



# Te Matapuna Forest and Wetland Restoration Plant Identification Book



## Table of Contents

Introduction	1
Austroderia toetoe	2
Coprosma propinqua var. propinqua	3
Coprosma robusta	4
Cordyline australis	5
Dacrycarpus dacrydioides	6
Dodonaea viscosa	7
Fuscospora solandri	8
Hebe stricta var. stricta	9
Kunzea robusta	10
Leptospermum scoparium var. scoparium	11
Melicytus ramiflorus	12
Olearia virgata	13
Pennantia corymbosa	14
Phormium tenax	15
Pittosporum tenuifolium	16
Plagianthus regius subsp. regius	17
Podocarpus totara var. totara	18
Prumnopitys taxifolia	19
Sophora microphylla	20
Sophora tetraptera	21
Glossary	22

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.

# *Austroderia toetoe*

## Common Name(s):

Toetoe

## Current Threat Status (2012):

Not Threatened

## Distribution:

Endemic. Confined to the North Island where it grows from about Carters Beach (western Waikato) south to Wellington. There are reports of it from the Waitakere Ranges that require further investigation. It has been planted and has sparingly naturalised on Waiheke Island

## Habitat:

Common in freshwater swamps and wet places from sea level to montane habitats. Often growing in association with flax/harakeke (*Phormium tenax*).

## Features\*:

Stout, tussock-forming grass up to 4 m tall when in flower. Leaf sheath glabrous, ivory with green midrib, copiously covered in white wax. Ligule 4 mm. Collar dark brown, upper surface clothed in short hairs. Leaf blade 2(-3) m x 3 cm, straw-yellow, light-green, rarely dark-green, undersides long hairy toward margins, upper surface with a thick weft of hairs at base, otherwise minutely hairy through, and rather harsh due to numerous prickly-teeth. Culm up to 4 m, inflorescence portion up to 1 m tall, stiff, erect, densely plumose. Spikelets numerous, 25 mm with 2-3 florets per spikelet. Glumes equal, 25 mm, > florets. Lemma 10 mm, 3-nerved, scabrid. Palea 6.5 mm, keels ciliate. Callus hairs 1.5 mm. Rachilla 0.5 mm. Flowers either perfect or female. Anthers of perfect flowers 4.8 mm, in females 2.8 mm. Ovary of perfect flowers 1 mm, stigma -styles 1.8 mm; female flowers with ovary 1.3 mm, stigma-style 3.5 mm. Seed 2.5-3 mm.

## Flowering:

November - February

## Fruiting:

October - March

## Threats:

Abundant and not threatened. Often naturalising in suitable habitats.

## \*Attribution:

Fact sheet prepared for NZPCN by P.J. de Lange 1 October 2003. Description adapted from Edgar & Connor (2000).

## References and further reading:

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

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=1760](http://nzpcn.org.nz/flora_details.asp?ID=1760)



**Caption:** Ligule.

**Photographer:** Jeremy Rolfe, Wainuiomata River mouth. Dec 2006.



**Caption:** Toetoe

**Photographer:** John Smith-Dodsworth



## *Coprosma propinqua* var. *propinqua*

**Common Name(s):**

mingimingi

**Current Threat Status (2012):**

Not Threatened

**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=1728](http://nzpcn.org.nz/flora_details.asp?ID=1728)



**Caption:** Waikanae Estuary.  
**Photographer:** Jeremy Rolfe



**Caption:** *Coprosma propinqua*  
var. *propinqua*  
**Photographer:** Wayne Bennett

## *Coprosma robusta*

### Common Name(s):

karamu, glossy karamu

### Current Threat Status (2012):

Not Threatened

### Distribution:

Endemic. North and South Islands. Naturalised on the Chatham Islands within a small area between Waitangi and Owenga.

### Habitat:

Common throughout coastal, lowland and lower montane habitats within shrublands and open sites within forest.

### Features:

Shrub or small tree up to 6 m tall. Branches numerous, stout, erect to somewhat spreading. Petioles stout, 10-20 mm long. Stipules fused towards base, obtuse, glabrous with one of two prominent, black, glandular denticles. Leaves 70-120 x 30-40-50 mm, leathery, dark green above, paler green beneath, glabrous, elliptic, elliptic-oblong to broad-ovate, acute or obtuse, apex mucronate. Venation reticulated, conspicuous. Male flowers in axillary many-flowered glomerules, corolla conspicuous, lobes triangular, acute, stamens 4-5, prominent. Females in compound clusters on peduncles 10-15 mm. Calyx and corolla much reduced, stigmas prominent. Drupe dark orange (rarely yellow), 8-8 x 4-5 mm, oblong to narrow-ovoid.

### Flowering:

(July-) August-September (-November)

### Fruiting:

(March-) April-May (-July)

### Threats:

Not Threatened

### 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=1733](http://nzpcn.org.nz/flora_details.asp?ID=1733)



**Caption:** Fruit of *Coprosma robusta*

**Photographer:** Wayne Bennett



**Caption:** *Coprosma robusta* (Karamu)

**Photographer:** Wayne Bennett



# *Cordyline australis*

## Common Name(s):

cabbage tree, ti, ti kouka, palm lily

## Current Threat Status (2012):

Not Threatened

## Distribution:

Endemic. Common in the North, South and Stewart Islands. Probably naturalised on the Chatham Islands.

## Habitat:

Widespread and common from coastal to montane forest. Most commonly encountered on alluvial terraces within riparian forest.

## Features:

Tree up to 20 m tall, trunk stout, 1.5-2 m diam, many-branched above (prior to flowering, trunk slender and solitary, branching happens after the first flowering). Bark corky, persistent, fissured, pale to dark grey. Leaves numerous (0.2-)0.3-1(-1.5) x (0.2)-0.3(-0.6) m, dark to light green, narrowly lanceolate to lanceolate, erect to erecto-patent, scarcely inclined to droop, midrib indistinct. Petiole indistinct, short. Inflorescence a panicle. Peduncle stout, fleshy 40 mm or more in diam., panicle of numerous flowers, (0.6-)1(-1.8) x .3-0.6(-0.8) m, branching to third or fourth order, these well spaced, basal bracts green and leaf-like, ultimate racemes 100-200 mm long, 20 mm diam., bearing well-spaced to somewhat crowded, almost sessile to sessile flowers and axes. Flowers sweetly perfumed, perianth 5-6 mm diam., white, tepals free almost to base, reflexed. Stamens about same length as tepals. Stigma short, trifid.

## Flowering:

(September-) October-  
December (-January)

## Fruiting:

(December-)  
January-March

## Threats:

Populations have been decimated from some parts of the country due to a mysterious illness linked to a Myoplast Like Organism (MLO) which is believed to cause the syndrome known as Sudden Decline. Plants stricken with this illness suddenly, and rapidly, wilt, with the leaves failing off still green. If the bark is peeled off the base of the tree near the soil line blackened or rotten spots are typically present. Once stricken with Sudden Decline there is no cure and the trees can die within days. Recently there has been some evidence to suggest the severity of Sudden Decline is lessening.

## References and further reading:

Beever, R. et al. 1996. Sudden decline of cabbage tree. *NZ Journal of Ecology*, 20(1): 53-68

Duguid, F. 1976. *Cordyline australis* at Lake Kopureherehe. *Wellington Botanical Society Bulletin*, 39: 46-47

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=1744](http://nzpcn.org.nz/flora_details.asp?ID=1744)



**Caption:** Awhitu Regional Park, Auckland region

**Photographer:** John Sawyer



**Caption:** *Cordyline australis*

**Photographer:** Wayne Bennett

# *Dacrycarpus dacrydioides*

## Common Name(s):

kahikatea, white pine

## Current Threat Status (2012):

Not Threatened

## Distribution:

Endemic. North, South and Stewart Islands

## Habitat:

Lowland forest, formerly dominant on frequently flooded, and/or poorly drained alluvial soils. Occasionally extends into lower montane forest. Once the dominant tree of a distinct swamp forest type all but extinct in the North Island - the best examples remain on the West Coast of the South Island.

## Features\*:

Stout, dioecious, cohort-forming conifer, 50 (-65) m. tall. Trunk 1(-2) m diam., often fluted and buttressed. Bark grey to dark-grey, falling in thick, sinuous flakes. Wood white, odourless. Trunks bare for 3/4 of length, subadults with a distinctive columnar growth habit, branches arising from 1/3 to 1/2 of trunk length. Branchlets slender, drooping. Leaves of juveniles subdistichous, subpatent, narrow-linear, subfalcate, acuminate, decurrent, 3-7 x 0.5-1mm red, wine-red, dark-green to green.; of subadults less than or equal to 4 mm., dark green or red; those of adults 1-2 mm., imbricating, appressed, keel, subtrigonus, lanceolate-subulate to acuminate with broader base, brown-green or glaucous. Male cones terminal, oblong, 10 mm. Pollen pale yellow. Ovule, terminal, solitary glaucous. Receptacle fleshy, oblong, compressed, warty, 2.5-6.5 mm., yellow to orange-red. Seed broadly obovate to circular (4-)4.5-6 mm diam., purple-black, thickly covered in glaucous bloom.

## Flowering:

October - January

## Fruiting:

February - April

## Threats:

Not Threatened, although as a forest-type it has been greatly reduced through widespread logging. Very few intact examples of kahikatea-dominated forest remain in the North Island.

## \*Attribution:

Fact Sheet prepared for NZPCN by P.J. de Lange 12 January 2004: Description adapted from Allan (1961).

## References and further reading:

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

Gardner, R. 2001. Notes towards an excursion Flora. Rimu and kahikatea (Podocarpaceae). Auckland Botanical Society Journal, 56: 74-75

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=2099](http://nzpcn.org.nz/flora_details.asp?ID=2099)



**Caption:** Fruit.

**Photographer:** © John Braggins



**Caption:** *Dacrycarpus dacrydioides*

**Photographer:** Wayne Bennett



# *Dodonaea viscosa*

## Common Name(s):

akeake

## Current Threat Status (2012):

Not Threatened

## Distribution:

Indigenous. New Zealand: Three Kings, North, South and Chatham Islands. Widespread throughout the world (see Harrington & Gadek 2009). Though long regarded as naturalised on the Chatham Islands (de Lange et al. 2011), recent unpublished pollen core data show this view is incorrect (J. Wilmshurst pers. comm. 2014).

## Habitat:

Coastal to lowland forest, occupying a range of habitats from dunefields and boulder beaches through coastal scrub to lowland forest. Rarely forming a dominant tree in coastal forest and especially on offshore islands

## Features\*:

Shrub or small tree 3-12 m. Bark reddish brown, flaking readily in irregular shards, flakes often detaching in masses toward trunk base; young branchlets flattened to triangular, glabrous. Young growth and buds sticky (viscid). Leaves sessile or on petioles 8-12 mm. long; lamina membranous, subcoriaceous to coriaceous, initially viscid, 40-150 × 10-35 mm, green, yellow-green, bronze or red-purple; linear-lanceolate, lanceolate, elliptic to oblanceolate; base narrowly attenuate to cuneate; apex obtuse, rarely emarginate or subacute; margins entire or (very rarely) finely denticulate. Inflorescences terminal, in panicles 30-80 mm long. Flowers yellow-green to red-green; pedicellate, pedicels 10-40 mm long, viscid, minutely puberulent, hairs often deciduous. Male flowers with 3-4, 1.3-3.0 mm long, lanceolate-ovate to oblong, caducous sepals; stamens 6-10; filaments 0.1-0.6 mm long; anthers 1.2-2 mm long. Female flowers similar though sepals narrower; style bifid, prominently exerted. Capsule 2-4-winged, 15 × 15 mm broadly ellipsoid, initially cream to red tinged, resinous, drying amber to pale brown, lustrous; wings 3-10 mm wide, even, membranous, base cordate, apex emarginate, margins undulate. Seeds 2.9-3.4 mm long, dark purple-black or black, elliptic-oblong to ovoid, compressed, biconvex.

## Flowering:

August - November

## Fruiting:

November - April

## Threats:

Not Threatened

## \*Attribution:

Fact sheet prepared for NZPCN by P.J. de Lange 11 November 2014. Description adapted from Allan (1961) and Webb & Simpson (2001), supplemented with observations made from fresh and dried material.

## References and further reading:

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

de Lange, P.J.; Heenan, P.B.; Rolfe, J.R. 2011: Checklist of vascular plants recorded from the Chatham Island Islands. Department of Conservation, Wellington. 57pp.

Harrington, M.G.; Gadek, P.A. 2009: A species well travelled – the *Dodonaea viscosa* (Sapindaceae) complex based on phylogenetic analyses of nuclear ribosomal ITS and ETSf sequences. *Journal of Biogeography* 36: 2313-2323.

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

Webb, C.J.; Simpson, M.J.A. 2001: Seeds of New Zealand Gymnosperms and Dicotyledons. Christchurch, Manuka Press.

## For more information, visit:

[http://nzpcn.org.nz/flora\\_details.asp?ID=2109](http://nzpcn.org.nz/flora_details.asp?ID=2109)



**Caption:** Coromandel, November  
**Photographer:** John Smith-Dodsworth



**Caption:** Coromandel, November  
**Photographer:** John Smith-Dodsworth

# *Fuscospora solandri*

## Common Name(s):

Black beech

## Current Threat Status (2012):

Not Threatened

## Distribution:

Endemic. North, South Islands. Very rare north of the Central Volcanic Plateau and East Cape. Little Barrier Island appears to be the current northern limit.

## Habitat:

Lowland to montane forest. At times the canopy dominant and forming its own distinctive forest type.

## Features\*:

Tree up to 25 m tall, wood pinkish to yellowish when fresh, often with darker patches. Bark rough, furrowed, charcoal black. Trunk 1 m or more diam. Branches numerous, stout, spreading, "pagodaform". Petioles 1-2 mm. Leaves 10-15 x 5-10 mm, narrow- to elliptic-oblong, obtuse, obliquely cuneate at base, apex often apiculate, leathery, glabrous, dark green above, undersides clad in greyish white tomentum, venation distinct on both surfaces. Domatia absent. Male inflorescences 1-4 per branchlet, on short sparsely pubescent peduncles; flowers 1-2, sessile. Perianth broadly-campanulate, 2 x 3 mm, shallowly and obtusely 4-5-lobed; stamens 8-17, anthers 2-3 mm long, dark red. Female inflorescences ovoid, 1-2 per branchlet, pubescent to pilose hairy, sessile, flowers 1-3. Lateral flowers trimerous, terminal ones dimerous; stigmas clavate. Cupule 6-7 mm, glabrous or pubescent, 3-partite. Nuts up to 7 mm long, wings broad at base, narrowed to apex.

## Flowering:

September - December

## Fruiting:

November - April

## Threats:

Not Threatened

## \*Attribution:

P.J. de Lange (1 January 2006). Description adapted from Allan (1961)

## References and further reading:

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

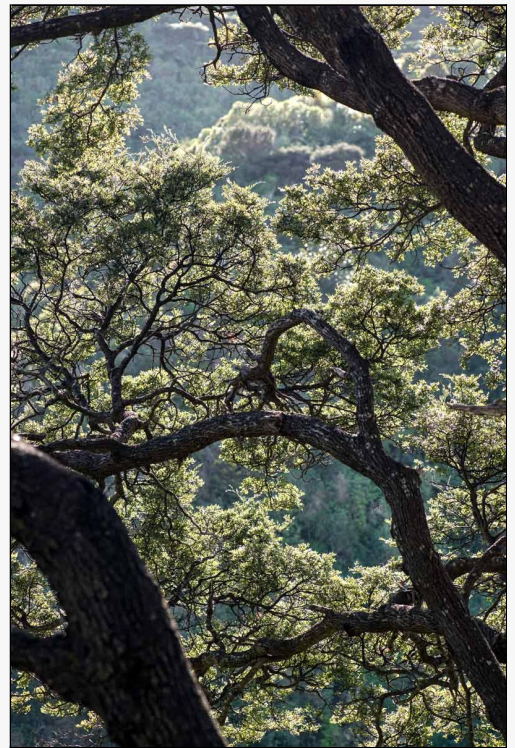
Anonymous. 1957. Construction of key for the genus *Nothofagus*. *Auckland Botanical Society Journal*, 14: 2-3.

Heenan, P.B.; Smitsen, R.D. 2013: Revised circumscription of *Nothofagus* and recognition of the segregate genera *Fuscospora*, *Lophozonia*, and *Trisyngyne* (Nothofagaceae). *Phytotaxa* 146: 1-31. <http://dx.doi.org/10.11646/phytotaxa.146.1.1>

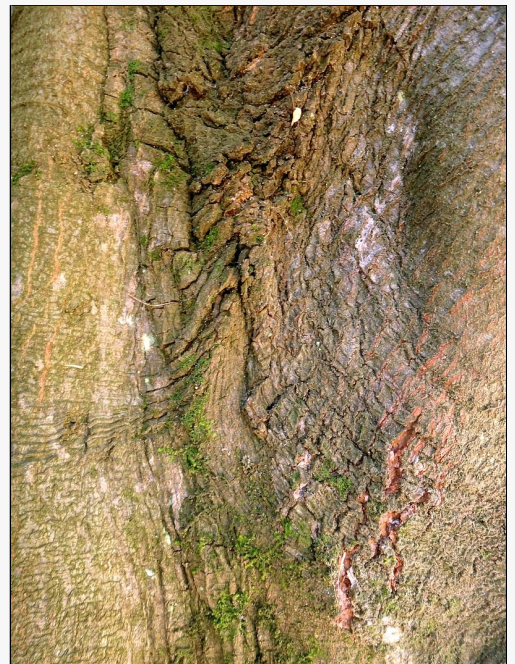
Molloy, B.P.J.; de Lange, P.J.; Clarkson, B.D. 1999: *Coprosma pedicellata* (Rubiaceae), a new species from New Zealand. *New Zealand Journal of Botany* 37: 383-397.

## For more information, visit:

[http://nzpcn.org.nz/flora\\_details.asp?ID=1038](http://nzpcn.org.nz/flora_details.asp?ID=1038)



**Caption:** Lower Hutt. Jul 2013.  
**Photographer:** Jeremy Rolfe



**Caption:** in cultivation  
**Photographer:** Jesse Bythell



## *Hebe stricta* var. *stricta*

### Common Name(s):

koromiko

### Current Threat Status (2012):

Not Threatened

### Distribution:

Endemic to the North Island. Somewhat local in the far North, otherwise common and widespread to about the Manawatu Gorge.

### Habitat:

Common in successional habitats from coastal areas to lower montane habitats.

### Features\*:

Shrub or small tree (1-)2(-4) m tall. Branchlets finely pubescent. Stem internodes longer than stem diameter. Leaf bud without sinus. Leaves, spreading, 50-100(-120) mm, dull green to yellow-green (not glossy), lanceolate, linear-lanceolate, somewhat leathery, apex often acuminate, leaf margin usually entire, occasionally toothed. Inflorescence lateral, racemose, much longer than leaves, drooping, sometimes spiraled, all parts except flower finely pubescent. Flowers sweetly (sometimes over powerfully so) scented, lilac, mauve or white. Corolla tube 6 mm, exceeding calyx, narrow, cylindric, lobes rounded. Capsules < 5 mm long, pendent, all parts pubescent.

### Flowering:

(July-) August (-October) but flowering can also occur sporadically throughout the year

### Fruiting:

(September-) November (-January) but seed capsules may be found throughout the year

### Threats:

Not Threatened

### \*Attribution:

Fact Sheet Prepared by P.J. de Lange (1 February 2005). Description based on Allan (1961) - see also Bayly & Kellow (2006)

### References and further reading:

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

Bayly M. and 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=2009](http://nzpcn.org.nz/flora_details.asp?ID=2009)



**Caption:** Rotorua, February  
**Photographer:** John Smith-Dodsworth



**Caption:** Rotorua, February  
**Photographer:** John Smith-Dodsworth

# *Kunzea robusta*

## Common Name(s):

manuka, kanuka, kopuka, rawirinui, maru, manuka rauriki

## Current Threat Status (2013):

Not Threatened

## Distribution:

Endemic. New Zealand: North and South Islands.

## Habitat:

Coastal to lowland shrubland, regenerating forest and forest margins, also present in montane forest, ultramafic shrubland and very occasionally present in subalpine shrubland (up to 900 m a.s.l.).

## Features\*:

Trees 8–30 m tall. Trunk 1–6, 0.10–1.0 m d.b.h. Bark stringy, or coarsely tessellated, coriaceous, firmly attached above, detaching basally, often hanging semidetached; peeling upwards along trunk in narrow to broad, tabular strips up to 4 m long. Branches initially erect, soon arching outwards and spreading; branchlets numerous, slender; sericeous, indumentum copious, hairs either long or short antrorse-appressed; if long, then weakly flexuose 0.15–0.38 mm long; if short, not flexuose, 0.09–0.15 mm long. In eastern Coromandel Peninsula and coastal East Cape to Mahia Peninsula, branchlet indumentum in mixtures of divergent 0.03–0.08 mm long hairs, and sparse, 0.1–0.2 mm long, antrorse-appressed hairs. In the Rangitikei region, branchlet hairs of seedling and juveniles divergent, short 0.04–0.10 mm long. Leaves sessile to shortly petiolate, light green or dark green above, paler beneath; oblanceolate, broadly oblanceolate, broadly lanceolate, lanceolate to linear-lanceolate, rarely elliptic to obovate; apex subacute to acute, rarely obtuse, rostrate or shortly apiculate, base attenuate to narrowly attenuate; lamina margin initially finely covered with a thin, interrupted band of spreading to antrorse-appressed hairs not or rarely meeting at apex; hairs shedding with age. Lamina of juvenile plants from coastal areas and northern North Island 14.6–28.4 × 1.6–2.5 mm; from inland areas, 3.2–6.3 × 0.7–1.5 mm; adult lamina of plants from coastal areas and northern North Island 4.9–20.1 × 0.9–3.0 mm; from inland areas, 5.8–12.3 × 1.2–2.2. Inflorescence mostly a compact corymbiform to shortly elongate 1–30-flowered botryum up to 60 mm long; extending near end of flowering season as an 4–12-flowered, elongate botryum up to 80 mm long;. Pherophylls deciduous or persistent; squamiform grading into foliose; squamiform pherophylls 0.4–1.2 × 0.3–0.6 mm, broadly to narrowly deltoid or lanceolate, apex acute, subacute to obtuse, margins finely ciliate; foliose pherophylls 6.0–17.9 × 1.1–1.8 mm, elliptic, oblanceolate, broadly lanceolate to lanceolate, apex obtuse, base attenuate; margin densely covered by antrorse-appressed hairs. Pedicels 1.2–5.2 mm long at anthesis. Flower buds pyriform to obconic, apex flat or weakly domed prior to bud burst; calyx valves not meeting. Flowers 4.3–12.0 mm diameter. Hypanthium 2.1–4.1 × 3.0–5.2 mm, broadly obconic to turbinate, sometimes cupular, rim bearing five persistent calyx lobes. Hypanthium surface when fresh faintly ribbed and sparingly dotted with pink or colourless oil glands, these drying dull yellow-brown or brown; either finely pubescent with the ribs and veins conspicuously covered in longer silky, antrorse-appressed hairs, or glabrous; hypanthium similar when dry though with the ribs more strongly defined and clearly leading up to calyx lobes. Calyx lobes 5, coriaceous, 0.52–1.1 × 0.60–1.4 mm, broadly ovate, ovate-truncate to broadly obtuse, glabrate. Receptacle green or pink at anthesis, darkening to crimson after fertilisation. Petals 5–6, 1.5–3.8 × 1.3–3.6 mm, white, rarely pink, orbicular, suborbicular to ovate, apex rounded to obtuse, oil glands colourless. Stamens 15–58 in 2 weakly defined whorls, filaments white. Anthers 0.38–0.63 × 0.18–0.32 mm, ellipsoid to ovoid-ellipsoid or deltoid. Pollen white. Anther connective gland prominent, light pink, salmon pink, yellow to orange when fresh, drying dark orange, orange-brown or dark brown, spheroidal, finely rugulose or papillate. Ovary 5–6 locular. Style 2.0–3.5 mm long at anthesis, white or pinkish-white; stigma broadly capitate, flat, greenish-white or pale pink, flushing red after anthesis. Fruits 2.2–4.6 × 3.2–5.3 mm, maturing greyish white, obconic, broadly obconic to ± turbinate, rarely cupular; hairy, (rarely glabrous). Seeds 0.9–1.1 × 0.35–0.48 mm, oblong, oblong-obovate, oblong-elliptic; testa semi-glossy, orange-brown to dark brown, surface coarsely reticulate.

## Flowering:

August–June

## Fruiting:

Jul–May

## Threats:

Not Threatened.

## \*Attribution:

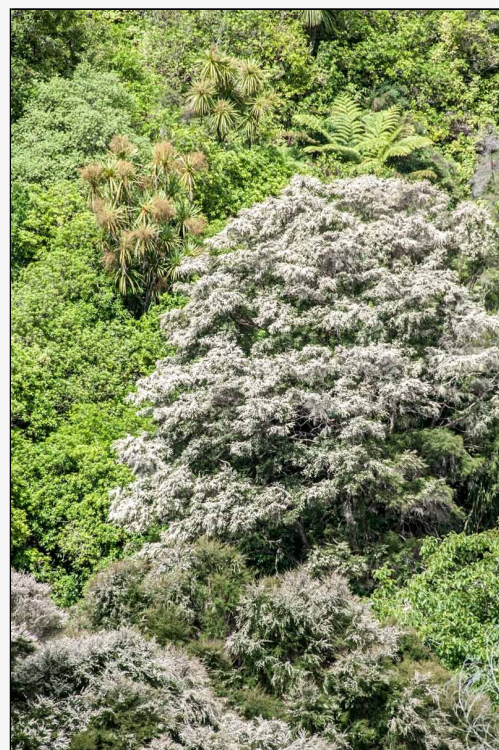
Fact Sheet prepared for NZPCN by P.J. de Lange 10 September 2014. Description modified from de Lange (2014).

## References and further reading:

de Lange, P.J. 2014: *A revision of the New Zealand *Kunzea ericoides* (Myrtaceae) complex*. *Phytokeys* 40: 185p doi: 10.3897/phytokeys.40.7973.

## For more information, visit:

[http://nzpcn.org.nz/flora\\_details.asp?ID=7644](http://nzpcn.org.nz/flora_details.asp?ID=7644)



**Caption:** Mohaka River viaduct.  
**Photographer:** Jeremy Rolfe



## *Leptospermum scoparium* var. *scoparium*

### Common Name(s):

manuka, tea tree, kahikatoa

### Current Threat Status (2012):

Not Threatened

### Distribution:

Indigenous to New Zealand and Australia. Most Australian forms of *L. scoparium* do not match the range seen in New Zealand. However, plants from Tasmania are very similar to, if not identical with some South Island forms, differing mainly by their wider leaf base, and longer, more pungent leaf apex. Manuka was also collected once from Rarotonga by Thomas Cheeseman in the 1800s. It has not been found there since, and is assumed to have been a failed introduction. Further study using DNA sequencing is underway to resolve the status of *L. scoparium* forms both here and in Australia.

### Habitat:

Abundant from coastal situations to low alpine habitats.

### Features\*:

Decumbent shrub, subshrub, shrub, or small tree up to 5 m in height and in decumbent forms 2-4 m across. Bark light grey to charcoal grey, peeling in long papery flakes, these curling with age. Wood red. Branches numerous erect, spreading or decumbent, arising from base, sometimes sprouting adventitious roots and/or layering on contact with soil. Young branches, young leaves and flower buds densely to sparingly clad in long silky, white hairs. Leaves leathery, pale to dark green, glabrescent to glabrous, linear-filiform, narrowly lanceolate, lanceolate, oblanceolate, to elliptic or obovate (5-)10-15(-20) x 1-2-5(-8) mm, invariably apex drawn out into a long stiff, pungent point, midrib usually distinct sometimes obscure, leaf margin finely crenate, veins simple, scarcely branched. Flowers solitary in leaf axils, (8-)10-20(-25) mm diam. Receptacle dark red, crimson or pink. Petals white, sometimes flushed pink or dark red. Stamens numerous.

### Flowering:

Throughout the year

### Fruiting:

The capsules are long persistent so invariably mature plants always possess at least some capsules.

### Threats:

Not threatened, though some stands are at risk from clearance for farmland or through felling for firewood.

### \*Attribution:

Fact Sheet prepared for NZPCN by P.J. de Lange 1 February 2004. Description by P.J. de Lange.

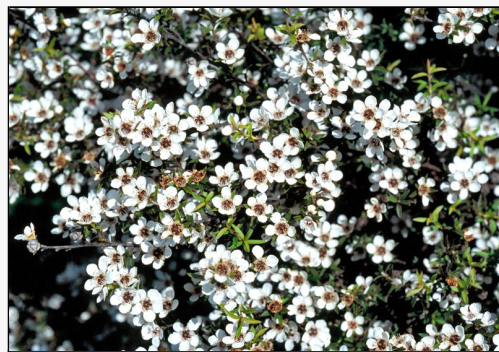
### References and further reading:

Gardner, R. 2002. Notes towards an excursion Flora .Manuka *Leptospermum scoparium* myrtaceae. Auckland Botanical Society Journal, 57: 147-149

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=2302](http://nzpcn.org.nz/flora_details.asp?ID=2302)



Photographer: © John Braggins



Caption: Flowers of *Leptospermum scoparium* var. *scoparium*

Photographer: Wayne Bennett

## *Melicytus ramiflorus*

### Common Name(s):

mahoe, hinahina, whitey wood

### Current Threat Status (2012):

Not Threatened

### Distribution:

Endemic subspecies. Three other subspecies occur, one endemic to Norfolk (probably a different species), one to Fiji and one to Samoa. In addition forms from Raoul Island (Kermadec Islands Group) and the Three Kings and eastern Northland may warrant formal recognition. Research into this variation is in progress.

### Habitat:

Abundant small tree of coastal, lowland, and lower montane forests throughout the country.

### Features:

Shrub or small tree up to 15 m tall. Trunk 1 or more, 0.6-0.8 m diam, typically much branched from near base. Wood soft, white. Bark greyish-white, underbark bright green. Branchlets numerous, twiggy, rather brittle. Petioles 20 mm or more long. Leaves, firmly fleshy, 50-150 x 30-50 mm, light or dark green, lanceolate-oblong to elliptic oblong, apex acute to acuminate (rarely obtuse), leaf margins coarsely serrated (very rarely subentire, or irregularly coarsely toothed). Inflorescence 2-10 flowered fascicles arising from branchlets or leaf axils. Flowers 3-4 mm diam., female or inconstant male (flowers types on separate plants) borne on slender pedicels 5-10 mm long. Bracts subtending flowers, calyx lobes minute, petals greenish-yellow, yellow (rarely cream), lanceolate, apex obtuse. Anthers sessile, stigma 4-6-lobed. Fruit a violet, dark blue or purple berry, 4-5 mm diam., obovoid to globose. Seeds 3-6 per berry.

### Flowering:

November - February

### Fruiting:

November - March

### Threats:

Not Threatened

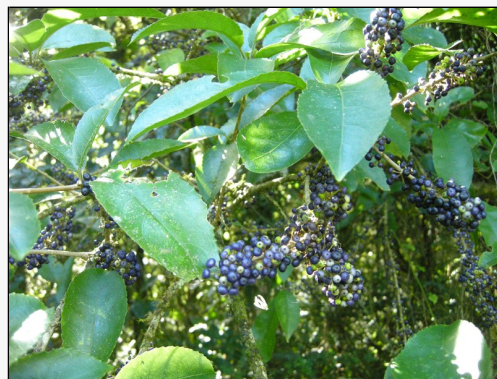
### For more information, visit:

[http://nzpcn.org.nz/flora\\_details.asp?ID=973](http://nzpcn.org.nz/flora_details.asp?ID=973)



**Caption:** Carter Scenic Reserve, Wairarapa

**Photographer:** John Sawyer



**Caption:** Carter Scenic Reserve, Wairarapa

**Photographer:** John Sawyer



## *Olearia virgata*

**Common Name(s):**

Twiggy tree daisy

**Current Threat Status (2012):**

Not Threatened

**Distribution:**

Endemic. North, South and Stewart Islands. From Ohinemuri and the Whangamarino Swamp south to Wellington. In the South Island from Marlborough Sounds west until Fiordland.

**Threats:**

Not Threatened

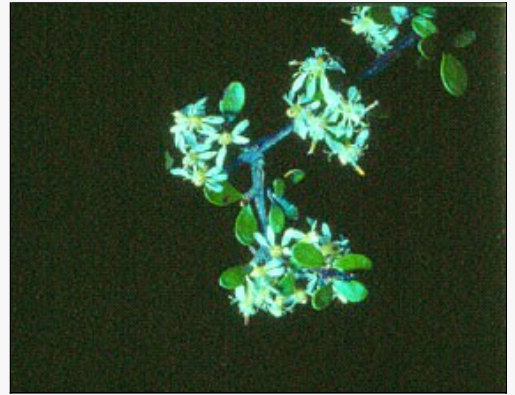
**For more information, visit:**

[http://nzpcn.org.nz/flora\\_details.asp?ID=1063](http://nzpcn.org.nz/flora_details.asp?ID=1063)



**Caption:** in cultivation

**Photographer:** Jesse Bythell



**Caption:** Balls clearing, December

**Photographer:** John Smith-Dodsworth

## *Pennantia corymbosa*

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

Kaikomako

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

Not Threatened

### **Distribution:**

Endemic. Found throughout the North, South and Stewart Islands.  
Uncommon north of Auckland and on Stewart Island

### **Threats:**

Not Threatened

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

Beddie, A.D. 1958. Precocious fruiting of *Pennantia corymbosa*. Wellington Botanical Society Bulletin, 3-: 12-14

Gardner, R. 1998. No kaikomako (*Pennantia corymbosa*) on Great Barrier Island. Auckland Botanical Society Journal, 53: 75-76

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

[http://nzpcn.org.nz/flora\\_details.asp?ID=1103](http://nzpcn.org.nz/flora_details.asp?ID=1103)



**Caption:** Points Bush

**Photographer:** Melissa Hutchison



**Caption:** *Pennantia corymbosa*  
**Photographer:** Wayne Bennett



## *Phormium tenax*

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

flax, harakeke, korari (maori name for inflorescence).

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

Not Threatened

### **Distribution:**

Indigenous to New Zealand and Norfolk Island. A broad circumscription has been adopted here - many botanists feel that plants from the Chatham Islands could be distinguished at species rank from the mainland New Zealand species, other distinctive variants occur on the Three Kings and outer Hauraki Gulf Islands, and along the Kaikoura coast. Norfolk Island plants though uniform differ in subtle ways from the New Zealand forms of *P. tenax*. Further study into this variation is underway.

### **Habitat:**

Common from lowland and coastal areas to montane forest, usually but not exclusively, in wetlands and in open ground along riversides.

### **Features:**

Stout liliaceous herb, 1-5(-6) m tall. Leaves numerous, arising from fan-like bases. Individual leaves rather stiff at first, but becoming decurved, somewhat pendulous or "floppy" in upper half to a third, 1-3 x 50-120 mm, usually blue-grey (glaucous) or dark green, lamina margin, entire, somewhat thickened and pigmented black, dark red, pink, yellow or cream. Inflorescence 5(-6) m tall, somewhat woody and fleshy when fresh, long persistent, drying charcoal grey or black, with the fibrous interior becoming progressively more exposed. Peduncle 20-30 mm diam., erect, dark grey-green or red-green, glabrous. Flowers 25-50 mm long, tubular, predominantly dull red but may also be pink or yellow; tips of inner tepals slightly recurved. Ovary erect. Capsules 50-100 mm long, dark green, red-green or black, trigonous in cross-section, erect, abruptly contract at tip, not twisted, initially fleshy becoming woody with age, long persistent. Seeds 9-10 x 4-5 mm, black, elliptic, flat and plate-like, margins frilled or twisted.

### **Flowering:**

(September-) October-November (-January)

### **Fruiting:**

(November-) December (-March)

### **Threats:**

Not threatened although see the discussion below about flax dieback. This die back phenomenon is characterised by abnormal yellowing of the leaves and may result in collapse of flax plants or whole populations.

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

Boyce, et al. 1951. Preliminary note on yellowleaf disease. NZJ of Science and Technology, 32(3): 76-77

Scheele, S. 1997. Insect pests and diseases of harakeke, Manaaki Whenua Press

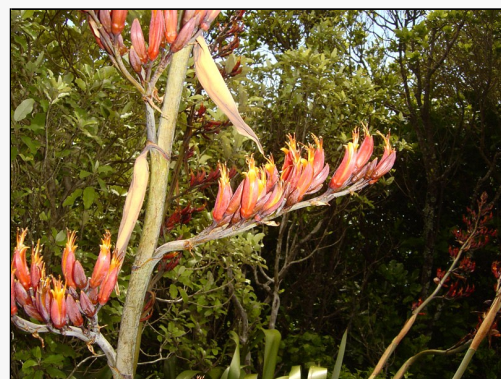
### **For more information, visit:**

[http://nzpcn.org.nz/flora\\_details.asp?ID=2219](http://nzpcn.org.nz/flora_details.asp?ID=2219)



**Caption:** *Phormium tenax*

**Photographer:** Wayne Bennett



**Caption:** Flowers of *Phormium tenax*

**Photographer:** Wayne Bennett

# *Pittosporum tenuifolium*

## Common Name(s):

Kohukohu, kohuhu, black matipo

## Current Threat Status (2012):

Not Threatened

## Distribution:

Endemic and widespread throughout country.

## Habitat:

A small tree of coastal to montane shrubland and forested habitats. Preferring successional habitats.

## Features\*:

Shrub or small gynodioecious tree up to 10 m tall (usually much less). Trunk 0.3-0.4(-0.6) m diam., stout, clad in dark grey-black or brown persistent bark. Branches numerous, erect then spreading. Branchlets and young leaves pubescent, hairs pale yellow or cream. Petioles short, somewhat fleshy. Leaves alternate, (10-)30(-70) x (5-)10(-20) mm, leathery, pale-green to dark green above, lighter below, oblong, oblong-ovate or elliptic-obovate, apex obtuse to acute, rarely acuminate, margins entire, often undulose. Flowers solitary or in axillary cymes, rather fragrant, especially at night. Pedicels stout, pale green, fleshy, bracts entire, lanceolate, caducous. Sepals narrowly ovate-oblong, subacute to obtuse, silky hairy. Petals 12 mm long, lanceolate, dark red, black (rarely yellow or white). Capsules 2-valved (rarely 3), subglobose, valves woody, black when mature, long persistent. Seeds immersed in sticky, red or yellow viscid pulp.

## Flowering:

October - November (-December)

## Fruiting:

January - March

## Threats:

Not Threatened

## \*Attribution:

Fact sheet prepared for NZPCN by P.J. de Lange 10 January 2004. Description adapted from Allan (1961).

## References and further reading:

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

## For more information, visit:

[http://nzpcn.org.nz/flora\\_details.asp?ID=1139](http://nzpcn.org.nz/flora_details.asp?ID=1139)



**Caption:** *Pittosporum tenuifolium* in flower Dunedin

**Photographer:** John Barkla



**Caption:** Quail Island

**Photographer:** John Barkla



## *Plagianthus regius subsp. regius*

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

Manatu, ribbonwood, lowland ribbonwood

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

Not Threatened

### **Distribution:**

Endemic. New Zealand: North, South and Stewart Islands

### **Habitat:**

Coastal to lower montane. Often a prominent tree in lowland alluvial forest.

### **Flowering:**

September - November

### **Threats:**

Not Threatened

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

Wilcox, M.D. 2002. Lowland ribbonwood *Plagianthus regius* at Clevedon. Auckland Botanical Society Journal, 57: 144-146

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

[http://nzpcn.org.nz/flora\\_details.asp?ID=1142](http://nzpcn.org.nz/flora_details.asp?ID=1142)



**Caption:** Bark, Dunedin

**Photographer:** John Barkla



**Caption:** Woodhaugh, Dunedin

**Photographer:** John Barkla

## *Podocarpus totara* var. *totara*

### Common Name(s):

Totara

### Current Threat Status (2012):

Not Threatened

### Distribution:

Endemic. Common throughout most of the North and South Islands. Present but extremely scarce on Stewart Island (Freshwater River).

### Habitat:

Widespread and at times abundant tree of lowland, montane and lower subalpine forest. May also form a vegetation type in which it is the dominant species.

### Features:

Robust dioecious conifer up to 30 m tall. Trunk stout, 2-3 m diam., clad in thick, corky, furrowed and somewhat stringy reddish-grey bark. Trunk without branches at base, branches stout, erect to spreading. Leaf bud narrower than or the same diam., as branchlet, surrounded by caducous, papery, narrowly lanceolate bracts. Leaves brownish-green, erect, leathery; juvenile 20 x 1-2 mm, adults 15-30 x 3-4 mm., linear-lanceolate, acute, apex pungent, mid-vein distinct to obscure. Male cones (strobili) axillary 10-15 mm, solitary or in 4s. Female branchlets axillary, ovules solitary or paired, receptacle of 2-4 scales, acute and free at tips, maturing as a red, swollen, succulent, sweet tasting "fruit" this surmounted by a 1(-2) broadly elliptic, ovoid-oblong 3-6 mm, semi-glossy, buff, grey nut brown, henna or dark brown (green to glaucous-green) when fresh, seed.

### Fructing:

### Flowering:

(August-)  
October (-  
December)

Fruits take a year or so to ripen, and may be found throughout the year, usually peaking at about the same time that cones are produced. They are most frequently seen between April and May

### Threats:

Not Threatened, though as a vegetation type it is all but extinct throughout most of its former range.

### References and further reading:

Gardner, R. 1990. Totara and Halls totara. *Auckland Botanical Society Journal*, 45:27-28.

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

Landcare Research. *Nga Tipu Whakaoranga - Maori Plant Use Database*.  
<http://maoriplantuse.landcareresearch.co.nz/WebForms/default.aspx>

### For more information, visit:

[http://nzpcn.org.nz/flora\\_details.asp?ID=1176](http://nzpcn.org.nz/flora_details.asp?ID=1176)



**Caption:** Podocarpus totara var. totara at Pokemokemoke

**Photographer:** Wayne Bennett



**Caption:** Seeds of Podocarpus totara var. totara

**Photographer:** Wayne Bennett



# *Prumnopitys taxifolia*

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

Matai, black pine

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

Not Threatened

## **Distribution:**

Endemic. North, South and Stewart Islands. Uncommon on Stewart Island.

## **Habitat:**

Lowland forest. Often in drier climates, where it can dominate alluvial soils which are waterlogged/flooded in winter and dry in summer. Seems to prefer base-rich substrates and soils.

## **Features:**

Dioecious conifer 25(-30) m tall. Trunk 1-2 m diam. Bark dark brown (almost black), falling in thick circular flakes, leaving a distinctive hammer-like scar patterning on trunk. Wood dark brown to rich yellow-brown, very hard. Juveniles filiramulate, with distinctive, dark brown, slender, flexuous, divarciating branchlets. Leaves brown, pale yellow, or dirty white, 5-10 x 1-2 mm, linear-lanceolate, apex acute; adults dark green, somewhat glaucous above, glaucous below, 10-15 x 1-2 mm, subdistichous, linear, straight to subfalcate, obtuse, often apiculate. Male cones (strobili) in spikes, 30-50 mm long, with 10-30 cones per spike. Ovules on short axillary branches, 3-10 per 40 mm long spike. Fruit a fleshy, oily, aromatic, terpene-tasting, purple-black drupe with a glaucous bloom. Stone more or less circular (5.5-)6-8.5 mm diam., surface dull to semi-glossy, pale orange-yellow to light orange-yellow.

## **Flowering:**

(October-) November - February

## **Fruiting:**

Fruits take 12-18 months to mature. Ripe fruits may be found throughout the year.

## **Threats:**

Not Threatened, although as a forest-type it has been greatly reduced through widespread logging. Very few intact examples of matai-dominated forest remain in the country.

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

[http://nzpcn.org.nz/flora\\_details.asp?ID=1193](http://nzpcn.org.nz/flora_details.asp?ID=1193)



**Caption:** Matai with female cones

**Photographer:** Bill Clarkson



**Caption:** Cones of *Prumnopitys taxifolia* (male)

**Photographer:** Wayne Bennett

# *Sophora microphylla*

## Common Name(s):

Kowhai, weeping kowhai, small-leaved kowhai

## Current Threat Status (2012):

Not Threatened

## Distribution:

Endemic. Throughout the main islands of New Zealand but scarce in parts of Northland.

## Habitat:

In the North Island, especially the northern half this is a species of mainly riparian forest. South of about Hamilton it can be found in a diverse range of habitats from coastal cliff faces and associated wetlands to inland grey scrub communities. Scarce to absent over large parts of the eastern North Island from about East Cape south to the northern Wairarapa.

## Features\*:

Tree up to 25 m tall, usually a single trunk. Branches weeping, and spreading. Juveniles divaricating and/or strongly flexuose, and interlacing. Leaves on seedlings sparsely to moderately leafy, 3-5.8 x 2.3-4.9 mm, broadly obovate to orbicular, glabrous to sparsely pubescent, distant, not crowded or overlapping. Adult leaves up to 150 mm long, imparipinnate, moderately to sparsely hairy, hairs, straight, appressed. Leaflets 30-50, not crowded or overlapping, distant, 4.5-12.5 x 2.3-5.7 mm, elliptic, broadly elliptic, obovate to ovate, sometimes orbicular, distal and proximal leaflets of similar size. Inflorescences racemose with up to 7 flowers. Calyx 5-11 x 7-10 mm, cupulate. Flowers yellow, keel petal blade 18-50 x 7-13 mm, wing petal blade 18-50 x 6-11 mm, standard petal blade 20-35 x 14-25 mm; petals with distinct claws 4-8 mm long. Fruit 50-200 mm long, 4-winged, brown, with up to 12 seeds. Seeds 5.5-8.5 x 4-5.5 mm, oblong, elliptic to orbicular, yellow to light yellow-brown.

## Flowering:

(May-) August-October

## Fruiting:

October - May

## Threats:

The main threat that faces all wild New Zealand kowhai species is the risk posed through planting for revegetation and horticultural purposes of hybrid material, foreign species, such as the Chilean Pelu (*S. cassioides*) and also of kowhai species outside their natural range. In many places *S. microphylla* occurs as isolated stands within otherwise cleared alluvial forest, and in this situations the loss of trees over time is inevitable. The species is genuinely uncommon in Northland, and in that area inadequately represented within reserves and other conservation land.

## \*Attribution:

Fact Sheet prepared for NZPCN by P.J. de Lange (31 July 2004).  
Description adapted from Heenan et al. (2001).

## References and further reading:

Anonymous. 1944. Kowhai. *Wellington Botanical Society Bulletin* 9: 4-5

Duguid, F. 1971. Germination of kowhai at Hokio beach. *Wellington Botanical Society Bulletin* 37: 65-66.

Heenan, P.B.; de Lange, P. J.; Wilton, A. D. 2001: *Sophora* (Fabaceae) in New Zealand: taxonomy, distribution, and biogeography. *New Zealand Journal of Botany* 39: 17-53

## For more information, visit:

[http://nzpcn.org.nz/flora\\_details.asp?ID=1302](http://nzpcn.org.nz/flora_details.asp?ID=1302)



**Caption:** Bark, Dunedin Botanic Gardens

**Photographer:** John Barkla



**Caption:** *Sophora microphylla* (Kowhai)

**Photographer:** Wayne Bennett



# *Sophora tetraptera*

## Common Name(s):

kowhai, large-leaved kowhai

## Current Threat Status (2012):

Not Threatened

## Distribution:

Endemic. Known in a natural state only from the eastern portion of the the North Island from East Cape south to the Wairarapa, extending west toward Taihape, Lake Taupo and along the Waikato River to about Lake Karapiro. However, extensively planted outside this range and often naturalising.

## Habitat:

Widespread and common from coastal forested habitats inland along rivers and within associated low scrub and forest. Common around lake margins (especially Lake Taupo) and on ignimbrite cliffs bordering the upper Waikato River. Although a primarily lowland species it can occur in montane riparian forest.

## Features\*:

Tree up to 15 m tall, trunk 0.6-1 m diam., often several arising from ground. Branches spreading, sometimes pendulous. Branchlets clad in golden yellow or grey tomentum. Juvenile plants not divaricating or flexuous, exhibiting an erect growth, non-interlacing habit from germination. Leaves 100-150(-220) mm, imparipinnate, moderately hairy, hairs, straight, appressed. Leaflets 10-20(-25) pairs, 15-35(-40) x 5-8 mm, well spaced, never overlapping or crowded, narrowly ovate to elliptic-oblong. Inflorescences racemose with up to 10 flowers. Calyx 10-20 x 10-15 mm, cupulate. Flowers golden-yellow, keel petal blade 20-50(-60) x 10-16(-18) mm, wing petal blade 25-50(-62) x 10-16 mm, standard petal blade 30-35(-42) x 18-30(-35) mm; petals with distinct claws 6-8 mm long. Fruit (100-)200(-280) mm long, broadly 4-winged, brown, with 6-12 or more seeds. Seeds 6.5-9(-10) x 6-7.5 mm, oblong, elliptic to orbicular, yellow to light yellow-brown.

## Flowering:

(September-) October-December

## Fruiting:

October-May

## Threats:

The main threat that faces all wild New Zealand kowhai species is the risk posed through planting for revegetation and horticultural purposes of hybrid material, foreign species, such as the Chilean Pelu (*S. cassioides*) and also of kowhai species outside their natural range. However, *S. tetraptera* seems to be very common throughout its range, and is adequately protected within a range of reserves and land set aside for conservation purposes.

## \*Attribution:

Fact Sheet prepared for NZPCN by P.J. de Lange (31 July 2004). Description adapted from Allan (1961).

## References and further reading:

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

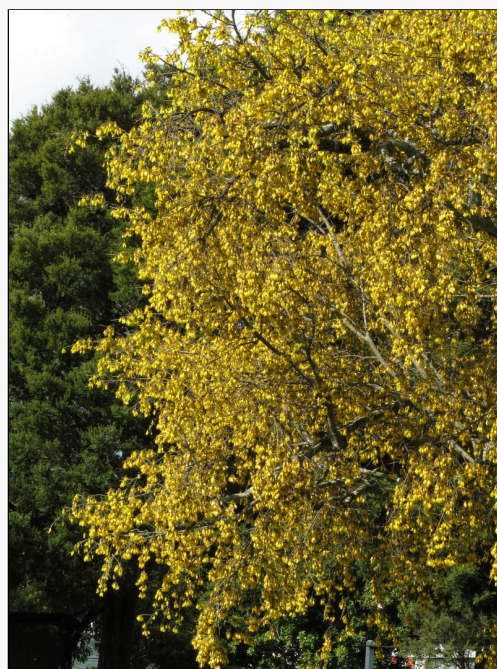
Anonymous. 1944. Kowhai. *Wellington Botanical Society Bulletin* 9: 4-5

## For more information, visit:

[http://nzpcn.org.nz/flora\\_details.asp?ID=1304](http://nzpcn.org.nz/flora_details.asp?ID=1304)



**Caption:** Dunedin Botanic Garden  
**Photographer:** John Barkla



**Caption:** Masterton, Wairarapa  
**Photographer:** John Barkla

## Definitions of botanical terms

A glossary has been provided below with definitions for many of the botanical terms used in the species descriptions.

### Glossary

Term	Definition
<b>Abaxial</b>	Facing away from the stem of a plant (especially denoting the lower surface of a leaf).
<b>Acerose</b>	Narrow with a sharp stiff point.
<b>Achene</b>	A simple, dry, one-seeded (one-celled) fruit
<b>Acicular</b>	Needle-shaped.
<b>Acidic</b>	Having a low pH, opposite of basic or alkaline.
<b>Acroscopic</b>	Pointing towards, or on the side of, the apex
<b>Acuminate</b>	Gradually tapered to a point. Sharply pointed.
<b>Acute</b>	Pointed or sharp, tapering to a point with straight sides.
<b>Adnate</b>	Fusion of unlike parts, e.g. stamens fused to petals.
<b>Adventive</b>	A plant that grows in the wild in New Zealand but which was introduced to the country by humans.
<b>Agglutinated</b>	Stuck together.
<b>Allelopath</b>	An organism that releases compounds that are toxic to other species.
<b>Allelopathy</b>	The release by an organism of compounds that are toxic to other species.
<b>Alternate</b>	Attached singly at each node but changing from one side of a stem to the other.
<b>Alveolate</b>	Honeycombed with ridged partitions.
<b>Amplexicaul</b>	clasping or surrounding the stem
<b>Anamorph</b>	Asexual fruiting stage, usually of an ascomycete fungus.
<b>Anastomosing</b>	Rejoining after branching, as in some leaf veins.
<b>Annual</b>	A plant that completes its complete life cycle within the space of a year
<b>Annual evergreen</b>	Plants that lose their over-wintering leaves rapidly in the first half of the growing season. Annual evergreens never present a leafless appearance, but are closer in a functional sense to a deciduous plant than they are to multi-annual evergreens.
<b>Annulus</b>	Line of thickened cells that governs the release of spores from a sporangium
<b>Anterior</b>	Towards the front.
<b>Anther</b>	The pollen-bearing portion of the stamen.
<b>Antheridium</b>	Male reproductive organ formed on the prothallus of a fern
<b>Anthesis</b>	When the flower is fully developed and functioning. The time of pollination or bloom.
<b>Apex</b>	Tip; the point furthest from the point of attachment.
<b>Apices</b>	Plural of apex. Tip, the point furthest from the point of attachment
<b>Apiculate</b>	Bearing a short slender and flexible point.
<b>Apiculus</b>	A small, slender point.
<b>Apomixis</b>	A form of reproduction whereby seed is formed without the usual mode of sexual fusion
<b>Appressed</b>	Pressed against another organ or surface.
<b>Aquatic</b>	Growing, or living in, or frequenting water. Applied to plants and animals and their habitats. Opposite of terrestrial (land living).
<b>Archegonium</b>	Female reproductive organ of a fern formed on the prothallus
<b>Arcuate</b>	Curved into an arch.
<b>Aril</b>	An often fleshy appendage on the outside of a seed.
<b>Artificial thinning</b>	Selectively removing vegetation to create gaps to facilitate natural invasion of native plants, or to plant later successional plants.
<b>Ascending</b>	Growing obliquely upward.
<b>Asexual</b>	Vegetative reproduction, lacking sexual involvement by sperm or egg cells
<b>Attenuate</b>	Narrowing gradually
<b>Auricle</b>	A small, ear-shaped appendage.
<b>Auriculate</b>	Bearing a small, ear-shaped appendage.
<b>Autogamous</b>	Self-fertilising flowers.
<b>Autotrophic</b>	Of or relating to organisms (as green plants) that can make complex organic nutritive compounds from simple inorganic sources by photosynthesis
<b>awn</b>	A stiff or bristle like projection often from the tip or back of an organ
<b>Axil</b>	The upper angle between the leaf and the stem.
<b>Axis</b>	The longitudinal supporting structure around which organs are borne, e.g., a stem bearing leaves.
<b>Barbellate</b>	Barbed, having or covered with protective barbs or quills or spines or thorns or setae
<b>Basal</b>	At the base.
<b>Basisopic</b>	Pointing towards the base
<b>Beak</b>	A prominent extension of an organ
<b>Bifid</b>	Deeply split into two lobes.
<b>Bifurcate</b>	Divided into two.



Term	Definition
<b>Biosecurity</b>	Preventing, eradicating, controlling and managing risks posed by pests and diseases.
<b>Biotic</b>	Pertaining to the living parts of the environment
<b>Bipinnate</b>	With each primary pinna divided to the midrib into a secondary pinna
<b>Biserrate</b>	Doubly serrate.
<b>Blade</b>	The flattened part of a leaf.
<b>Blunt</b>	Not pointed at the ends
<b>Bog</b>	A quagmire covered with specialised plants including sphagnum moss, grasses, sedges, rushes, sundews, umbrella ferns and other plants; has wet, spongy ground, a marsh-plant community on wet, very acid peat. Fed only by rainfall.
<b>Bottleneck</b>	A genetic term; refers to the fact that in smaller populations there could be lower genetic variability
<b>Brachyblasts</b>	Short shoots
<b>Bract</b>	A reduced leaf or leaf-like structure at the base of a flower.
<b>Bracteate</b>	Bearing bracts: leaves or leaf-like structure reduced at the base of a flower.
<b>Bracteolate</b>	With small bracts.
<b>Bracteole</b>	A small bract.
<b>Bracteoles</b>	Bracts directly below the flower
<b>Brevideciduous</b>	Brief (1 month or less) loss of most leaves from the canopy just before flowering or during flushing of a new cohort of leaves.
<b>Bryophyte</b>	Plant group including mosses, liverworts and hornworts
<b>Bryophytes</b>	Plant group including mosses, liverworts and hornworts
<b>Bulbil</b>	A bud produced vegetatively on the stem or frond that is capable of breaking off and growing into a new plant
<b>Bullate</b>	With rounded projections covering the surface as if blistered
<b>Caespitose</b>	Growing in dense tufts
<b>Calli</b>	Circular, warty, stalked thickenings commonly found on the lip (labellum) of the orchid (plural of callus).
<b>Callose</b>	Hardened or thickened.
<b>Callus</b>	Stalked thickening on the lip (labellum) of an orchid.
<b>Calyx</b>	The group of sepals, or outer floral leaves, of a flower
<b>Campanulate</b>	Bell-shaped.
<b>Canaliculate</b>	With longitudinal channels or grooves.
<b>Canopy</b>	The uppermost cover formed by the branches and leaves of trees or the spread of bushes, shrubs and ground covers.
<b>Canopy closure</b>	Stage where canopies of shrub and tree species meet.
<b>Canopy manipulation</b>	Selectively removing vegetation to create gaps to facilitate natural invasion of native plants, or to plant later successional plants.
<b>Capillary</b>	Hair-like
<b>Capitula</b>	Plural of capitulum: A dense head-like inflorescence of many flowers as occurs in most Asteraceae (daisies)
<b>Capitulum</b>	A dense head-like inflorescence of many flowers as occurs in most Asteraceae (daisies)
<b>Capsule</b>	A dry fruit formed from two or more fused carpels that splits open when ripe.
<b>Carbon sinks</b>	Carbon locked away, or sequestered e.g. by trees
<b>Carpel</b>	One unit of the female part of a flower that consists of a basal seed-bearing ovary joined to a receptive stigma by a stalk-like style.
<b>Cauda</b>	Tail-like appendage. (pl. caudae; adj. caudate)
<b>Caudex</b>	The axis of a woody plant, esp. a palm or tree fern, comprising the stem and root.
<b>Cauline</b>	Belonging to the stem, as in cauline leaves emerging from the stem.
<b>Cerise</b>	Bright or deep red.
<b>Chartaceous</b>	Having a papery texture.
<b>Chlorophyll</b>	The green pigment of plants.
<b>Chlorotic</b>	Lacking chlorophyll, therefore yellowish, suffering from chlorosis.
<b>Cilia</b>	Short small hair-like structures on a cell or microorganism
<b>Ciliate</b>	With small hairs (cilia).
<b>Ciliolate</b>	Diminutive of ciliate, i.e., having very small hairs
<b>Cladode</b>	Flattened stem with the function of a leaf
<b>Cladodes</b>	Usually flattened, photosynthetically active branches, these may be leaf-like (e.g., Phyllocladus) or branch-like (e.g., Carmichaelia)
<b>Clavate</b>	Club-shaped, gradually widening towards apex.
<b>Cleft</b>	Having indentations that extend about halfway to the center, as in certain leaves.
<b>Cleistogamous</b>	Flowers that self-fertilise without opening.
<b>Coherent</b>	Sticking together of like parts.
<b>Column</b>	Stamen and stigmas fused to form a single organ.

<b>Term</b>	<b>Definition</b>
<b>Columnar</b>	Shaped like a column
<b>Composite</b>	many small flowers tightly packed together e.g., daisy flowers.
<b>Compound</b>	Composed of several similar parts (cf simple)
<b>Concave</b>	Curved inward.
<b>Concolorous</b>	Of the same colour.
<b>Conical</b>	Cone-shaped.
<b>Connate</b>	Fusion of like parts.
<b>Conspecific</b>	Individuals of the same species.
<b>Cordate</b>	Heart-shaped with the notch at the base.
<b>Coriaceous</b>	Leather-like; thick, tough, and somewhat rigid.
<b>Corolla</b>	The whorl of petals of a flower.
<b>Corymb</b>	Modified raceme where stalks of lower flowers are elongated to same level as the upper flowers.
<b>Cosmopolitan</b>	A species or other taxonomic group that is distributed widely throughout the world.
<b>Costa</b>	The midrib
<b>Crenate</b>	With rounded teeth (bluntly toothed) along the margin.
<b>Crisped</b>	Margin tightly wavy or crinkled, curled or wavy.
<b>Cristate</b>	With a crest.
<b>Crown</b>	The growing point of an upright rhizome or trunk. This usually produces a tuft or ring of fronds.
<b>Crura</b>	The two small projections at the mouth of a utricle in <i>Carex</i>
<b>Cucullate</b>	Hood-shaped.
<b>Culm</b>	The erect stem of a grass.
<b>Cuneate</b>	Wedge-shaped.
<b>Cupular</b>	Cup-shaped.
<b>Cuttings</b>	Stems and/or leaves taken from plants for propagation
<b>Cyathium</b>	A cup-like structure that surrounds the inflorescence in <i>Euphorbia</i>
<b>Cyme</b>	Inflorescence at the terminus of a branch and where new flowering branches emerge laterally below the flower.
<b>Cytorace</b>	Populations (or infraspecific taxa) that differ in chromosome number or chromosome morphology, e.g., <i>Nematoceras trilobum</i> agg. has two cytoraces, a diploid and a tetraploid (in which the chromosomes are doubled).
<b>Cytotype</b>	Populations (or infraspecific taxa) that differ in chromosome number or chromosome morphology, e.g., <i>Nematoceras trilobum</i> agg. has two cytotypes, a diploid and a tetraploid (in which the chromosomes are doubled).
<b>Deciduous</b>	Marked leaflessness in winter, and greater than 90% leaves lost by beginning of spring flush.
<b>Decrescent</b>	Diminishing.
<b>Decumbent</b>	With a prostrate or curved base and an erect or ascending tip.
<b>Decurrent</b>	Attached by a broadened base.
<b>Decurved</b>	Curved downward.
<b>Deflexed</b>	Bent abruptly downward.
<b>Dehiscence</b>	The time of opening at maturity to release the contents, e.g., a capsule releasing the seeds.
<b>Dehiscent</b>	Splitting open at maturity to release contents (of a fruit).
<b>Deltoid</b>	Shaped broadly like an equilateral triangle.
<b>Dentate</b>	Toothed along the margin with the teeth pointing outward, not forward.
<b>Denticles</b>	minute teeth
<b>Denticulate</b>	having a very finely toothed margin
<b>Dichotomous</b>	Divided into two equal branches.
<b>Digitiform</b>	Finger-like.
<b>Dioecious</b>	Having male and female flowers on separate plants of the same species.
<b>Diploid</b>	With two complete sets of chromosomes in each cell.
<b>Disarticulating</b>	Separating at a joint.
<b>Discoid</b>	Disc-shaped.
<b>Disjunct</b>	A species or other taxonomic group that occupies areas that are widely separated and scattered and therefore have a discontinuous distribution.
<b>Distal</b>	Toward the apex, away from the point of attachment (cf. proximal).
<b>Distichous</b>	In two rows on opposite sides of the axis.
<b>Divaricating</b>	Branching at a very wide angle with stiff intertwined stems.
<b>Domatia</b>	small structures on the lower surface of a leaf in some woody dicotyledons, located in the axils of the primary veins and usually consisting of depressions partly enclosed by leaf tissue or hairs.



<b>Term</b>	<b>Definition</b>
<b>Dorsal</b>	Of the back or outer surface relative to the axis. (cf. ventral)
<b>Drupe</b>	A stone fruit, the seed enclosed in a bony covering (endocarp) which is surrounded by a + fleshy layer (mesocarp)
<b>Early successional species</b>	Plants which are able to colonise an open area after disturbance but which are often temporary and are replaced by taller plants in time and shaded out.
<b>Echinate</b>	having sharply pointed spines or bristles.
<b>Ecological district</b>	A characteristic landscape and biological community defined in the PNA (Protected Natural Area) programme.
<b>Ecological restoration</b>	Attempt to reinstate original (pre-disturbance) state of a habitat, plant community or ecosystem.
<b>Ecosourced</b>	Plants sourced from seed collected from similar naturally growing plants in the area of the planting site.
<b>Ecosourcing</b>	Using native plants grown from locally grown seeds. Eco-sourced plants help to preserve the ecological distinctiveness of an area, and ecosourced plants fare better and are adapted to survive in the local conditions.
<b>Eglandular</b>	Without glands.
<b>Elaiosome</b>	Fleshy, oil-rich structure attached to seed that attracts ants which act as dispersers.
<b>Ellipsoid</b>	Elliptic in long section and circular in cross-section.
<b>Elliptic</b>	Broadest at the middle
<b>Emarginate</b>	With a notch at the apex.
<b>Emarginated</b>	Having a shallow notch at the tip, as in some petals and leaves.
<b>Emergent</b>	In an aquatic sense - wetland herbs that are rooted in the substrate below water level, but carry leaves and stems above the water level e.g. rushes and raupo. Found on the shallow margins of lakes, ponds and waterways. In a forest sense - tree that is appearing above the surrounding canopy.
<b>Emergent marginals</b>	An aquatic plant having most of its structure above water. Other aquatic plants are submerged or floating.
<b>Endemic</b>	Unique or confined to a place or region, found naturally nowhere else.
<b>Endophyte</b>	An endosymbiont (usually a bacterium or fungus) that lives within a plant for at least part of its life without causing any apparent disease.
<b>Endophytes</b>	Endosymbionts (usually bacteria or fungi) that live within plants for at least part of their lives without causing any apparent disease.
<b>Endosperm</b>	The nutritive tissue of a seed, consisting of carbohydrates, proteins, and lipids.
<b>Enrichment planting</b>	Returning to a revegetation site and creating gaps, or filling existing gaps, with different plants of plants, usually later successional plants which may not have survived being planted in the first phases of the project.
<b>Ensiform</b>	Sword shaped
<b>Entire</b>	Smooth. Without teeth, notches or divisions.
<b>Entomophilous</b>	Pollinated by insects.
<b>Epicalyx</b>	Calyx-like structure outside, but close to, the true calyx.
<b>Epigeal</b>	Growing on or close to the ground or emerging from the ground after germination (often used for cotyledons).
<b>Epiphyte</b>	A plant that grows upon another plant but is not parasitic and does not draw nourishment from it.
<b>Epiphytic</b>	Growing upon another plant but not parasitic and not drawing nourishment it
<b>Erose</b>	Irregularly toothed, as if gnawed.
<b>Estuarine</b>	Pertaining to the meeting of freshwater and seawater wetlands.
<b>Ethnobotany</b>	The study of people's classification, management and use of plants.
<b>Eusporangia</b>	Sporangia that arise from groups of epidermal cells
<b>Evanescent</b>	Lasting a very short time or running a short distance.
<b>Ex situ</b>	Away from the place of natural occurrence.
<b>Ex-situ</b>	Maintenance of plants as live specimens or propagules in cultivation as insurance against the loss of wild populations and as source for material for translocation.
<b>Excurrent</b>	Having the axis prolonged to form an undivided main stem or trunk (as in conifers).
<b>Extravaginal</b>	Outside an enclosing sheath
<b>Falcate</b>	Hooked or curved like a sickle.
<b>Fastigate</b>	Branches erect and close to central axis.
<b>Fen</b>	A type of wet land that accumulates peat deposits. Fens are less acidic than bogs, deriving most of their water from groundwater rich in calcium and magnesium.
<b>Ferruginous</b>	Rust-like (a colour term)
<b>Fertile frond</b>	Fronds that bear sporangia.
<b>Filamentous</b>	Resembling a filament.
<b>Filiform</b>	Thread like, resembling a filament.
<b>Filiramulate</b>	Branching at a very wide angle with stiff intertwined stems.
<b>Fimbriae</b>	Plural of fimbria: Fringe. A fimbria is composed of many fimbriae (individual hair-like structures).
<b>fimbriate</b>	With fringes.
<b>Flabellate</b>	Fan shaped.
<b>Flaccid</b>	Limp, not rigid, flabby.
<b>Flange</b>	A projecting rim.

<b>Term</b>	<b>Definition</b>
<b>Flexuose</b>	With curves or bends.
<b>Floccose</b>	Having tufts of soft woolly hairs
<b>Floret</b>	A small flower, usually one of a cluster - the head of a daisy for example.
<b>Foliaceous</b>	Leaf-like.
<b>Foliate</b>	Having leaflets.
<b>Founder effect</b>	When a small number of plants (and therefore their genes) from a larger population are selected some genetic information is lost.
<b>Fronid</b>	A leaf, the complete leaf of a fern including the stipe and lamina
<b>Fulvous</b>	Orange–yellow.
<b>Funneliform</b>	Funnel-shaped.
<b>Fusiform</b>	Broadest near the middle and tapering toward both ends.
<b>Galea</b>	Helmet- or hood-shaped.
<b>Galeate</b>	Shaped like a helmet or hood.
<b>Gametophyte</b>	A plant that produces sperm and egg cells and in which sexual reproduction takes place - in ferns this is known as the prothallus
<b>Gene pool</b>	The mixture of all genes and gene variations of a group or population.
<b>Genetic diversity</b>	The variety of genes in a plants or populations.
<b>Genetic variation</b>	Differences displayed by individuals within a plant which may be favoured or eliminated by selection.
<b>geniculate</b>	abruptly bent
<b>Genus</b>	A taxonomic rank of closely related forms that is further subdivided in to species (plural = genera). In a scientific name (e.g., <i>Sicyos australis</i> ), the first word is the genus, the second the species.
<b>Gibbous</b>	Swollen or enlarged on one side, as in a gibbous moon.
<b>Glabrescent</b>	Lacking hair or a similar growth or tending to become hairless
<b>Glabrous</b>	Without or devoid of hairs, smooth.
<b>Gland</b>	A structure that secretes a sticky or oily substance.
<b>Glandular</b>	A structure that secretes a sticky or oily substance.
<b>Glaucous</b>	Covered with a fine, waxy, removable powder that imparts a white or bluish cast to the surface.
<b>Gley</b>	A soil prone to seasonal inundation.
<b>Globose</b>	Globe-shaped.
<b>Glume</b>	One of two bracts at the base of a grass spikelet.
<b>Groundwater</b>	Groundwater is the water beneath the surface that can be collected with wells, tunnels, or drainage galleries, or that flows naturally to the earth's surface via seeps or springs. Groundwater is the water that is pumped by wells and flows out through springs.
<b>Gymnosperm</b>	Plants in the class Gymnospermae that have seeds which are not enclosed in an ovary.
<b>Gynodioecious</b>	A species population containing plants that produce bisexual (perfect) flowers, and plants that produce only female (pistillate) flowers.
<b>Gynoeceium</b>	The female reproductive organs of a flower; the pistil or pistils considered as a group. Means literally "womans house" i.e., the overall structure that contains the female sex organs
<b>Hastate</b>	Spear like. Shaped like an arrowhead, but with basal lobes pointing outward rather than downward.
<b>Haustorium</b>	The absorbing organ of a parasite or hemiparasite
<b>Hemi–parasite</b>	Obtains water and nutrients from the roots of other plants but also manufactures food through photosynthesis.
<b>Hemi–parasitic</b>	Obtaining water and nutrients from the roots of other plants then manufacturing food through photosynthesis.
<b>Herbarium</b>	The place where collections of dried/pressed plants are kept.
<b>Hermaphrodite</b>	Having both male and female sexual characteristics and organs.
<b>Heteroblastic</b>	Exhibiting differences in leaf shapes or forms in juvenile and adult phases of the plant.
<b>Heteroblasty</b>	The state of being heteroblastic (i.e., exhibiting differences in leaf shapes or forms in juvenile and adult phases of the plant).
<b>Hirsute</b>	Hairy.
<b>Hyaline</b>	Membranous, thin and translucent.
<b>Hybrid</b>	An individual that is the offspring of a cross between two different varieties or species.
<b>Hybridise</b>	Breeding with a member of a different plant or type.
<b>Hydrophyte</b>	A plant species adapted to growing in or on water or in wet situations. Aquatic or semi-aquatic.
<b>Hymenium</b>	The fertile, spore–bearing layer of a fruitbody.
<b>Hypanthium</b>	A ring–like, cup–shaped, or tubular structure of a flower on which the sepals, petals, and stamens are borne.
<b>Imbricate</b>	Overlapping.
<b>imbricating</b>	Overlapping.
<b>Imparipinnate</b>	Odd–pinnate, a leaf shape; pinnate with a single leaflet at the apex.
<b>In-situ</b>	On site conservation relating to the maintenance of plants in the wild.
<b>Inbreeding</b>	Genetic similarity in offspring of closely related individuals.



Term	Definition
<b>Incoherent</b>	Not sticking together.
<b>Incursion</b>	Entrance of a pest into an area where it is not present
<b>Indumentum</b>	A covering of fine hairs (or sometimes scales)
<b>Indusia</b>	Plural of indusium, a membrane covering a sorus of a fern
<b>Indusium</b>	A thin tissue that covers the sorus in many ferns. Plural: indusia.
<b>Inflorescence</b>	The arrangement of flowers on the stem. A flower head.
<b>Infundibuliform</b>	Funnel-like.
<b>Interkeel</b>	The space between the keel and the leaf blade
<b>Internode</b>	The part of an axis between two nodes; the section of the stem between leaves.
<b>Internodes</b>	Part of a stem between two nodes.
<b>Intramarginal</b>	Within or near the margin.
<b>Involucral bracts</b>	The scales surrounding the flower head or capitula.
<b>Involucre</b>	A group of bracts surrounding a flower head.
<b>Involute</b>	With margins rolled inward toward the upper side.
<b>Irritable</b>	Responding to touch.
<b>Jugate</b>	Paired.
<b>Juvenile</b>	A plant of non-reproducing size.
<b>Keel</b>	A prominent or obvious longitudinal ridge (as in a boat).
<b>Labellar</b>	Pertaining to the labellum: a lip; in orchid flowers referring to the middle petal which usually differs in size, shape or ornamentation from the two lateral petals.
<b>Labellum</b>	A lip; in orchid flowers referring to the highly modified middle petal which usually differs in size, shape or ornamentation from the two lateral petals.
<b>Lacinia</b>	A jagged lobe.
<b>Laciniae</b>	Jagged lobes.
<b>Laciniate</b>	Cut into narrow, irregular lobes or segments.
<b>Lacustrine</b>	Of or having to do with a lake, of, relating to, or formed in lakes, growing or living in lakes.
<b>Lamina</b>	The expanded flattened portion or blade of a leaf, fern frond or petal.
<b>Lanceolate</b>	Lance-shaped; of a leaf several times longer than wide with greatest width about one third from the base, tapering gradually to apex and more rapidly to base
<b>Lateral</b>	On or at the side.
<b>Lax</b>	With parts open and spreading, not compact.
<b>Laxly</b>	With parts open and spreading, not compact
<b>Leaflet</b>	One section of a compound leaf.
<b>Lemma</b>	The lower of two bracts enclosing the flower in grasses.
<b>Lenticillate</b>	Bark that is covered in fine lenticles (breathing pores)
<b>Ligulate</b>	Strap-like, tongue-shaped
<b>Ligule</b>	The membrane between the leaf and the stem of a grass; the "petal" of a ray floret in a composite inflorescence
<b>Linear</b>	Long and narrow with more or less parallel sides.
<b>Littoral</b>	Occurring at the border of land and sea (or lake). On or pertaining to the shore. The shallow sunlit waters near the shore to the depth at which rooted plants stop growing.
<b>Lobe</b>	A recognisable, but not separated, rounded division or segment of a leaf or pinna. Used to describe ferns and leaves in <i>Cotula</i> and <i>Leptinella</i> .
<b>Lobed</b>	Part of a leaf (or other organ), often rounded, formed by incisions to about halfway to the midrib.
<b>Lobule</b>	A small lobe or sub-division of a lobe
<b>Lustrous</b>	Glossy, shiny.
<b>Lycophytes</b>	Seedless vascular plants that belong to the phylum Lycophyta (characterised by microphylls -primitive leaves found in ancient plants).
<b>Lyrate</b>	Pinnatifid or pinnatisect terminal lobe much larger than lower lobes.
<b>Maculate</b>	Blotched or spotted.
<b>Mangrove</b>	Coastal wetland dominated by Manawa or mangrove <i>Avicennia marina</i> var. <i>resifera</i> . Northern New Zealand only, salt marsh replaces it further south.
<b>Margin</b>	The edge or border of a leaf
<b>Marine</b>	Pertaining to the sea and saltwater systems.
<b>Marsh</b>	A tract of wet land principally inhabited by partially-submerged herbaceous vegetation. Has fewer woody plants than swamplier habitats.
<b>Mealy</b>	Dry, powdery, crumbly.
<b>Median</b>	In the middle.
<b>Membranous</b>	Very thin, like a membrane.
<b>Mid-lobe</b>	The middle part into which a leaf is divided.
<b>Midrib</b>	The central or principal vein of a leaf or pinna of a fern.
<b>Mire</b>	Synonymous with any peat-accumulating wetland. Term covers bogs and peaty swamps, fens, carr, moor, muskeg and peatland. Term excludes marsh which is non-peat forming.

Term	Definition
<b>Molecular techniques</b>	Where proteins and genes are used to investigate plant relationships
<b>Monitoring</b>	Recording of quantitative data over time to document changes in condition or state of species or ecosystems.
<b>Monoecious</b>	Having male and female flowers on the same plant of the same species.
<b>Montane</b>	Land between 300 and 800 metres above sea level.
<b>Mucronate</b>	Tipped with a short, sharp, point.
<b>Mucronulate</b>	Having a very small mucro; diminutive of mucronate.
<b>Multi-annual evergreen</b>	Overlapping annual cohorts of leaves always present.
<b>Multifid</b>	Cleft into many lobes or segments
<b>Multiseptate</b>	With many septa.
<b>muricate</b>	Rough with short, hard points like the shell of Murex, a genus of tropical sea snails with elaborately pointed shells.
<b>Mycorrhiza</b>	A symbiotic relationship between a fungus and a plant.
<b>Mycorrhizal associations</b>	Symbiotic association between fungi and plant roots which assists plant health by allowing increased ability for uptake of nutrients and promote plant growth.
<b>Napiform</b>	A long swollen but tapering root – like a parsnip, or carrot.
<b>Native</b>	Naturally occurring in New Zealand (i.e., not introduced accidentally or deliberately by humans).
<b>naturalised</b>	Referring to plants that have escaped from cultivation (including gardens or forest plantations) and can now reproduce in the wild (without human assistance)
<b>Nectary</b>	Organ that produces nectar.
<b>Nerve</b>	Prominent vein or rib.
<b>Nerves</b>	Strands of conducting and usually strengthening tissue in a leaves or similar structures
<b>Net veins</b>	Veins that repeatedly divide and re-unite.
<b>Net venation</b>	Feather-like or hand-like venation on a leaf.
<b>Nival</b>	Growing at high altitudes. From Latin: nivalis, snowy etc. from nix, nivis, snow.
<b>Node</b>	The point at which leaves, branches or roots arise on a stem.
<b>Ob-</b>	Prefix meaning inverted, in reverse direction.
<b>Obcordate</b>	Heart shaped with the notch at the apex.
<b>Oblanceolate</b>	Tapering and widest towards the apex or inversely lanceolate.
<b>Oblique</b>	Slanting; of a leaf, larger on one side of the midrib than the other, in other words asymmetrical.
<b>Oblong</b>	Rectangular.
<b>Obovate</b>	Roughly elliptical or reverse egg shaped and widest near the apex (i.e., the terminal half broader than the basal half).
<b>Obtuse</b>	Blunt or rounded at the apex, with the sides meeting at an angle greater than 90°.
<b>Operculate</b>	With a small lid.
<b>Opposite</b>	A pair of organs attached at nodes in pairs on either side of a stem or axis.
<b>Orbicular</b>	Almost or approximately circular.
<b>Outbreeding depression</b>	A reduction in vigor of offspring from distant parents. It can occur when a locally adapted population is moved and mixed with plants adapted to different conditions.
<b>Outer canopy deciduous</b>	Marked reduction in leaf number in the outer canopy in exposed high light environments over winter.
<b>Oval</b>	Planar, shaped like a flattened circle, symmetrical about both the long and the short axis; about twice as long as broad, tapering equally both to the tip and the base. Synonymous with elliptical.
<b>Ovary</b>	Part of a flower containing the ovules and later the seeds.
<b>Ovate</b>	Egg-shaped and widest at base.
<b>Ovoid</b>	Oval; egg-shaped, with rounded base and apex.
<b>Pakihi</b>	A term which in its strict sense refers to open clears within forest dominated by low scrub and rushes. However, more usually used to refer natural and induced wetlands and their associated shrublands. A vernacular most frequently used in the West Coast for impoverished soils and their associated peats, left after forest has been cleared
<b>Palea</b>	The small upper bract enclosing the flower of a grass
<b>palea</b>	1. The upper of the two bracts that enclose each floret in a grass spikelet. 2. A small bract at the base of a disc floret in some plants of the composite family. 3. Scales on various parts of ferns (referred to as paleate or paleaceous). From the Latin word for 'chaff'.
<b>paleae</b>	Plural of palea, from the Latin word for 'chaff'. 1. The upper of the two bracts that enclose each floret in a grass spikelet. 2. A small bract at the base of a disc floret in some plants of the composite family. 3. Scales on various parts of ferns (referred to as paleate or paleaceous).
<b>Palmately</b>	Radiating from a point, as fingers radiating from the palm of a hand.
<b>Palmatifid</b>	Deeply divided into several lobes arising from more or less the same level.
<b>Palmatisect</b>	Intermediate between palmate and palmatifid, i.e. the segments are not fully separated at the base; often more or less digitate.
<b>Palustrine</b>	Pertaining to wet or marshy habitats. Term covers mires and marshes
<b>Pandurate</b>	Fiddle-shaped.
<b>Panicle</b>	Highly branched (multiple raceme).

Term	Definition
<b>Papilla</b>	A short rounded projection.
<b>Papillae</b>	A soft, fleshy projection, usually small and nipple-like.
<b>Papillate</b>	With short rounded projections.
<b>Papillose</b>	Warty, with short rounded projections or gland-dotted
<b>Parallel venation</b>	Veins are parallel along leaf.
<b>Parasite</b>	An organism that derives all its nourishment from its host.
<b>Patent</b>	Spreading or expanded, e.g., spreading petals.
<b>Peat</b>	A mass of partially carbonised plant tissue formed by partial decomposition in water of various plants and especially of mosses of the genus Sphagnum, widely found in many parts of the world, varying in consistency from a turf to a slime used as a fertiliser, as stable litter, as a fuel, and for making charcoal. Partially carbonized vegetable matter saturated with water; can be used as a fuel when dried. A type of soil deriving from dead organic material situated in a wet area, where the reduced amount of [[oxygen available in the wet conditions results in the organic material not decomposing as much as it usually would do so in the presence of more oxygen. Used in growing media. Represents an important carbon sink –drainage of peat releases large amounts of carbon (CO <sub>2</sub> ) to the atmosphere.
<b>Pedicel</b>	The stalk of a single flower in an inflorescence or fruit (either in a cluster or existing singularly).
<b>Peduncle</b>	The stalk of a solitary flower or the main stalk of an inflorescence or flower cluster.
<b>Pedunculate</b>	Describing fruits, which are borne on a stalk (a peduncle).
<b>Pellucid</b>	Transparent.
<b>Peltate</b>	Shield-like, with the stalk attached well inside the margin
<b>Pendent</b>	Hanging down from its support
<b>Pendulous</b>	Hanging or drooping.
<b>Penicillate</b>	With a tuft of hairs at the end, like a brush.
<b>Perennial</b>	A plant lasting for three seasons or more
<b>Perianth</b>	A collective term for the calyx (sepals or tepals) and corolla (petals) of the flower, especially when these are indistinguishable
<b>Petal</b>	Part of flower inside the sepals; usually coloured.
<b>Petiolate</b>	Having a petiole.
<b>Petiole</b>	Leaf stalk.
<b>phloem</b>	The vascular tissue in land plants that is primarily responsible for the distribution of sugars and nutrients manufactured in a shoot.
<b>Photopoint</b>	A monitoring technique where repeat photos are taken of the same scene from the same point over a period of time in order to quantify changes.
<b>Pilose</b>	Bearing long, soft hairs.
<b>Pinna</b>	A segment of a divided lamina that is classified as primary, secondary or tertiary according to the degree of dissection of the lamina.
<b>Pinnae</b>	Divisions of a pinnate leaf
<b>Pinnate</b>	With leaflets arranged regularly in two rows on either side of a stalk as in a feather; the lamina on a fern is divided into separate pinnae
<b>Pinnatifid</b>	Pinnately lobed, cleft more than halfway to the midrib. Not cleft all the way to the rachis.
<b>Pinnatisect</b>	Pinnately divided almost to midrib but segments still confluent.
<b>Pioneer</b>	Plant species are hardy species that should be planted first to establish a good canopy cover that restricts weed growth and promotes natural regeneration. In natural ecosystems these are the first plants to arrive and grow on a site.
<b>Pistil</b>	The female reproductive organ of a flower, consisting of an ovary, style, and stigma.
<b>Pistillate</b>	A flower with one or more pistils, but no stamens.
<b>Plano-convex</b>	Flat on one side, convex on the other.
<b>Plumose</b>	Feathery.
<b>Podzol</b>	Infertile, acidic soil, strongly leached to form a whitish-grey subsoil underlain by a layer enriched in iron, aluminium and organic matter; usually under forest in a wet temperate climate.
<b>Pole</b>	A subcanopy size individual with a long thin trunk and foliage tuft of a potential canopy tree.
<b>Pollinia</b>	Compact masses of orchid pollen.
<b>Population enhancement</b>	Increasing a population for a specific biological purpose, e.g., when a species is already present in an area but extra individuals are added to address a sex imbalance.
<b>Porrect</b>	Extending forward.
<b>Procumbent</b>	Lying and flat along the ground but not rooting
<b>Propagate</b>	To reproduce a plant by sexual (i.e., from seed) or asexual (e.g., from cuttings) means.
<b>Prostrate</b>	A general term for lying flat along the ground. This includes procumbent (that is lying and flat along the ground but not rooting) and decumbent (with a prostrate or curved base and an erect or ascending tip).
<b>Provenance</b>	The place of origin (of a plant that is in cultivation).
<b>Proximal</b>	Toward the base or point of attachment (cf. distal).
<b>Pseudobulb</b>	Thickened surface stem; usually looking like a bulb.
<b>Pseudoterminal</b>	Falsely terminal – as in a bud which appears to occupy a terminal position but does not



Term	Definition
<b>Puberulent</b>	Minutely clad in short, soft hairs
<b>Pubescence</b>	Covering of soft, fine hairs
<b>Pubescent</b>	Covered in short, soft hairs.
<b>Pungent</b>	Ending in a stiff sharp point
<b>Pustule</b>	Small blister-like elevation.
<b>Quadrate</b>	Square, rectangular.
<b>Raceme</b>	An unbranched, elongated inflorescence with pedicellate flowers maturing from the bottom upward i.e., flowers attached to the main stem by short stalks.
<b>Rachis</b>	the axis of an inflorescence or of a compound leaf
<b>Ray</b>	An outer ring of strap-like florets in the head of Asteraceae (daisy) flowers.
<b>Re-introduction</b>	Translocating wild or cultivated individuals to sites where the taxon has been known to occur in the past, but from which it has disappeared.
<b>Recurved</b>	Curved backward.
<b>Reflexed</b>	Bent back on itself
<b>Reniform</b>	Kidney shaped.
<b>Repend</b>	With a slightly wavy margin.
<b>Replum</b>	The outer structure of a pod in which the valves have dehisced (persists after the opening of the fruit)
<b>Restiad</b>	Area dominated by rush-like plants (collectively known as restiads) of the family Restionaceae. Includes Chatham Island and North Island Sporodanthus and oiioi ( <i>Apodasmia similis</i> )
<b>Retorse</b>	Pointing backward.
<b>Retuse</b>	A shallow notch at the rounded or blunt apex of a leaf.
<b>Rhizoid</b>	Any of various slender filaments that function as roots in mosses and ferns and fungi.
<b>Rhizomatous</b>	With underground creeping stems.
<b>Rhizome</b>	An underground stem (usually spreading horizontally or creeping) or short and erect.
<b>Rhombic</b>	Diamond-shaped.
<b>Rhomboid</b>	Diamond shaped, nearly rhombic.
<b>Riparian</b>	Relating to or living or located on the bank of a natural watercourse (as a river) or sometimes of a lake or a tidewater.
<b>Riparian margin</b>	Refers to the edges of streams, rivers, lakes or other waterways.
<b>Riparian plants</b>	Refers to plants found growing near the edges of streams, rivers or other waterways.
<b>Riparian zone</b>	A strip of land next to streams, rivers, and lakes where there is a transition from terrestrial (land vegetation) to aquatic (water) vegetation. Also known as "berm".
<b>Riverine</b>	Pertaining to rivers, streams and such like flowing water systems.
<b>Rootstock</b>	A short, erect, underground stem.
<b>Rosette</b>	A radiating cluster of leaves.
<b>Rostellum</b>	In orchids, a modified stigma that prevents self-fertilisation.
<b>Rosulate</b>	A dense radiating cluster of leaves.
<b>Rugose</b>	Wrinkled.
<b>Rugulose</b>	Having small wrinkles.
<b>Runcinate</b>	Sharply pinnatifid or cleft, the segments directed downward.
<b>Runner</b>	A trailing stem that roots at the nodes.
<b>Rupestral</b>	Growing on rocks.
<b>Rushes</b>	A group of distinctive wetland plants. They have solid stems (grasses have hollow stems), true rushes <i>Juncus</i> sp. have rounded leaves.
<b>Sagittate</b>	Shaped like the head of an arrow; narrow and pointed but gradually enlarged at base into two straight lobes directed downwards; may refer only to the base of a leaf with such lobes; cf. hastate.
<b>Salt marsh</b>	A coastal wetland, with specialized salt tolerant plants (halophytes).
<b>Sapling</b>	A juvenile tree that has reached the stage of 1 or 2 main stems but is still in the shrub layer.
<b>Saprophyte</b>	A plant lacking chlorophyll and living on dead organic matter.
<b>Saprophytic</b>	Lacking chlorophyll and living on dead organic matter.
<b>Sarcotesta</b>	The fleshy, often highly coloured outer layer of the seed coat in some species, e.g., titoki ( <i>Alectryon excelsus</i> ).
<b>Scabrid</b>	Roughened or rough with delicate and irregular projections.
<b>Scale</b>	Any thin, flat, membranous structure.
<b>Scape</b>	A leafless flower stem.
<b>schizocarp</b>	A fruit which splits when dry, from the Greek <i>skhizein</i> 'split' and <i>karpos</i> 'fruit'
<b>schizocarps</b>	Plural of schizocarp, a fruit which splits when dry, from the Greek <i>skhizein</i> 'split' and <i>karpos</i> 'fruit'
<b>Scutiform</b>	Shield-shaped.
<b>Sedges</b>	A group of grass-like or rush-like herbaceous plants belonging to the family Cyperaceae. Many species are found in wetlands some are forest floor plants. Leaves are usually angular. Hence the saying "rushes are round and sedges have edges".

<b>Term</b>	<b>Definition</b>
<b>Seedling</b>	A newly germinated plant.
<b>Self sustaining</b>	Able to sustain itself, or replace itself, independently of management i.e. regenerate naturally
<b>Self thinning</b>	Natural tree death in a crowded, even-aged forest or shrubland.
<b>Semi-deciduous</b>	Partial leaflessness in winter, and greater than 50% leaves lost by the beginning of spring flush.
<b>Sepal</b>	Outer part of flower; usually green.
<b>Serrate</b>	Sharply toothed with teeth pointing forwards towards apex.
<b>Serrulate</b>	Finely serrate, i.e., finely toothed with asymmetrical teeth pointing forward; like the cutting edge of a saw.
<b>Sessile</b>	Attached by the base without a stalk or stem.
<b>Seta</b>	The stalk of a fruiting moss capsule
<b>Sheath</b>	A portion of an organ that surrounds (at least partly) another organ (e.g., the tubular envelope enclosing the stem in grasses and sedges).
<b>Silicles</b>	The flattened usually circular capsule – compared with the narrow, elongated fruit (silique) – containing the seed/seeds. A term used almost exclusively for plants within the cabbage family (Brassicaceae)
<b>Silique</b>	A capsule, usually 2-celled, with 2 valves falling away from a frame (replum) bearing
<b>Simple</b>	Of one part; undivided (cf compound).
<b>Sinuate</b>	With a wavy margin.
<b>Sinus</b>	The space or recess between lobes; in hebes a gap between the margins of two leaves of an opposite pair that may be present in the bud before the pair of leaves separate.
<b>Sorus</b>	A cluster of two or more sporangia on the margin or underside of the lamina of a fern, sometimes protected by an indusium.
<b>Spathulate</b>	Spatula or spoon-shaped, a rounded blade tapering gradually to the base.
<b>Spheroidal</b>	Almost spherical but elliptic in cross section.
<b>Spicate</b>	Arranged in a spike.
<b>Spike</b>	Flowers attached to main stem without stalks.
<b>Spikelet</b>	Collection of individual grass florets borne at the end of the smallest branch of the inflorescence.
<b>Sporangia</b>	Plural of sporangium. Structures in which spores are produced.
<b>Sporangium</b>	Structure in which spores are produced.
<b>Spore</b>	A single-celled reproductive unit similar in function to that of the seed in a flowering plant.
<b>sporophyte</b>	The spore producing plant in ferns that is usually the visible part.
<b>Stamen</b>	The male reproductive organ of a flower where pollen is produced. Consists of an anther and its stalk.
<b>Stamens</b>	The male, pollen bearing organ of a flower.
<b>Standing water</b>	Where water lies above the soil surface for much of the year.
<b>Stellate</b>	Irregularly branched or star shaped.
<b>Stigma</b>	Female part of the flower that is receptive to pollen, usually found at or near the tip (apical end) of the style where deposited pollen enters the pistil.
<b>Stipe</b>	The stalk of a frond.
<b>Stipitate</b>	Borne on a stipe or stalk.
<b>Stipulate</b>	A leaf with stipules.
<b>Stipule</b>	A scale-like or leaf-like appendage at the base of a petiole, usually paired.
<b>Stolon</b>	A stem which creeps along the ground, or even underground.
<b>Stoloniferous</b>	Producing stolons
<b>Stramineous</b>	Chaffy, like straw or straw-colored.
<b>Stria</b>	A fine line or groove.
<b>Striae</b>	Fine lines or grooves.
<b>Striate</b>	Fine longitudinal lines or minute ridges
<b>Style</b>	The elongated part of the flower between the ovary and the stigma.
<b>Sub-</b>	A prefix meaning under, somewhat or almost.
<b>Subglabrous</b>	Very slightly, but persistently, hairy.
<b>Suborbicular</b>	Slightly rounded in outline
<b>Substrate</b>	The surface upon which an orchid grows.
<b>Subtended</b>	Immediately beneath, occupying a position immediately beneath a structure, i.e., flower subtended by bract
<b>Subulate</b>	Slender and tapering to a point.
<b>Succession</b>	Progressive replacement of one species or plant community type by another in an ecosystem.
<b>Successional</b>	Referring to species, plant communities or habitats that tend to be progressively replaced by another.
<b>Succulent</b>	Fleshy and juicy.
<b>Summer-green</b>	Used in New Zealand to indicate herbs or sub-shrubs that die down to a root stock or rhizomatous network.
<b>Supplementary planting</b>	Returning to a revegetation site and creating gaps, or filling existing gaps, with different plants of plants, usually later successional plants which may not have survived being planted in the first phases of the project.

Term	Definition
<b>Surface water</b>	Water present above the substrate or soil surface.
<b>Surveillance</b>	Regular survey for pests inside operational and managed areas e.g. nurseries, standout areas on parks.
<b>Survey</b>	Collection of observations on the spatial distribution or presence or absence of species using standardised procedures.
<b>Sustainable Land Management</b>	The use of farming practices which are sustainable both financially and environmentally including management of nutrient runoff, waste disposal or stock effluent, reducing impacts of nutrients on waterways, preventing erosion and soil loss, and protecting native forest and wetland habitats from stock damage.
<b>Swamp</b>	Low land that is seasonally flooded; has more woody plants than a marsh and better drainage than a bog. They are more fertile and less acidic than bogs because inflowing water brings silt, clay and organic matter. Typical swamp plants include raupo, purei and harakeke (flax). Zonation and succession often leads through manuka to kahikatea swamp forest as soil builds up and drainage improves.
<b>Symbiote</b>	An organism that has an association with organisms of another species whereby the metabolic dependence of the two associates is mutual.
<b>Symbiotic</b>	The relation between two different species of organisms that are interdependent; each gains benefits from the other (see also symbiosis).
<b>Sympatric</b>	Occupying the same geographical region.
<b>Synangia</b>	Structures made up of fused sporangia
<b>Synonym</b>	A botanical name that also applies to the same taxon.
<b>Systematics</b>	The study of taxonomy, phylogenetics, and taxagenetics.
<b>Tabular</b>	Shaped like a rectangular tablet.
<b>Taxa</b>	Taxonomic groups. Used to refer to a group at any level e.g., genus, species or subspecies.
<b>Taxon</b>	A taxonomic group. Used to refer to a group at any level e.g., genus, species or subspecies.
<b>Taxonomy</b>	The process or science of classifying, naming, and describing organisms
<b>Tepal</b>	An individual member of the perianth.
<b>Terete</b>	Cylindrical and tapering.
<b>Terminal</b>	At the tip or apex.
<b>Ternatifid</b>	Leaflets In threes,
<b>Tetrad</b>	A group of four.
<b>Tomentum</b>	A hairy covering of short closely matted hairs.
<b>Translocation</b>	The movement of living organisms from one area to another.
<b>Trifid</b>	Divided into three.
<b>Trifoliate</b>	Having three leaflets.
<b>Trigonus</b>	Three-angled
<b>Tripinnate</b>	With each secondary pinna divided to the midrib into tertiary pinnae
<b>Triquetrous</b>	Triangular in cross section and acutely angled.
<b>Truncate</b>	With the apex or base squared at the end as if cut off.
<b>Tuberculate</b>	Bearing small swellings.
<b>Tubular</b>	Tube-shaped.
<b>turbinate</b>	Top-shaped.
<b>Turgid</b>	Distended through internal pressure
<b>Type locality</b>	The place or source where a holotype or type specimen was found for a species.
<b>Ultramafic</b>	A type of dark, usually igneous, rock that is chemically dominated by magnesium and iron-rich minerals, the partially metamorphosed form of which is serpentinite.
<b>Umbel</b>	Umbrella like; the flower stalks arise from one point at the stem.
<b>Undulate</b>	Wavy edged.
<b>Undulose</b>	Wavy edged.
<b>Unitubular</b>	A tube partitioned once – literally one tube (compare – multitubular – many tubes)
<b>Utricle</b>	A thin loose cover enveloping some fruits (eg., Carex, Uncinia)
<b>Valvate</b>	Opening by valves.
<b>Vascular plant</b>	A plant that possesses specialised conducting tissue (xylem and phloem). This includes flowering plants, conifers and ferns but excludes mosses, algae, lichens and liverworts.
<b>Velutinous</b>	Thickly covered with delicate hairs; velvety.
<b>Ventral</b>	Of the front or inner (adaxial) surface relative to the axis. (cf. dorsal)
<b>Vermiform</b>	Worm-shaped.
<b>Vernicose</b>	Glossy, literally as if varnished, e.g., Hebe vernicosa has leaves that appear as if varnished
<b>Verrucose</b>	Having small rounded warts.
<b>Verticillium</b>	A fungus disease that will cause wilting and death.
<b>Villous</b>	Covered with long, soft, fine hairs.
<b>Water table</b>	The level at which water stays in a soil profile. The zone of saturation at the highest average depth during the wettest season.
<b>Wetland</b>	A site that regularly has areas of open water for part or all of the year, or has a water table within 10 cm of the surface for at least 3 months of the year. Wetland ecosystems support a range of plant and animal species adapted to an aquatic or semi-aquatic environment.



<b>Term</b>	<b>Definition</b>
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<b>Whipcord</b>	A shrub in which the leaves are reduced to scales that are close-set and pressed against the stem.
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<b>Whorl</b>	A ring of branches or leaves arising at the same level around the stem of a plant.
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