the projecting keel of the inner lobe produced into a free appendage that varies in length. Stamens pendent from short, usually red annulus; free filaments short, incurved; anthers broader and connate into a pale tube that reaches halfway down perianth-tube; pollen sacs small, widely separated; connectives delicately membranous and elaborately lobed. Nectaries 6, below anthers, each lying on the line of junction of 2 adjacent connectives and enclosed within a membranous pouch. Ovary short-turbinate, 1.5 x 2 mm, upper surface concave; style stout, 1 mm.; stigmas truncate-obovate, bilobed; ovules with long funicles, crowded on stalked placentae. Fruit fleshy, the upper portion becoming chartaceous and transparent at maturity to expose numerous brown seeds.

### Flowering:

November - February

### Fruiting:

December - March

### Threats:

An apparently naturally uncommon, biologically sparse species. However, it is extremely small, usually occurring partially buried in leaf litter, and so it is often mistaken for a fungus. It is probably more overlooked than it is truly uncommon. This species is often found by accident in leaf litter.

### \*Attribution:

Fact Sheet Prepared by P.J. de Lange (1 August 2004). Description based on Moore & Edgar (1961).

### References and further reading:

Bell, R. 1971. *Thismia rodwayi* at Pirongia. *Wellington Botanical Society Bulletin*, 37: 67

Moore, L.B.; Edgar, E. 1970: *Flora of New Zealand*. Vol. II. Government Printer, Wellington.

Steele, R.H. 1966. *Note on the occurrence of Thismia Rodwayi* F. Muell. at Taurewa, North Island, New Zealand. *Tuatara* 14 (3)

### For more information, visit:

[http://nzpcn.org.nz/flora\\_details.asp?ID=328](http://nzpcn.org.nz/flora_details.asp?ID=328)



**Caption:** *Thismia rodwayi*  
**Photographer:** J.C. Greenwood



**Caption:** *Thismia rodwayi*  
**Photographer:** Peter de Lange

# *Thyridia repens*

## Common Name(s):

Native musk, Maori musk, Native monkey flower

## Current Threat Status (2012):

At Risk - Naturally Uncommon

## Distribution:

Indigenous. New Zealand: North and South Islands. Also Australia

## Habitat:

Strictly coastal. Usually at the back of salt marshes and estuaries, in permanently damp or soggy, saline mud or silt soils in locations that are periodically flooded during high, spring or King tides. Sometimes in dune swales. Intolerant of much competition from taller plants or faster growing mat-forming species.

## Features\*:

Mat-forming, succulent, perennial herb. All parts glabrous. Stems dark green to red-green, prostrate, sometimes ascending at apices, rooting at nodes. Leaves sessile, amplexicaul, c. 2-8 x 1-6 mm, dark green, brown-green to reddish-green, broadly ovate-oblong, entire, punctuate, somewhat succulent. Flowers on short, ascending branches, solitary in leaf axils; pedicels 2-8 mm long, dark green to pinkish-green. Calyx 2-7 mm long, < corolla tube, broadly funneliform; apex truncate, minutely toothed. Corolla 10-15 mm long, distinctly 2-lipped. light purple, mauve, lilac or white, red-spotted with yellow open throat; lower lip bearded; lobes shallow, broader than long. Capsule 6.5 mm long, broadly cylindrical.

## Flowering:

September - February

## Fruiting:

November - May

## Threats:

A widespread, naturally uncommon, biologically sparse species. It is most uncommon in the northern North Island becoming progressively more abundant south of the Waikato, although it is still often absent over large parts of the country. In some parts of its range, particularly metropolitan Auckland, populations have been lost through road realignments (where they cross salt marshes e.g., the upper Waitemata Harbour) or through land reclamation. The spread of the aggressive salt grasses (*Spartina* spp.) and *Carex divisa*. is also a risk in some parts of its range. Nevertheless, these range contractions are insufficient nationally to justify an upgrade to one of the three threat categories.

## \*Attribution:

Fact sheet prepared for NZPCN by P.J. de Lange 8 August 2004. Description adapted from Allan (1961).

## References and further reading:

Allan, H.H. 1961: Flora of New Zealand. Vol. I. Government Printer, Wellington.

Barker, W.R.; Nesom, G.L.; Beardsley, P.M.; Fraga, N.S. 2012: A taxonomic conspectus of Phrymaceae: A narrowed circumscriptions for *Mimulus*, new and resurrected genera, and new names and combinations. *Phytoneuron* 1-60.

Gardner, R. 1988. *Mimulus repens*. *Auckland Botanical Society Journal*, 43: 67

## For more information, visit:

[http://nzpcn.org.nz/flora\\_details.asp?ID=286](http://nzpcn.org.nz/flora_details.asp?ID=286)



**Caption:** Hoopers Inlet, Otago Peninsula

**Photographer:** John Barkla



**Caption:** Tiwai Peninsula, Southland (flowers)

**Photographer:** Jesse Bythell

# *Trisetum antarcticum*

## Common Name(s):

None Known

## Current Threat Status (2012):

Declining

## Distribution:

Endemic. North Island south from the southern Egmont Coast, on Kapiti Island and western and southern Wellington Coasts to Cape Palliser. In the South Island at Cape Farewell and along the outer Marlborough Sounds and adjacent islands.

## Habitat:

Coastal, on gravel, sand and bluffs.

## Features\*:

Densely tufted, dull green to grey-green grass up to 400 mm tall, with rather rigid leaves usually reaching or sometimes overtopping the dense spike-like panicles. branching extravaginal at plant base, sometimes intravaginal above. Leaf-sheath to 40 mm, very minutely pubescent or with extremely minute appressed hairs between ribs. Ligule 0.2-0.6 mm, truncate, erose often sparsely minutely ciliate, undersides sometimes minutely prickly-toothed. Leaf-blade 35-220 x 1.5-4 mm, flat or inrolled, undersides mostly smooth, often scabrid near the long-narrow tapering apex; upper surface ribbed with sparse to dense minute hairs and prickly-teeth on ribs, hairs slightly longer near ligule; margins minutely prickly-toothed. Culm 40-300 mm long, internodes glabrous, occasionally bearing a few minute prickly-teeth below panicle. Panicle 20-150 x 6-25 mm, compact, oblong, very dense, rarely with some lower branches and pedicels smooth or with sparse minute prickly-teeth or rarely minute hairs. Spikelets 4.5-7.0 mm, greyish green or brownish amber. Glumes unequal, hyaline, keel thickened with sparse long prickly-teeth on upper half; lower 2/3 to 4/5 length of upper, linear-lanceolate, upper slightly < spikelet, elliptic; margins with prickly-teeth near acuminate to almost mucronate apex. Lemma 4.0-6.2 mm, bidentate to shortly bicuspid, papillose, prickly-toothed above and on keel; awn 3.5-6.0, initially straight becoming recurved, insertion in upper 1/4 of lemma. palea with minute prickly-teeth on keels and usually on margins. Callus hairs to 0.5 mm. Rachilla hairs to 2.5 mm. Lodicules c.1 mm, glabrous. Anthers 1.0-1.7 mm. Ovary 0.8 mm; stigma-styles to 1.3 mm. Seed 2.5-3.0 x 0.6 mm.

## Flowering:

November - February

## Fruiting:

December - May

## Threats:

Still quite common in parts of its range but there has been a range contraction around Wellington due to the spread of weeds into its habitat, and also because of greywacke quarrying along the south coast.

## \*Attribution:

Description modified from Edgar and Connor (2000).

## References and further reading:

Edgar, E.; Connor, H.E. 2000: Flora of New Zealand. Vol. V. Grasses. Christchurch, Manaaki Whenua Press. 650 pp.

## For more information, visit:

[http://nzpcn.org.nz/flora\\_details.asp?ID=209](http://nzpcn.org.nz/flora_details.asp?ID=209)



**Caption:** In cultivation, ex Makara. Dec 2004.

**Photographer:** Barbara Mitcalfe



**Caption:** In cultivation, ex Makara. Dec 2004.

**Photographer:** Barbara Mitcalfe

## *Tupeia antarctica*

### **Common Name(s):**

taapia, pirita, white mistletoe, tupia

### **Current Threat Status (2012):**

At Risk - Declining

### **Distribution:**

Endemic to the North and South Islands.

### **Habitat:**

Forest or scrub (often in regenerating vegetation), where it is parasitic on a wide range of hosts including tarata, karo, *Coprosma* species, putaputaweta, fivefinger, white maire and broom.

### **Features:**

A shrubby semi-parasite to 1 m diameter. Leaves are oppositely arranged, variable in shape, 10 to 70 by 10 to 40 mm, slightly fleshy and bright green. Stems are always rounded in cross section near the tips, have pale white to grey bark, and downy or hairy branchlets. Flowers are tiny, greenish-yellow. Fruit are fleshy, white to pink, 5 to 7 mm diameter.

### **Flowering:**

Flowers from October to December.

### **Fruiting:**

Fruit appear from December to March.

### **Threats:**

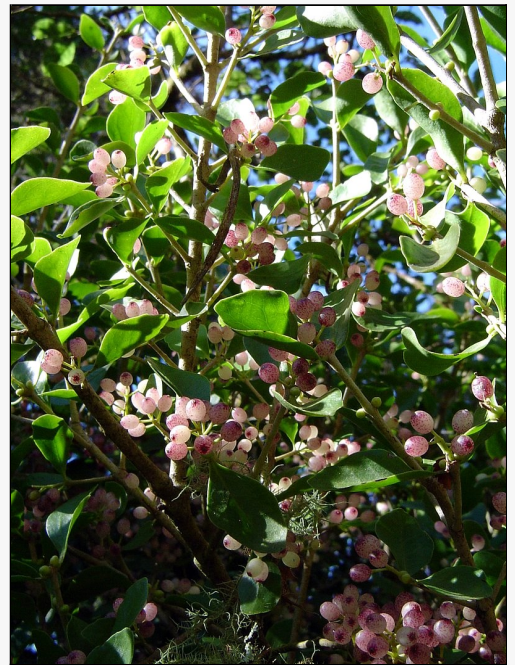
Possum browse is the primary threat to this species. Insect browse, habitat destruction, loss of pollinating and seed-dispersing native birds, collectors, vandalism and fungal disease also threaten this species.

### **References and further reading:**

Moorfield, J. C. (2005). *Te aka : Maori-English, English-Maori dictionary and index*. Pearson Longman: Auckland, N.Z.

### **For more information, visit:**

[http://nzpcn.org.nz/flora\\_details.asp?ID=210](http://nzpcn.org.nz/flora_details.asp?ID=210)



**Caption:** fruit on marbleleaf  
**Photographer:** Philip Lissaman



**Caption:** young plant on  
*Plagianthus regius*  
**Photographer:** Jesse Bythell

# *Veronica bollonsii*

## Common Name(s):

Hebe

## Current Threat Status (2012):

At Risk - Naturally Uncommon

## Distribution:

Endemic. North Island, outer Hauraki Gulf where it is mainly found on the Poor Knights and Hen & Chicken Island groups. Also local on rock stacks and headlands from Tutukaka north to about Mimiwhangata.

## Habitat:

Petrel scrub, low wind shorn shrubland and open coastal forest or on rock stacks. On the Poor Knights and Hen & Chicken Islands it is often in low wind shorn petrel scrub on exposed shore platforms or on slip scars or in wind damaged coastal forest. Frequent on rocky headlands and sometimes on rock stacks.

## Features\*:

Heavily branched, rather bushy shrub 2 x 3 m. Branches numerous, erect, old stems grey to grey-brown; branchlets green, minutely puberulent, glabrate; internodes 1-45 mm; leaf decurrencies evident. Leaf bud with sinus. Leaves erect to patent; lamina 14-130 x 8-42 mm, upper surface dark green, usually glossy, hairy along midrib, undersides light green dull or glossy oblanceolate, obovate to oblong or elliptic, coriaceous, more or less flat, apex shortly apiculate, subacute to obtuse, secondary venation evident in young leaves; margin narrowly cartilaginous, glabrous or minutely ciliate. Inflorescences lateral, unbranched racemes, 35-150 mm long, bearing 24-125 flowers; peduncle 6-30 mm, rachis 27-126 mm. Bracts alternate or lowermost pair opposite, then subopposite or alternate above, lanceolate to linear-lanceolate or ovate, acute. Flowers on pedicels 1-7 mm long. Calyx 2.5-5.5 mm; lobes lanceolate, acute, rarely sparsely hairy on the outside. Corolla tube 3-5 x 1.9-2.5 mm, funnelform, hairy inside and often outside (near where lobes diverge); lobes equalling or longer than corolla tube, tinged very pale mauve at anthesis soon fading to white, lanceolate or narrowly elliptic, subacute, anterior lobe obtuse; patent to recurved. Stamen filaments 3.8-7 mm; anthers 2-2.7 mm, mauve or purple. Ovary 0.6-1.2 mm; style 5.5-8.5 mm. Capsules 2.5-5.5 x 1.8-4 mm, subacute. Seeds 1-1.7 x 0.9-1.3 mm, straw-yellow, broad-ellipsoid, more or less winged, flattened.

## Flowering:

September - February (often sporadic throughout the year)

## Fruiting:

Present throughout the year

## Threats:

A naturally uncommon, range restricted species virtually confined to offshore islands where it is under no obvious threats.

## \*Attribution:

Fact sheet prepared for NZPCN by P.J. de Lange 1 October 2006. Description based on Bayly & Kellow (2006).

## References and further reading:

Bayly, M.J.; Kellow, A.V. Hebes, identification, classification and biology. Wellington, Te Papa Press

Metcalf, L. 2006. Hebes - a guide to species, hybrids, and allied genera. Portland, Oregon, Timber Press.

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

## For more information, visit:

[http://nzpcn.org.nz/flora\\_details.asp?ID=1970](http://nzpcn.org.nz/flora_details.asp?ID=1970)



**Caption:** Hebe bollonsii shrub in flower

**Photographer:** Peter J. de Lange, December 1993, Aorangi Island, Poor Knights Islands



**Caption:** Hebe bollonsii - flowering specimen

**Photographer:** Peter de Lange, 11 Nov 2006, Ex Cult. ex Taranga (Hen) Island.

## *Veronica obtusata*

### **Common Name(s):**

hebe

### **Current Threat Status (2012):**

At Risk - Naturally Uncommon

### **Distribution:**

Endemic. New Zealand: North Island (Waitakere Coastline from Muriwai to Huia, and the southern reaches of the Kawhia Harbour)

### **Habitat:**

Strictly coastal. Usually found on sparsely vegetated steep slopes and banks, in low windswept scrub and on cliff faces and rock stacks. May be found threaded through carices, *Poa anceps* and flax (*Phormium tenax*).

### **Flowering:**

July - December

### **Fruiting:**

Throughout the year

### **Threats:**

Not Threatened. However, close to extinction within the Kawhia part of its range where it only secure on some of the southern islets within the harbour.

### **References and further reading:**

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

### **For more information, visit:**

[http://nzpcn.org.nz/flora\\_details.asp?ID=531](http://nzpcn.org.nz/flora_details.asp?ID=531)



**Caption:** Hebe obtusata

**Photographer:** Bec Stanley



**Caption:** Hebe obtusata

**Photographer:** John Smith-Dodsworth



## *Veronica pubescens* subsp. *rehuarum*

### Common Name(s):

Great Barrier Koromiko, Great Barrier Hebe

### Current Threat Status (2012):

At Risk - Naturally Uncommon

### Distribution:

Endemic. New Zealand: Great Barrier Island.

### Habitat:

Common in open, seral, coastal habitats but also inland on rock tors, cliff faces, and rubble-strewn ground.

### Features\*:

Shrub to 1.5 m tall. Branches erect or spreading; old stems brown to red-brown; youngest branchlets green to red; internodes 1–39 mm long; stems minutely and uniformly puberulent or glabrous, hairs when present eglandular. Leaf bud about as long as mature leaves; sinus usually present glabrous or minutely puberulent, small and rounded. Leaves decussate, erecto-patent to recurved; lamina lanceolate, narrowly elliptic, or linear-lanceolate, subcoriaceous to coriaceous, more or less flat, 25–65 × 7–19 mm; apex subacute or acute or obtuse; base truncate or cuneate; midrib thickened beneath and depressed to grooved above; margin narrowly cartilaginous, bevelled to rounded, (usually with at least some hairs toward base) or glabrous, entire; upper surface dark to yellowish green, dull to somewhat glossy, underside of lamina glabrous,; underside of midrib glabrous or hairy, hairs when present being < 0.2 mm long; midrib pubescent to puberulent (at least toward base); hairs minute, glandular; lower surface green or light green, dull. Petiole 0.5–4.0 mm long. Inflorescences with 20–190 flowers, lateral, racemose and unbranched, 55–100 mm long, longer than (mostly) or about equal to subtending leaves; peduncle 3–28 mm long, eglandular pubescent; rachis 17–175 mm long, eglandular-pubescent; bracts alternate, acute or subacute, ciliate, narrowly deltoid or lanceolate; pedicels >, = to or < bracts, eglandular-pubescent, erecto-patent or patent to slightly recurved at anthesis, erecto-patent, ascending or recurved at fruiting. Flowers on individual plants hermaphrodite or female. Calyx 1.7–4.0 mm long, 4-lobed, equally divided; lobes all similar, deltoid or lanceolate, acute, acuminate or subacute, outer surface glabrous, occasionally minutely hairy, margins sometimes tinged pink. Corolla lobes mauve at anthesis and white after pollination, glabrous, corolla tube always white, glabrous or nearly so, 2.7–3.9 ×, 1.3–1.9 mm, narrowly funnellform to shortly cylindric and contracted at base, equalling or longer than calyx; usually hairy inside and sometimes hairy outside; posterior lobe lanceolate or elliptic, subacute or obtuse, suberect to patent; lateral lobes lanceolate or elliptic, subacute or obtuse, suberect; anterior lobe lanceolate, subacute to obtuse, suberect. Stamen filaments white, 4.5–6 mm long; anthers subacute to conspicuously apiculate, mauve or purple, 1.1–1.5 mm long. Nectarial disc glabrous. Ovary ovoid, 0.9–1.1 mm long, glabrous or sparsely so (especially along septal grooves); style 3.5–10.5 mm long, white or mauve; stigma no wider than style, yellow, green, mauve, red at anthesis. Capsules obtuse or subacute, dark brown, 2.5–5.0 × 2.0–3.4 mm, septicial split extending to base, loculicidal split extending 1/4–1/2 way to base.

### Flowering:

August - July

### Fruiting:

October - June

### Threats:

Abundant within its known habitats.

### \*Attribution:

Fact Sheet by Peter J. de Lange (1 August 2006). Description from Bayly et al. (2003)

### References and further reading:

Bayly et al. 2003: Geographic variation in morphology and flavonoid chemistry in *Hebe pubescens* and *H. bollonsii* (Scrophulariaceae), including a new infraspecific classification for *H. pubescens*. *New Zealand Journal of Botany* 41: 23–53

### For more information, visit:

[http://nzpcn.org.nz/flora\\_details.asp?ID=535](http://nzpcn.org.nz/flora_details.asp?ID=535)



**Caption:** The Needles, Great Barrier Island

**Photographer:** Peter de Lange



**Caption:** The Needles, Great Barrier Island

**Photographer:** Peter de Lange

## *Veronica pubescens* subsp. *sejuncta*

### Common Name(s):

Mokohinau Koromiko, Hebe

### Current Threat Status (2012):

At Risk - Naturally Uncommon

### Distribution:

Endemic. Mokohinau, Little Barrier and Great Barrier Islands only

### Habitat:

Open coastal forest, shrubland and petrel scrub on offshore islands. Often a pioneer on recently cleared or disturbed ground.

### Features\*:

Shrub to 2 m tall, usually heavily branched. Branches erect or spreading; old stems brown to red-brown; youngest branchlets green to red; internodes 1–39 mm long; stems uniformly and minutely puberulent, or glabrous. Leaf bud about as long as mature leaves; sinus rounded to subacute, usually conspicuous, but sometimes (on Mokohinau Islands) very small or absent. Leaves obovate or oblanceolate, subcoriaceous to very robust and coriaceous, more or less flat, 30–125 × 7–31 mm; apex subacute, acute or obtuse; base truncate or cuneate; midrib thickened beneath, glabrous or hairy (hairs < 0.2 mm long) and depressed to grooved above; margin pubescent to sparsely ciliate or nearly glabrous, entire; upper lamina surface dark to very dark green, glossy, glabrous; lower surface green or light green, dull. Petiole 0.5–4.0 mm long. Inflorescences with 20–190 flowers, lateral, racemose and unbranched, 55–145 mm long; peduncle 3–28 mm long, eglandular pubescent; rachis 17–175 mm long, eglandular-pubescent; bracts alternate, narrowly deltoid or lanceolate, acute or subacute; pedicels  $\succ$ , = to or  $\prec$  bracts, eglandular-pubescent, erecto-patent, patent or slightly recurved at anthesis, erecto-patent, ascending or recurved at fruiting. Flowers hermaphrodite or female. Calyx 1.7–4.0 mm long, 4-lobed, equally divided; lobes deltoid or lanceolate, acute, acuminate or subacute, glabrous or hairy (always glabrous on Mokohinau Islands), if hairy then hairs mixed glandular/eglandular ciliate outside, occasionally inside, margins sometimes tinged pink. Corolla lobes faint mauve to vivid purple-mauve when young, usually fading to white after anthesis, lanceolate or elliptic, subacute or obtuse, suberect to patent, corolla tube white, outer surface glabrous or hairy (glabrous on Mokohinau Islands); tube hairy inside and often outside, 2.5–5.5 × 1.3–1.9 mm, narrowly funnelform to shortly cylindric, = to  $\succ$  calyx; usually hairy inside, sometimes outside. Stamen filaments white, 4.5–6.0 mm long; anthers subacute to conspicuously apiculate, mauve or purple, 1.1–1.5 mm long. Nectarial disc glabrous. Ovary ovoid, 0.9–1.1 mm long, sparsely hairy (especially along septal grooves); style 3.5–10.5 mm long, white or mauve; stigma no wider than style, yellow, green, mauve or red at anthesis. Capsules obtuse or subacute, dark brown, 2.5–5.0 × 2.0–3.4 mm, septical split extending to base, loculicidal split extending  $\frac{1}{4}$ – $\frac{1}{2}$  way to base.

### Flowering:

August - November then again in May - July

### Fruiting:

October - April

### Threats:

Naturally Uncommon, range-restricted endemic, abundant on Little Barrier and the Mokohinau Islands, scarce on Great Barrier Island (this may be natural). There are no known threats.

### \*Attribution:

Fact Sheet by Peter J. de Lange (1 August 2006). Description adapted from Bayley et al. (2003)

### References and further reading:

Bayly et al. 2003: Geographic variation in morphology and flavonoid chemistry in *Hebe pubescens* and *H. bollonsii* (Scrophulariaceae), including a new infraspecific classification for *H. pubescens*. *New Zealand Journal of Botany* 41: 23–53

### For more information, visit:

[http://nzpcn.org.nz/flora\\_details.asp?ID=536](http://nzpcn.org.nz/flora_details.asp?ID=536)



**Caption:** Flowering sprig of *Hebe pubescens* subsp. *sejuncta*  
**Photographer:** Peter de Lange



**Caption:** Immature flowers  
**Photographer:** Peter de Lange, September 1994, Fanal Island

# *Veronica punicea*

## Common Name(s):

Hebe

## Current Threat Status (2012):

At Risk - Naturally Uncommon

## Distribution:

Endemic. North Island, North Cape area only where it is confined to the 120 ha exposure of serpentinite rocks at the Surville Cliffs.

## Habitat:

Confined to serpentinite (ultramafic) rocks and associated soils of the Surville Cliffs and adjacent plateau, at North Cape. Here it grows in low windshorn scrub, on open clay pans, on boulder fall, adjacent semi-stable scree and along cliff faces.

## Features\*:

Low spreading to suberect shrub up to 1.5 x 0.7 m. Branches decumbent, sub-erect to erect, older stems grey or grey-brown; branchlets green or yellowish, finely puberulent; internodes 1.5-2.3 mm; leaf decurrencies obscure. Leaf bud without sinus. Leaves patent to erecto-patent, 16-75 x 6-25 mm; upper surface dark green to green, glossy, under side similar but paler and dull; lamina narrowly to broadly elliptic to oblong-elliptic or obovate, coriaceous, flat or m-shaped in cross-section, apex often apiculate, obtuse to subacute, margin finely ciliate or glabrous, hairy along midrib. Inflorescence a 16-60-flowered, lateral, unbranched raceme, 20-100 mm long, often with many unopened flowers toward apex; peduncle 6-35 mm, rachis 15-75 mm. Bracts alternate (lowermost pair often subopposite), ovate, broadly ovate, elliptic, or narrowly deltoid, obtuse, or subacute. Flowers with pedicels 1-7 mm and always longer than bracts. Calyx 1.9-4 mm; lobes ovate, obtuse or subacute. Corolla tube 3-5.5 mm, hairy or glabrous inside, longer than calyx; lobes magenta to deep violet at anthesis, rose pink or violet with age, ovate, broadly ovate to elliptic, obtuse, erect to suberect, longer or shorter than corolla tube, sometimes hairy inside; corolla throat magenta or violet. Stamen filaments 5.5-10.5 mm, magenta or violet; anthers 0.9-1.6 mm, red-purple. Ovary 0.9-1.5 mm; style 7.5-11.8 mm. Capsules 4.5-8.5 x 4-5 mm, subacute, hairy. Seeds 1.7-2.4 x 1.2-1.8 mm, pale to dark brown, broad ellipsoid to discoid, finely papillate, flattened.

## Flowering:

April - October (but sporadic flowering common all year round)

## Fruiting:

July- January (but fruits may be present throughout the year)

## Threats:

Abundant within its only known habitat, the serpentinite rock exposure of the Surville Cliffs, North Cape. This unique habitat is threatened by fires, weed invasions and possums, pigs and feral horses and cattle.

## \*Attribution:

Fact Sheet Prepared by P.J. de Lange (1 November 2009). Description based on de Lange (1997)

## References and further reading:

de Lange, P.J. 1997: *Hebe brevifolia* (Scrophulariaceae); an ultramafic endemic of the Surville Cliffs, North Cape, New Zealand. *New Zealand Journal of Botany* 35(1): 1-8.

## For more information, visit:

[http://nzpcn.org.nz/flora\\_details.asp?ID=521](http://nzpcn.org.nz/flora_details.asp?ID=521)



**Caption:** Surville Cliffs, October 1996

**Photographer:** Peter de Lange



**Caption:** Ex. Surville Cliffs, February 1999

**Photographer:** G. M. Crowcroft

# *Veronica rivalis*

## Common Name(s):

Northland River Koromiko

## Current Threat Status (2012):

At Risk - Naturally Uncommon

## Distribution:

Endemic. North Island, Northland where it is known from both the Kerikeri River and Puketotara Stream (near Kerikeri), Waipapa River (Puketi Forest) and Waipoua River.

## Habitat:

A forest dwelling, rheophytic species of stream and river banks that are prone to frequent flooding.

## Features\*:

Spindly, brittle, openly branched 1-1.5 m tall shrub of riverine habitats, favouring sites prone to sudden flooding. Branches erect, rather brittle, brown to grey-brown; branchlets spindly, green, bifariously or occasionally uniformly puberulent, or rarely glabrous; internodes 1.5-29 mm; leaf scars weakly evident or obscure. Leaf bud distinct without sinus. Leaves 15-118 x 3-12 mm, dull dark green to yellow-green, linear to linear-lanceolate, membranous, apex acute to obtuse, margin ciliate, entire or finely, and distantly denticulate. Inflorescence a lateral, usually unbranched raceme 27-135 mm long, bearing 13-81 flowers; peduncle 5-19 mm; rachis 2-117 mm, longer than or equal to subtending leaves. Bracts alternate, narrowly deltoid or lanceolate, acute, outer surface hairy. Flowers white or tinged pale mauve; pedicels 0.5-5 mm, longer than or equal to bracts, usually recurved in fruit. Calyx 2-3.5 mm; lobes very narrowly deltoid or lanceolate, acute to acuminate, densely to sparsely hairy on the outer surface. Corolla tube 1.3-2.8 x 1.6-0.1.8 mm, white to pale mauve, shortly funnellform, much shorter than or equal to calyx, internally densely hairy, externally rarely so; lobes white or tinged pale mauve at anthesis, lanceolate, acute, or subacute, suberect to patent, usually longer than corolla tube (sometime shorter), sometimes ciliate and/or hairy on the outer surface. Stamen filaments 4-6.5 mm; anthers 1.9-2.2 mm, mauve. Ovary 0.9-1.2 mm, narrowly ovoid, usually sparsely or minutely hairy; style 3.5-5.5 mm. Capsules 2-3.5 x 1.6-3 mm, pale brown to brown, obtuse or subacute, occasionally sparsely hairy. Seeds 0.9-1.4 x 0.9 -1.1 mm, straw-yellow, strongly flattened, ellipsoid to discoid, weakly winged.

## Flowering:

January - June

## Fruiting:

January - December

## Threats:

A very localised Northland endemic which has its stronghold in the Waipapa River area of Puketi Forest and probably also the Waipoua River. It is close to extinction along the Kerikeri due mainly to the spread of aggressive weeds (many derived from nearby houses). However, aside from the decline known to be happening there it seems secure elsewhere. In fact the exact distribution of this species remains unknown, and it may be even more widespread than currently believed

## \*Attribution:

Fact Sheet by P.J. de Lange (12 August 2005): Description adapted from Bayly & Kellow (2006)

## References and further reading:

Bayly, M.; Kellow, A. 2006: An illustrated guide to New Zealand Hebes. Te Papa Press, Wellington.

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

## For more information, visit:

[http://nzpcn.org.nz/flora\\_details.asp?ID=514](http://nzpcn.org.nz/flora_details.asp?ID=514)



**Caption:** Hebe acutiflora (in cultivation)

**Photographer:** John Smith-Dodsworth



**Caption:** Hebe acutiflora (in cultivation)

**Photographer:** John Smith-Dodsworth

## *Veronica townsonii*

### **Common Name(s):**

Hebe

### **Current Threat Status (2012):**

At Risk - Naturally Uncommon

### **References and further reading:**

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

### **For more information, visit:**

[http://nzpcn.org.nz/flora\\_details.asp?ID=542](http://nzpcn.org.nz/flora_details.asp?ID=542)



**Caption:** Ex. cult 19 Cranwell Place, Hamilton

**Photographer:** G. M. Crowcroft



**Caption:** Hebe townsonii on Mt Burnett

**Photographer:** John Smith-Dodsworth

## *Xeronema callistemon* f. *bracteosa*

### Common Name(s):

Poor Knights Lily, Raupo-Taranga

### Current Threat Status (2012):

At Risk - Naturally Uncommon

### Distribution:

Endemic. Only known with certainty from the Poor Knights Islands, near Tutukaka, Northland. *Xeronema* belongs to a newly established family of one genus with two species, the Xeronemataceae.

### Habitat:

Rhyolite sea cliffs and rock outcrops. Occasionally in forest on rubble or as an epiphyte on pohtukawa (*Metrosideros excelsa*). These latter occurrences probably stem from fallen plants captured in trees or resprouting on the forest floor.

### Features\*:

Forming huge colonies 1-4 m across. Leaves green to yellow-green, arising from thick rhizomes, and forming flattened fans, 60-150 x 3-5 cm. Dead leaves long persistent, ultimately detached from the frayed base to form a fibrous mass. Inflorescences on green, thick, leafy stems (peduncle) up to 1 m. Racemes 10-60 cm long, aligned vertically on upper side of peduncle. Flowers crowded, numerous. Flower stalks (pedicels) 1-15 mm long, subtended by an initially green translucent leafy bract overtopping the buds until flowering burst. Flowers red, tepals 10-15 mm, outer 3 mm wide, inner 1.5 mm. Stamen filaments twice length of tepals, anthers 4 mm long, pollen tangerine-orange. Ovary 4 x 2 mm, oblong-3-angled, covered with copious nectar. Capsule 9-11 mm. Seeds ovate, 1.6 x 1 mm, black.

### Flowering:

September to December, peaking in October.

### Fruiting:

November to January.

### Threats:

None. However in a recent study de Lange & Cameron (1999: *New Zealand Journal of Botany* 37(3):435-437) found that f. *bracteosa* was scarce in the wild. It would seem to only be a minor genetically fixed variant, which is why de Lange & Cameron (1999) reduced its rank to that of forma.

### \*Attribution:

Fact Sheet prepared for NZPCN by P.J. de Lange 1 October 2004. Description based on Moore & Edgar (1970) supplemented by observations obtained from fresh specimens and herbarium material (see also de Lange & Cameron 1999).

### References and further reading:

de Lange, P.J.; Cameron, E.K. 1999: The vascular flora of Aorangi Island, Poor Knights Islands, northern New Zealand. *New Zealand Journal of Botany* 37: 433-468.

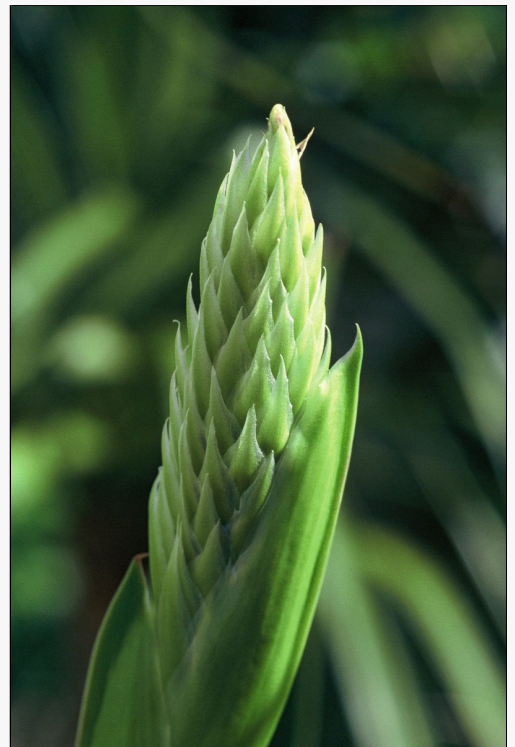
Moore, L.B.; Edgar, E. 1970: *Flora of New Zealand*. Vol. II. Wellington, Government Printer.

### For more information, visit:

[http://nzpcn.org.nz/flora\\_details.asp?ID=705](http://nzpcn.org.nz/flora_details.asp?ID=705)



**Caption:** Ex. Aorangi Island,  
**Photographer:** Gillian Crowcroft



**Caption:** Ex. Tatua Peak, Aorangi  
Island  
**Photographer:** Gillian Crowcroft

# *Xeronema callistemon* f. *callistemon*

## Common Name(s):

Poor Knights Lily, Raupo-Taranga

## Current Threat Status (2012):

At Risk - Naturally Uncommon

## Distribution:

Endemic. Only known from the Poor Knights Islands near Tutukaka, and from Hen (Taranga) Island, near Whangarei. *Xeronema* belongs to a newly established family of one genus with two species, the Xeronemataceae.

## Habitat:

Rhyolite sea cliffs and rock outcrops. Occasionally in forest on rubble or as an epiphyte on pohtukawa (*Metrosideros excelsa*). These latter occurrences probably stem from fallen plants captured in trees or resprouting on the forest floor.

## Features\*:

Forming huge colonies 1-4 m across. Leaves green to yellow-green, arising from thick rhizomes, and forming flattened fans, 60-150 x 3-5 cm. Dead leaves long persistent, ultimately detached from the frayed base to form a fibrous mass. Inflorescences on green, thick, leafy stems (peduncle) up to 1 m. Racemes 10-60 cm long, aligned vertically on upper side of peduncle. Flowers crowded, numerous. Flower stalks (pedicels) 1-15 mm long, subtended by a pale green translucent leafy bract, which is obviously shorter than the buds. Flowers red, tepals 10-15 mm, outer 3 mm wide, inner 1.5 mm. Stamen filaments twice length of tepals, anthers 4 mm long, pollen tangerine-orange. Ovary 4 x 2 mm, oblong-3-angled, covered with copious nectar. Capsule 9-11 mm. Seeds ovate, 1.6 x 1 mm, black.

## Flowering:

September to December, peaking in October.

## Fruiting:

November to January.

## Threats:

None. The species is listed only because it is endemic to two very small island archipelago.

## \*Attribution:

Fact Sheet prepared for NZPCN by P.J. de Lange 1 October 2004. Description based on Moore & Edgar (1970) supplemented by observations obtained from fresh specimens and herbarium material (see also de Lange & Cameron 1999).

## References and further reading:

de Lange, P.J.; Cameron, E.K. 1999: The vascular flora of Aorangi Island, Poor Knights Islands, northern New Zealand. *New Zealand Journal of Botany* 37: 433-468.

Moore, L.B.; Edgar, E. 1970: Flora of New Zealand. Vol. II. Wellington, Government Printer.

Oliver, W.R.B. 1926: New Zealand angiosperms. *Transactions and Proceedings of the New Zealand Institute* 56: 1-5.

Oliver, H. 1968. Note on the growing of *Xeronema callistemon*. *Wellington Botanical Society Bulletin* 35: 22

## For more information, visit:

[http://nzpcn.org.nz/flora\\_details.asp?ID=706](http://nzpcn.org.nz/flora_details.asp?ID=706)



**Caption:** Tatua Peak

**Photographer:** Peter de Lange



**Caption:** Tatua Peak, Aorangi Island

**Photographer:** Gillian Crowcroft

# *Zostera muelleri* subsp. *novazelandica*

## Common Name(s):

seagrass, eelgrass, nana, *Zostera*

## Current Threat Status (2012):

At Risk - Declining

## Distribution:

Indigenous. North, South and Stewart Islands. Throughout southern and eastern Australia

## Habitat:

Marine. Mostly submerged in estuaries where it is found on intertidal and subtidal flats of sandy mud. Often in channels or deep pools of water

## Features\*:

Grass-like plants of mud or sandy-silt shallow marine environments. Rhizomes compressed 1-2 mm diameter, widely creeping, rooting at nodes; internodes 10-20 mm long. Leaf-sheath 20-40 mm long, becoming fibrous with age, the broad membranous margins inflexed and each terminating in an erect rounded auricle; lamina 50-300 x 1-2 mm; primary nerves 3, interstitial nerves 4-6, cross veins usually at more or less regular, long intervals and mostly all extending from the median to marginal nerve, producing a pattern of distinctive long oblongs. Erect stems narrow, flattened, the subfloral peduncular internode 10-60 x 0.6-1.0 mm. Spathe-like sheath 15-25 x 2.0-2.5 mm (folded width), its margins squarely truncate at the apex and its terminating lamina 30-80 x 1.5-2.0 mm. Spadix often shorter than spathe; retinacula usually 3 on each side, broadly obliquely ovate 1.0-1.5 x 1.0 mm and 2.0-2.5 mm apart. Stamens and carpels closely packed, carpels rarely > 6 and anther-sacs about twice their number, all sloping obliquely inwards and upwards. Achene elliptic-oblong, 2.5 x 1.0 mm; seed smooth, yellow.

## Flowering:

October - February

## Fruiting:

January - February

## Threats:

Not Threatened. However, due to widespread siltation and increasingly poor water quality eelgrass communities are declining throughout their range.

## \*Attribution:

Description adapted from Moore and Edgar (1997).

## References and further reading:

Moore, L.B.; Edgar, E. 1970: Flora of New Zealand. Vol. I. Government Printer, Wellington.

## For more information, visit:

[http://nzpcn.org.nz/flora\\_details.asp?ID=2335](http://nzpcn.org.nz/flora_details.asp?ID=2335)



**Photographer:** Rebecca Stanley



**Caption:** Whangapoua Harbour.  
January

**Photographer:** John Smith-Dodsworth