



BCA Native Plants - Part 1



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Made on the New Zealand Plant Conservation Network website: 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).

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 as well as non-vascular plants and fungi.

Funding to develop the website was provided by the New Zealand Government's Terrestrial and Freshwater Biodiversity Information System Programme (TFBIS). The website is run by a team of volunteers and is continually improving in both the richness of content and the range of functions it offers.

The species information used on the website has come from a variety of sources which are cited at the bottom of a species page.

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 John Barkla, Cathy Jones, Simon Walls, Nick Singers, Mike Thorsen and many others. The threatened fungi text was written by Eric Mackenzie and Peter Buchanan (Landcare Research) and aquatic plant information was supplied by Paul Champion from NIWA. Colin Ogle has contributed to the exotic species fact sheets.

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, Mike Thorse, Colin Ogle and John Sawyer.

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
- Educating people about plant life through the Network website
- Connecting people through our website, 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 team of botanists that between them have an extensive knowledge of the native plants of New Zealand.

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. 2018](#)). The main threat categories used are: Extinct, Nationally Critical, Nationally Endangered and Nationally 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 ['Conservation status of New Zealand indigenous vascular plants, 2017'](#) by [de Lange et al. \(2018\)](#).

Recently other committees have been established to review the status of non-vascular plants and have produced assessments for New Zealand mosses ([Rolfe et al., 2016](#)) as well as horworts and liverworts ([de Lange et al., 2015](#)).

Alectryon excelsus subsp. excelsus

COMMON NAME

New Zealand ash, titoki

SYNONYMS

Alectryon excelsus Gaert., *Alectryon excelsus* Gaertn. var. *excelsus*

FAMILY

Sapindaceae

AUTHORITY

Alectryon excelsus Gaertn. subsp. *excelsus*

FLORA CATEGORY

Vascular – Native

ENDEMIC TAXON

Yes

ENDEMIC GENUS

No

ENDEMIC FAMILY

No

STRUCTURAL CLASS

Trees & Shrubs - Dicotyledons

NVS CODE

ALEEXC

CHROMOSOME NUMBER

2n = 32

CURRENT CONSERVATION STATUS

2012 | Not Threatened

PREVIOUS CONSERVATION STATUSES

2009 | Not Threatened

2004 | Not Threatened

BRIEF DESCRIPTION

Small tree with spreading branches and a dark fluted trunk. Leaves with 3-7 offset pairs of glossy dark green leaflets. Flowers red, in small, clustered, sprays. Fruit fleshy red partly surrounding a black seed and expanding from a furry brown capsule.

DISTRIBUTION

Endemic. North and South Islands from Te Pahi to Banks Peninsula

HABITAT

A widespread coastal to lowland forest tree. Often favouring well drained, fertile, alluvial soils along river banks and associated terraces. It is also a major component of coastal forests, particularly those developed within exposed situations or on basaltic or andesite volcanics. It is a common offshore island tree within the Hauraki Gulf. The large fruits are bird dispersed and so titoki trees often occur as a sparse components of most lowland forest types, throughout the North Island.



Alectryon excelsus subsp. *excelsus*.
Photographer: Peter de Lange



Seeds. Photographer: Wayne Bennett

FEATURES

Tree between 10m and 20m tall. Branches stout, erect, all parts invested with fine, velutinous, ferrugineous hairs. Bark brown. Adult leaves dark green, matt when mature, imparipinnate, alternate 80-260 mm long. Leaflets 3-7 pairs; lamina 45-105 x 19-40 mm, subcoriaceous, lanceolate, oblong or narrowly-ovate, apex, subacute often acuminate, rarely obtuse; base cuneate, truncate to oblique, upper leaf surface matt; lamina margin entire or deeply serrated 1-4 times near apex. Inflorescences axillary 90-120 mm long, sparingly branched panicles. Flowers bisexual or staminate. Petals absent. Stamens 5-8 in bisexual and 6-10 in staminate flowers, crimson. Stigma ovoid, in staminate flowers ovary tholiform, style absent, in perfect flowers broadly urceolate, style 1.5-2 mm, erect. Fruits sessile, 1-2-lobed, 14-20 x 9-14 mm, pubescent, globular, carina 3-5 mm long on one side. Seed 7-10 x 4-8 mm, subglobose, black, lustrous, sarcotesta fleshy, scarlet, papillose.

SIMILAR TAXA

Alectryon excelsus subsp. *grandis* (Cheeseman) de Lange et E.K.Cameron which is a smaller shrub or tree, usually with a multi-trunked habit. The leaves of subsp. *grandis* are very glossy (vernices), distinctly bullate, with 2-4 pairs of broadly oblong or ovate leaflets. *A. excelsus* subsp. *grandis* is an allopatric Three Kings Islands endemic.

FLOWERING

October - December (-June)

FLOWER COLOURS

Red/Pink

FRUITING

November - August

LIFE CYCLE

Arillate seeds are dispersed by frugivory (Thorsen et al., 2009).

PROPAGATION TECHNIQUE

Easy from fresh seed. Grows quickly in suitable conditions, preferring well drained, fertile soils in full sun or partial shade. A popular street tree, and as the fruit is bird dispersed it often naturalises in gardens from street side plantings

ETYMOLOGY

alectryon: Cockscomb

excelsus: Tall

TAXONOMIC NOTES

The exact status of *Alectryon* plants on the Poor Knights Islands needs further investigation. In some respects these plants appear intermediate between *A. excelsus* subsp. *excelsus* and subsp. *grandis* (de Lange et al. 1999).

POISONOUS PLANT

The round black seeds are best avoided despite limited information on their toxicity. many plants in the same family are poisonous. Click on this link for more information about [Poisonous native plants](#).

ATTRIBUTION

Fact Sheet prepared by P.J. de Lange (1 August 2005). Description by P.J. de Lange based in part on de Lange et al. (1999).

REFERENCES AND FURTHER READING

Cameron, E.K. 1998. Frost resistance in titoki *Alectryon*. *Auckland Botanical Society Journal* 53: 15.

de Lange, P.J.; Cameron, E.K.; Murray, B.G. 1999: *Alectryon excelsus* subsp. *grandis* (Sapindaceae): a new combination for an uncommon small tree endemic to the Three Kings Islands, New Zealand. *New Zealand Journal of Botany* 37: 7-16.

Duguid, F. 1961. Flowering in titoki. *Wellington Botanical Society Bulletin* 32: 16

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

CITATION

Please cite as: de Lange, P.J. (Year at time of access): *Alectryon excelsus* subsp. *excelsus* Fact Sheet (content continuously updated). New Zealand Plant Conservation Network.

<https://www.nzpcn.org.nz/flora/species/alectryon-excelsus-subsp-excelsus/> (Date website was queried)

MORE INFORMATION

<https://www.nzpcn.org.nz/flora/species/alectryon-excelsus-subsp-excelsus/>

Dacrydium cupressinum

COMMON NAME

Rimu, red pine

SYNONYMS

Thalamia cupressina Spreng

FAMILY

Podocarpaceae

AUTHORITY

Dacrydium cupressinum Lamb.

FLORA CATEGORY

Vascular – Native

ENDEMIC TAXON

Yes

ENDEMIC GENUS

No

ENDEMIC FAMILY

No

STRUCTURAL CLASS

Trees & Shrubs - Gymnosperms

NVS CODE

DACCUP

CHROMOSOME NUMBER

2n = 20

CURRENT CONSERVATION STATUS

2012 | Not Threatened

PREVIOUS CONSERVATION STATUSES

2009 | Not Threatened

2004 | Not Threatened

DISTRIBUTION

Endemic. North, South and Stewart Islands from North Cape south. Uncommon in large parts of the eastern South Island. Facultatively extinct on Banks Peninsula, where one natural tree is all that remains. Rimu is the type of the genus *Dacrydium*.

HABITAT

Lowland to montane forest - occasionally ascending to subalpine scrub.

FEATURES

Dioecious conifer 35(-60) m tall. Adult trees with trunk bare of branches for 3/4 of length. Trunk stout, 1.5-2 m diam., bark dark brown, falling off in large thick flakes. Wood dark red. Branches in juveniles numerous, slender, branchlets pendulous. Adult branches few, spreading, branchlets slender, pendulous. Leaves dark green, bronze-green, red-green or orange, imbricate, those of juveniles 4-7(-10) mm., 0.5-1 mm wide, keeled, acute, linear-subulate, subfalcate, decurrent; those of subadults ascending, incurved 4-6 mm., rhomboid; of adults similar but appressed, 2-3 mm., rigid, subacute, trigonous. Male and Female "cones" first appear on subadults. Male cones (strobili) solitary or paired, terminal 5-10 mm., oblong. Pollen yellow. Ovules solitary, terminal on up-curved branchlets. Receptacle a fleshy red or deep-orange cup 1-2 mm long. Seed oblong or elliptic-oblong, compressed in section, 3-3.8(-4) mm long, semi-glossy, dark-brown.



Fruit. Photographer: DoC



Female cones. Photographer: DoC

SIMILAR TAXA

A very distinctive species which could not be confused with any other indigenous conifer. The very young juveniles have a superficial similarity to seedlings of silver pine (*Manoao colensoi*) but differ by their much finer, more numerous, dull rather than glossy red-green leaves.

FLOWERING

December - March

FLOWER COLOURS

No flowers

FRUITING

Fruits take a year or more to mature and co-occur with young female cones, they are most frequently seen between February and May.

LIFE CYCLE

Arillate seeds are dispersed by frugivory (Thorsen et al., 2009).

PROPAGATION TECHNIQUE

Easily grown from fresh seed. Can be grown from hard-wood cuttings but rather slow to strike.

THREATS

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

ETYMOLOGY

dacrydium: Tear drop

cupressinum: Cypress

WHERE TO BUY

Commonly cultivated and frequently sold by most commercial nurseries and outlets. A very popular garden tree.

ETHNOBOTANY

The first indigenous beer was brewed using the young tips of rimu (as spruce beer) by Captain Cook at Dusky Sound in 1773 (Kirk 1889).

ATTRIBUTION

Fact sheet prepared for NZPCN by P.J. de Lange 3 February 2006. Description adapted from Allan (1961), Webb & Simpson (2001), fresh material and herbarium specimens.

REFERENCES AND FURTHER READING

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

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

Kirk, T. 1889: The Forest Flora of New Zealand. Wellington, Government Printer.

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.

CITATION

Please cite as: de Lange, P.J. (Year at time of access): *Dacrydium cupressinum* Fact Sheet (content continuously updated). New Zealand Plant Conservation Network.

<https://www.nzpcn.org.nz/flora/species/dacrydium-cupressinum/> (Date website was queried)

MORE INFORMATION

<https://www.nzpcn.org.nz/flora/species/dacrydium-cupressinum/>

Brachyglottis repanda

COMMON NAME

Rangiora, bushman's toilet paper, bushman's friend

SYNONYMS

Cineraria repanda G.Forst., *Senecio georgii* Endl. *Senecio forsteri* Hook.f., *Brachyglottis rangiora* Buchanan, *Brachyglottis rangiora* Hort., *Brachyglottis repanda* var. *fragrans* D.G.Drury, *Brachyglottis repanda* J.R.Forst. et G.Forst. var. *repanda*

FAMILY

Asteraceae

AUTHORITY

Brachyglottis repanda J.R.Forst. et G.Forst.

FLORA CATEGORY

Vascular – Native

ENDEMIC TAXON

Yes

ENDEMIC GENUS

No

ENDEMIC FAMILY

No

STRUCTURAL CLASS

Trees & Shrubs - Dicotyledons

NVS CODE

BRAREP

CHROMOSOME NUMBER

2n = 60

CURRENT CONSERVATION STATUS

2012 | Not Threatened

PREVIOUS CONSERVATION STATUSES

2009 | Not Threatened

2004 | Not Threatened

BRIEF DESCRIPTION

Common large shrub or sometimes small tree with very large (5-15cm) thin mottled leaves with jagged edges and white underneath. New growth covered in tawny or white fuzz. Flowers small, white or cream, clustered into large conspicuous sprays.

DISTRIBUTION

Endemic. North Island throughout. South Island - north west Nelson to just south of Greymouth in the west, and near Kekerengu in the east. Naturalised on Banks Peninsula, Otago Peninsula, and on Stewart Island at Oban.

HABITAT

Common in coastal, lowland and lower montane shrubland and open forest. Often a pioneer species.



Wellington. Sep 1993. Photographer: Jeremy Rolfe



Brachyglottis repanda. Photographer: Jeremy Rolfe

FEATURES

Shrub to small tree up to 6 m or more tall. Trunk one or more arising from ground, covered in somewhat corky bark. Branches stout, spreading, rather brittle, initially densely clad in fine white to buff tomentum becoming glabrescent with age. Petiole stout, grooved, 80-100 mm long. Leaves leathery, 50-250(-300) X 50-20(-30) mm, dark green to pale green above, undersides clad in fine, appressed vivid white hairs, broad- to ovate-oblong, obtuse to subacute, obliquely cordate to truncate at base, margins distantly dentately lobed to sinuate. Inflorescence a much branched panicle. Capitula 5 mm diam., numerous, without ligules (discoid). Involucral bracts 3 mm long, narrow-oblong to narrow spatulate, margins scarious except at base. Florets 10-12, yellow. Seeds (cypsela) narrowly oblong-elliptic to oblong elliptic, 1-1.8 mm long, ribs 6, rounded, broad. Pappus 2-3 mm, buff-yellow, scabrid.

SIMILAR TAXA

This shrub is unlikely to be confused with any other indigenous plant, except its close relative the Three Kings endemic *B. arborescens*. That species differs from *B. repanda* by its thick corky bark, smaller, saddle-shaped leaves, smaller, less branched panicles, darker sulphur yellow florets, oblong seeds 2-2.3 mm with 12-13 ribs, and longer pappus ((2.5-) 3.5-4.5 mm)).

FLOWERING

(July-) August-October (-November)

FLOWER COLOURS

Cream, White

FRUITING

(October-) November-December (-January)

LIFE CYCLE

Pappate achenes are dispersed by wind (Thorsen et al., 2009).

PROPAGATION TECHNIQUE

Very easy from fresh seed and from semi-hardwood or hardwood cuttings. Fast growing but inclined to be short-lived. benefits from a hard prune after flowering.

ETYMOLOGY

brachyglottis: Name comes from the Greek words brachus meaning "short" and glottis meaning "the vocal apparatus of the larynx"

repanda: Means irregularly undulating or scalloped (describing leaf margins)

WHERE TO BUY

Commonly grown and offered by many commercial nurseries and native plant specialist growers. Several variegated forms are now available, as is a purple-leaved cultivar cv. *purpurea* said to have come from a wild plant on the banks of the Wanganui River.

CULTURAL USE/IMPORTANCE

The large leaves with their white, finely hairy undersides have served a dual purpose for many, as they make excellent toilet paper, and also can be written upon (with a ballpoint pen), thus allowing one to send rather novel letters.

ATTRIBUTION

Fact sheet prepared by P.J. de Lange for NZPCN (1 June 2013)

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* 2009 Vol. 11 No. 4 pp. 285-309

CITATION

Please cite as: de Lange, P.J. (Year at time of access): *Brachyglottis repanda* Fact Sheet (content continuously updated). New Zealand Plant Conservation Network.

<https://www.nzpcn.org.nz/flora/species/brachyglottis-repanda/> (Date website was queried)

MORE INFORMATION

<https://www.nzpcn.org.nz/flora/species/brachyglottis-repanda/>

Vitex lucens

COMMON NAME

Puriri

SYNONYMS

Vitex littoralis A.Cunn.

FAMILY

Lamiaceae

AUTHORITY

Vitex lucens Kirk

FLORA CATEGORY

Vascular – Native

ENDEMIC TAXON

Yes

ENDEMIC GENUS

No

ENDEMIC FAMILY

No

STRUCTURAL CLASS

Trees & Shrubs - Dicotyledons

NVS CODE

VITLUC

CHROMOSOME NUMBER

2n = 64

CURRENT CONSERVATION STATUS

2012 | Not Threatened

PREVIOUS CONSERVATION STATUSES

2009 | Not Threatened

2004 | Not Threatened

BRIEF DESCRIPTION

Large tree with thin pale flaky bark over an uneven knobbly trunk bearing dark green leaves made of five wrinkled leaflets radiating from the top of a stalk, largest leaflet in the middle, flowers pink, bell-shaped with projecting pale filaments, fruit 2cm wide and red.

DISTRIBUTION

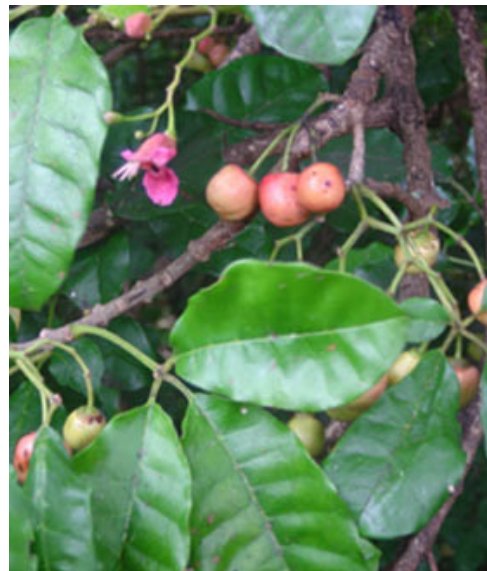
Endemic. New Zealand: Three Kings Islands and North Island from Te Pahi to Taranaki, Mahia Peninsula and the northern Hawkes Bay. Puriri is, as a rule, scarce south of about Opotiki and Kawhia.

HABITAT

In the northern part of its range Puriri is a common co-dominant with Taraire (*Beilschmiedia tarairi*) and karaka (*Corynocarpus laevigatus*) especially on rich fertile soils derived from basaltic and basaltic-andesitic igneous rocks. South of the northern Bay of Plenty and Raglan Harbours it is rarely found inland and is more commonly found in coastal forest where it co-habits with pohutukawa (*Metrosideros excelsa*) and karaka. Puriri is also an important forest tree on many of the smaller islands of the Hauraki Gulf, where it may at times be the canopy dominant.



In cultivation. Photographer: John Braggins



Puriri. Photographer: Wayne Bennett

FEATURES

Tree up to c. 20 m. tall with a broad spreading canopy; trunk up to c.1.5 m. diameter; bark grey-brown, firm, flaking in small irregular-shaped shards. Branches stout, spreading; branchlets 4-angled, green. Leaves opposite, glabrous, coriaceous, compound, on petioles up to 110 mm long; leaflets 3-4-5, somewhat undulose, adaxially dark green, glossy, abaxially lighter green, mat; basal one or pair of leaflets usually much smaller than the terminal 3, digitate; lamina of 3 main leaflets 50-140 × 30-60 mm; elliptic-oblong to obovate, abruptly acute to subacuminate, margin entire. Domatia (pit-type) present at axils of costa and main veins. Inflorescence in axillary, dichotomous, (4)-10-15-flowered panicles. Calyx cupular, minutely 5-toothed; corolla dull red, pink or white, pubescent, 2-lipped, c.25-35 mm long. Upper lip entire or bifid, lower deflexed, 3-lobed. Style slender, bifid, c.25 mm long. Drupe 20-26 mm diameter subglobose, bright red, pink or white.

SIMILAR TAXA

None

FLOWERING

May - October

FLOWER COLOURS

Red/Pink, White

FRUITING

January - October

PROPAGATION TECHNIQUE

Easily grown from seed. Seed can be slow to germinate, although germination can be hastened by scarifying the seed coat. Seedlings and saplings are frost tender and require a sheltered, warm, semi-shaded site (at least initially to thrive). Puriri prefers a rich, deep, fertile soil but is surprisingly tolerant of a range of conditions including drought (once established). This is a spectacular specimen tree that deserves to be more widely cultivated than it is. It makes an excellent street/avenue or park tree, and the flowers attract birds (especially tui and bellbird) and the fruits kereru

THREATS

Not Threatened. However, in some parts of Northland puriri "die-back" has been observed (the exact causes of which are much debated). Puriri is at times heavily browsed by possums, to such an extent that trees can die.

ETYMOLOGY

vitex: To wieve or tie up, chaste

lucens: Shining

ATTRIBUTION

Factsheet prepared for NZPCN by P.J. de Lange 9 February 2011. Description adapted from Allan (1961).

REFERENCES AND FURTHER READING

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

CITATION

Please cite as: de Lange, P.J. (Year at time of access): *Vitex lucens* Fact Sheet (content continuously updated). New Zealand Plant Conservation Network. <https://www.nzpcn.org.nz/flora/species/vitex-lucens/> (Date website was queried)

MORE INFORMATION

<https://www.nzpcn.org.nz/flora/species/vitex-lucens/>

Laurelia novae-zelandiae

COMMON NAME

Pukatea

FAMILY

Atherospermataceae

AUTHORITY

Laurelia novae-zelandiae A.Cunn.

FLORA CATEGORY

Vascular – Native

ENDEMIC TAXON

Yes

ENDEMIC GENUS

No

ENDEMIC FAMILY

No

STRUCTURAL CLASS

Trees & Shrubs - Dicotyledons

NVS CODE

LAUNOV

CHROMOSOME NUMBER

2n = 44

CURRENT CONSERVATION STATUS

2012 | Not Threatened

PREVIOUS CONSERVATION STATUSES

2009 | Not Threatened

2004 | Not Threatened

BRIEF DESCRIPTION

Tall tree with a fluted base bearing pairs of oval glossy dark green toothed leaves inhabiting wetter sites throughout the North Island and Nelson. Twigs square, reddish. Leaves 4-8mm long, margin evenly toothed, in several pairs along stem. Flower small greenish. Fruit dry and covered in long hairs.

FLOWER COLOURS

Green, White

LIFE CYCLE

Pappate achenes are dispersed by wind (Thorsen et al., 2009).

ETYMOLOGY

laurelia: Laurel

novae-zelandiae: Of New Zealand

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

MORE INFORMATION

<https://www.nzpcn.org.nz/flora/species/laurelia-novae-zelandiae/>



A Pukatea branch. Photographer: Jeremy Rolfe



Pukatea. Photographer: Jeremy Rolfe

Corynocarpus laevigatus

COMMON NAME

Karaka, kopi

SYNONYMS

None

FAMILY

Corynocarpaceae

AUTHORITY

Corynocarpus laevigatus J.R.Forst. et G.Forst.

FLORA CATEGORY

Vascular – Native

ENDEMIC TAXON

Yes

ENDEMIC GENUS

No

ENDEMIC FAMILY

No

STRUCTURAL CLASS

Trees & Shrubs - Dicotyledons

NVS CODE

CORLAE

CHROMOSOME NUMBER

2n = 44

CURRENT CONSERVATION STATUS

2012 | Not Threatened

PREVIOUS CONSERVATION STATUSES

2009 | Not Threatened

2004 | Not Threatened

BRIEF DESCRIPTION

Large tree about as wide as tall with many thick dark green glossy leaves and large oval orange fruit. Bark dark, with dark spots on trunk. Leaves 10-20cm long, paler underneath. Fruit to 4cm long, oval, in dense sprays, flesh thin.

DISTRIBUTION

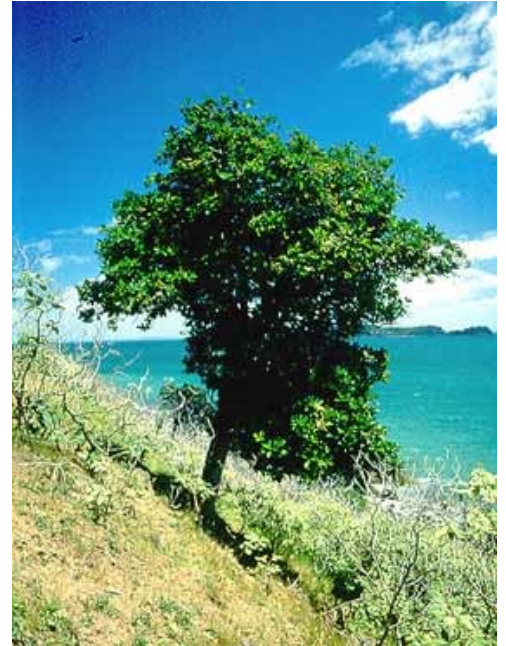
Endemic. Exact indigenous distribution uncertain due to its widespread historic planting by Maori. Common from Raoul and the Three Kings Islands, throughout the North and South Islands to Banks Peninsula and Okarito. Also on the Chatham Islands. Most botanists accept it as native only to the northern half of the North Island. It is widely naturalised in lowland forests, from gardens and 'conservation plantings' well south of its presumed natural range. Seedlings can form dense carpets to the exclusion of other native regeneration (Costal et al. 2006). It is probably naturalised from deliberate Polynesian plantings on Raoul and the Chatham Islands.

HABITAT

Common in mainly coastal situations, often a major component of coastal forest, rarely dominant. Occasionally found inland, and then often in association with Maori cultural deposits.



Ripe fruit, Ship Cove. Photographer: Simon Walls



karaka. Photographer: John Smith-Dodsworth

FEATURES

Leafy canopy tree up to 15 m tall. Trunk stout up to 1 m diam., Bark grey. Branches stout, erect to spreading. Petioles 10-15 mm long. Leaves dark green above paler beneath, thick, leathery, (50-)100-150(-200) x (30-)50-70 mm, glossy, elliptic to obovate-oblong, margins recurved. Inflorescence a stout, erect panicle up to 200 mm long, peduncles and pedicels short, somewhat fleshy, pale green. Flowers 4-5 mm diam., greenish-cream to off-white or pale yellow. Sepals suborbicular, petals 5, obovate-spathulate, alternating with 5 subpetaloid staminodes. Fruit an ellipsoid to ovoid drupe 25-40(-46) mm long, flesh pale yellow to orange. Endocarp a fibrous reticulum surrounding a smoother, harder papery layer beneath. This structure enclosing a single seed (kernel).

SIMILAR TAXA

Karaka is a very distinctive tree unlikely to be confused with any other indigenous, naturalised or planted exotic tree. The simply, leathery, dark green leaves and large orange drupes with their fibrous endocarp serve to immediately distinguish it. Some Botanic Gardens hold specimens of the other 4 species of the genus, vegetatively these look similar to karaka but their fruits are very different in colour, shape and size.

FLOWERING

August - November

FLOWER COLOURS

Cream, Green

FRUITING

January - April

LIFE CYCLE

Fleshy drupes are dispersed by frugivory (Thorsen et al., 2009).

PROPAGATION TECHNIQUE

Easily grown from fresh seed. Cuttings are very difficult to strike. Frost-tender and cold-sensitive when young.

THREATS

Abundant and not threatened. Often naturalising in suitable habitats.

ETYMOLOGY

corynocarpus: From the Greek koryne 'club' and -carpus 'fruit'

laevigatus: Smooth

WHERE TO BUY

Common in cultivation and widely sold both in New Zealand and around the world. A serious pest in the Hawaiian Islands. Because the fresh kernels of the species contain a lethal neurotoxin Karakin, and so the species has been banned from some amenity plantings and day care and kindergartens. The toxin, an alkaloid breaks down with exposure to UV light.

POISONOUS PLANT

The fleshy outer part of the fruit can be eaten but the kernel in which the seed occur is poisonous (a neurotoxin known as karakin) unless detoxified through cooking. Symptoms include nausea, vomiting and seizures. There may also be the onset of muscular spasms after several weeks. Click on this link for more information about [Poisonous native plants](#).

ATTRIBUTION

Fact Sheet prepared for NZPCN by P.J. de Lange (1 September 2004). Description based on Allan (1961).

REFERENCES AND FURTHER READING

Allan, H.H. 1961: Flora of New Zealand. Vol. 1. Wellington, Government Printer.

J.A. Costall , R.J. Carter , Y. Shimada , D. Anthony & G. L. Rapson (2006). The endemic tree *Corynocarpus laevigatus* (karaka) as a weedy invader in forest remnants of southern North Island, New Zealand, *New Zealand Journal of Botany*, 44:1, 5-22, DOI:10.1080/0028825X.2006.9513002

CITATION

Please cite as: de Lange, P.J. (Year at time of access): *Corynocarpus laevigatus* Fact Sheet (content continuously updated). New Zealand Plant Conservation Network.

<https://www.nzpcn.org.nz/flora/species/corynocarpus-laevigatus/> (Date website was queried)

MORE INFORMATION

<https://www.nzpcn.org.nz/flora/species/corynocarpus-laevigatus/>

Hedycarya arborea

COMMON NAME

Porokaiwhiri, Pigeonwood

SYNONYMS

Hedycarya dentata G.Forst.; *Hedycarya scabra* A.Cunn., *Zanthoxylum novae-zelandiae* A.Rich.

FAMILY

Monimiaceae

AUTHORITY

Hedycarya arborea J.R.Forst. et G.Forst.

FLORA CATEGORY

Vascular – Native

ENDEMIC TAXON

Yes

ENDEMIC GENUS

No

ENDEMIC FAMILY

No

STRUCTURAL CLASS

Trees & Shrubs - Dicotyledons

NVS CODE

HEDARB

CHROMOSOME NUMBER

$n = 57II$, $2n = 116$, c.166

CURRENT CONSERVATION STATUS

2012 | Not Threatened

PREVIOUS CONSERVATION STATUSES

2009 | Not Threatened

2004 | Not Threatened

BRIEF DESCRIPTION

Common small tree. Leaves dark green, glossy, oval, with toothed margins, in pairs on short stalks from a flattened part of the dark twigs. Flowers simple, green, around 1cm wide, arranged in small sprays. Fruit orange, oval, about 1cm long.

DISTRIBUTION

Endemic. Three Kings, North and South Islands. In the South island uncommon in the east south of Kaikoura reaching its southern limit on that coastline on Banks Peninsula, it is more ranging in the west reaching northern Fiordland at least.

HABITAT

A common forest tree of coastal and lowland forest, extending into montane areas in the warmer parts of the North Island



Hedycarya arborea (Porokaiwhiri).
Photographer: Wayne Bennett



Hedycarya arborea male flower. Photographer:
John Braggins

FEATURES

Tree up to 12 m. tall; trunk up to 0.5m dbh, clear of branches for first few metres, ; bark dark grey to brown-grey, firm (not flaking) finely tessellated. Branches numerous, upright to spreading; branchlets finely brown-pubescent at tips. Leaves coriaceous, glabrous except for midrib and main veins and petioles, adaxially dark green, glossy or glaucescent, abaxially similar but paler and dull; petioles 10-15-20(-35)mm long; lamina 40-120(-180) × 25-30(-50-60) mm, elliptic-obovate, oblanceolate to lanceolate, cuneately narrowed to base, obtuse to subacute or acute, margins distantly serrate (with occasional subentire leaves) or toothed. Inflorescence a branched raceme; peduncles and pedicels slender, pubescent. Male with perianth c.10 mm diameter, pubescent, stamens numerous, anthers sessile. Female with perianth c.6 mm diameter; carpels up to 20. Drupe 1-seeded, ovoid, 10-15(-16) mm long, red or orange-red up to 10 per branch. Endocarp 9-14 mm long, elliptic to obovate, rarely circular, brown to grey-brown, surface ± smooth, usually with a few irregular bumps and/or longitudinal ridges. Description adapted from Allan (1961) and Webb & Simpson (2001).

SIMILAR TAXA

None. Plants from the Three Kings (Manawa Tawhi (Great) Island) and the Poor Knights are notable for their very large broad-elliptic to broad-obovate, distantly bluntly toothed leaves (see comments by Allan 1961). However, de Lange & Cameron (1999) noted that not all *Hedycarya* on the Poor Knights share these characteristics and that such large-leaved plants grade into "typical" *H. arborea* on the other Hauraki Gulf Islands. The situation seems similar to that observed for large-leaved forms of *tawa* (*Beilschmiedia tawa*) that some authors have segregated as a distinct species, *B. tawaroa* (see Wright 1984). Like *B. tawaroa*, these larger, broader leaved island forms of *Hedycarya arborea*, exhibit no other morphological or cytological distinctions (see de Lange & Murray 2002). Nevertheless they would repay further study

FLOWERING

December - February

FLOWER COLOURS

Cream, White

FRUITING

March - June

LIFE CYCLE

Fleshy drupes are dispersed by frugivory (Thorsen et al., 2009).

PROPAGATION TECHNIQUE

Easily grown from fresh seed. A quick growing tree ideal for the warmer parts of the North Island (though once established it will tolerate a reasonable amount of cold). The fruit is avidly sought after by kereru (*Hemiphaga novaezelandiae*).

ETYMOLOGY

hedycarya: Sweet-nuttled

arborea: From the Latin arbor 'tree', meaning tree-like

ATTRIBUTION

Factsheet prepared for NZPCN by P.J. de Lange 20 February 2011. Description adapted from Allan (1961) and Webb & Simpson (2001).

REFERENCES AND FURTHER READING

- Allan, H.H. 1961: Flora of New Zealand. Vol. I, Wellington, Government Printer.
- de Lange, P.J.; Cameron, E.K. 1999: The Vascular Flora of Aorangi Island, Poor Knights Islands, Northern New Zealand. *New Zealand Journal of Botany* 37: 433-468.
- de Lange, P.J.; Murray, B.G. 2002: Contributions to a chromosome atlas of the New Zealand flora – 37. Miscellaneous families. *New Zealand Journal of Botany* 40: 1-24.
- 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.
- Wright, A. E. 1984: *Beilschmiedia* Nees (Lauraceae) in New Zealand. *New Zealand Journal of Botany* 22: 109-125.

CITATION

Please cite as: de Lange, P.J. (Year at time of access): *Hedycarya arborea* Fact Sheet (content continuously updated). New Zealand Plant Conservation Network. <https://www.nzpcn.org.nz/flora/species/hedycarya-arborea/> (Date website was queried)

MORE INFORMATION

<https://www.nzpcn.org.nz/flora/species/hedycarya-arborea/>

Schefflera digitata

COMMON NAME

Patete, pate, seven-finger

FAMILY

Araliaceae

AUTHORITY

Schefflera digitata J.R.Forst. et G.Forst.

FLORA CATEGORY

Vascular – Native

ENDEMIC TAXON

Yes

ENDEMIC GENUS

No

ENDEMIC FAMILY

No

STRUCTURAL CLASS

Trees & Shrubs - Dicotyledons

NVS CODE

SCHDIG

CHROMOSOME NUMBER

2n = 24

CURRENT CONSERVATION STATUS

2012 | Not Threatened

PREVIOUS CONSERVATION STATUSES

2009 | Not Threatened

2004 | Not Threatened

BRIEF DESCRIPTION

Small bushy tree with (usually) 7 thin finely-toothed leaflets in a fan on a long stalk. Flowers in a diffuse cream spray

DISTRIBUTION

Endemic. Widespread. North, South and Stewart Islands.

HABITAT

Lowland to montane forest (sealevel to 1000 m a.s.l.).

FEATURES

Dioecious(?) small tree to 8 m. Trunk irregularly branched; bark greenish, finely ridged and with scattered prominent lenticels. Petioles terete, to 25 cm long, sheathing branchlet, reddish. Petiolules to 2 cm, reddish. Leaves alternate, palmate, with (3)-10 leaflets (us. 7), upper surface evenly green in adult, underside pale, shiny, purplish in juvenile. Terminal leaflet to 20 cm long; lateral leaflets decreasing in size; obovate-cuneate, tip acuminate to obtuse; margins sharply serrate in adult, irregularly lobed to pinnatifid in juvenile. Inflorescence a panicle, axillary (occ. cauline), branches many, spreading, to 35 cm; bracts and bractlets small. Umbels many, up to 10 flowers in each; peduncles subsessile to 10 mm long, pedicels shorter. Flowers greenish cream, c. 7 mm diam. Petals 5(-6), acute. Stamens 5, filaments c. = petals. Style branches 5 (or more), connate below forming an irregular disc. Fruit subglobose, c. 3.5 mm diam., fleshy, dark purple when ripe, containing (5-)7-10(-11) seeds. Seed 2-2.5 mm.



Leaf of *Schefflera digitata*. Photographer: Wayne Bennett



Pate. Photographer: Jeremy Rolfe

SIMILAR TAXA

Vegetatively often confused with *Pseudopanax* species, particularly five-finger (*Pseudopanax arboreus*). The leaflets of *Pseudopanax* species are thicker, smaller, and with larger teeth on the margin.

FLOWERING

February-March

FLOWER COLOURS

Cream, Green

FRUITING

February-March

ETYMOLOGY

schefflera: Named in honour of Jacob Christian Scheffler, an 18th-century German botanist who wrote about *Asarum* (wild ginger).

digitata: Divided into fingers

ATTRIBUTION

Fact sheet prepared by P.J. de Lange for NZPCN (1 June 2013)

CITATION

Please cite as: de Lange, P.J. (Year at time of access): *Schefflera digitata* Fact Sheet (content continuously updated). New Zealand Plant Conservation Network. <https://www.nzpcn.org.nz/flora/species/schefflera-digitata/> (Date website was queried)

MORE INFORMATION

<https://www.nzpcn.org.nz/flora/species/schefflera-digitata/>

Knightia excelsa

COMMON NAME

Rewarewa, NZ honeysuckle

SYNONYMS

None

FAMILY

Proteaceae

AUTHORITY

Knightia excelsa R.Br.

FLORA CATEGORY

Vascular – Native

ENDEMIC TAXON

Yes

ENDEMIC GENUS

Yes

ENDEMIC FAMILY

No

STRUCTURAL CLASS

Trees & Shrubs - Dicotyledons

NVS CODE

KNIEXC

CHROMOSOME NUMBER

2n = 28

CURRENT CONSERVATION STATUS

2012 | Not Threatened

PREVIOUS CONSERVATION STATUSES

2009 | Not Threatened

2004 | Not Threatened

BRIEF DESCRIPTION

Tall cylindrical tree bearing masses of dark green jagged leathery leaves and dense spikes of reddish flowers common in regenerating forest of the North Island and Marlborough Sounds. Leaves 10-15cm long by 2-4cm wide, juvenile leaves to 30cm long. New growth covered in reddish fuzz.

DISTRIBUTION

Endemic monotypic genus. North and South Islands. Common in the North Island, but confined to the Marlborough Sounds in the South Island.

HABITAT

A common tree of coastal, lowland and lower montane shrubland, secondary regrowth, and on occasion mature forest. Frost-tender when young so generally scarce from cooler, frost-prone habitats - nevertheless it can be very common in suitable sites on the Central Volcanic Plateau of the North Island.



Rewarewa. Photographer: Jeremy Rolfe



Knightia excelsa, Manurewa. Photographer: Gillian Crowcroft

FEATURES

Tall tree with columnar (fastigate) growth-form up to 30 m tall. Trunk up to 1 m diam. Bark dark brown. Branches erect, fastigate, at first angled, clad in red-brown (rust-coloured), velutinous, tomentum. Juvenile leaves yellow-green, 150-300(-400) x 10-15 mm, narrowly linear-lanceolate, sometimes forked 2,3 or 4 times, margins acutely serrated. Adult leaves dark green, 100-150(-200) x 25-40 mm, broad lanceolate to narrow-oblong or oblong, sometimes obovate, occasionally forked, rigid, bluntly and coarsely serrated, covered in deciduous velutinous red-brown pubescence. Inflorescence a stout raceme up to 100(-180) mm x 60 mm, densely flowered. Pedicels and perianth clad in red-brown, velutinous tomentum. Flowers sexually perfect. Perianth 4, exterior covered in red-brown tomentum, interior dark crimson, segments at first cylindric and fused, soon separating and curling spirally. Stamens 4, filaments crimson, short, anthers long, linear, rich golden-yellow. Ovar sessile. Style long, crimson, long persistent. Fruits, follicles 30-40 mm long, 2-valved, woody, pubescent; valves tapering to persistent style. Seeds 10 mm, apex terminated by 15 mm long wing.

SIMILAR TAXA

A very distinct tree with no close relatives or "look alikes" within the indigenous, naturalised, or exotic cultivated flora of New Zealand. Easily recognised by the dark red, "bottle brush" like inflorescences, and by the leathery, broad lanceolate, dark green, serrated leaves. All emergent foliage, inflorescences and immature seed pods are covered in a distinctive velutinous, red-brown (rust-coloured) tomentum.

FLOWERING

(September-) October-December

FLOWER COLOURS

Brown, Red/Pink

FRUITING

October-January (fruit takes a year to mature, so fruit and flowers may co-occur)

LIFE CYCLE

Winged seeds are dispersed by wind (Thorsen et al., 2009).

PROPAGATION TECHNIQUE

Easy from fresh seed, Cuttings are very difficult to strike. Young plants are very quick growing but cold-sensitive.

ETYMOLOGY

knightia: Knight

excelsa: Tall

WHERE TO BUY

Not commonly cultivated and inclined to be badly damaged by thrips in some parts of the warmer parts of the country. Offered by some commercial and specialist native plant nurseries. This species should be more widely cultivated, it is very attractive, and the flowers are popular with nectar-feeding birds.

ATTRIBUTION

Fact sheet prepared by P.J. de Lange for NZPCN (1 June 2013)

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

CITATION

Please cite as: de Lange, P.J. (Year at time of access): *Knightia excelsa* Fact Sheet (content continuously updated). New Zealand Plant Conservation Network. <https://www.nzpcn.org.nz/flora/species/knightia-excelsa/> (Date website was queried)

MORE INFORMATION

<https://www.nzpcn.org.nz/flora/species/knightia-excelsa/>

Phyllocladus trichomanoides

COMMON NAME

Tanekaha, celery pine

SYNONYMS

Phyllocladus trichomanoides D.Don var. *trichomanoides*, *Phyllocladus rhomboidalis* A.Rich.

FAMILY

Phyllocladaceae

AUTHORITY

Phyllocladus trichomanoides D.Don

FLORA CATEGORY

Vascular – Native

ENDEMIC TAXON

Yes

ENDEMIC GENUS

No

ENDEMIC FAMILY

No

STRUCTURAL CLASS

Trees & Shrubs - Gymnosperms

NVS CODE

PHYTRI

CHROMOSOME NUMBER

2n = 18

CURRENT CONSERVATION STATUS

2012 | Not Threatened

PREVIOUS CONSERVATION STATUSES

2009 | Not Threatened

2004 | Not Threatened

DISTRIBUTION

Endemic. New Zealand: North and South Islands. In the North Island widespread from Te Pahi to about the northern Manawatu - after which it is scarce. In the South Island confined to the Marlborough Sounds, northern Richmond Range and North-West Nelson from Puhanga south to about Kahurangi Light and across to Abel Tasman National Park.

HABITAT

Found from sea level to c.1000 m a.s.l. Tanekaha is a common tree in northern New Zealand where it often found growing in association with kauri (*Agathis australis*) on ridge lines. Tanekaha is also common in secondary regrowth forest overlying poorly draining and/or infertile soils. It can be very common in reverting fire-induced gumland scrub. In the Central North Island tanekaha-dominated forest is locally common overlying ignimbrite rock and this forest type is very much a feature of the northern Taupo - King Country - Atiamuri area where extensive tanekaha-dominated forests are present overlying such high aspect ratio ignimbrites as the Whakamaru Ignimbrite. Further south Tanekaha is rarely such a major component of the forest canopy.



Catkins of *Phyllocladus trichomanoides*.
Photographer: Wayne Bennett



Phyllocladus trichomanoides. Photographer:
John Smith-Dodsworth

FEATURES

Monoecious tree up to 25 m, trunk up to 1 m diameter; phylloclades alternate, pinnately arranged on whorled rhachides up to 300 mm long. Leaves of juveniles up to 20 mm long, narrow-linear, deciduous; of adults much smaller. Phylloclades 10-15 per rhachis, irregularly and broadly rhomboid, flabellately lobed, cuneate at base; lobes obtuse to truncate, margins minutely crenulate; leaf-denticles small, subulate, 1.5-3.0 mm long, up to 1.5 mm wide. Male strobili terminal in clusters of 5-10, pedicels 3-10 mm long; staminal portion c.10 mm long, apiculus small, triquetrous; carpodia rather thick, marginal on reduced final phylloclades up to 30 mm long, in clusters of 6-8; seeds nutlike, exserted beyond white, fleshy, irregularly crenulate cupule, c.3 mm long.

SIMILAR TAXA

Tanekaha is distinguished from mountain toatoa (*Phyllocladus alpinus*) by the phylloclades which are pinnately arranged on rhachis and from toatoa (*P. toatoa*) by the seeds which arranged singly on the margins of phylloclades

FLOWERING

September - December

FLOWER COLOURS

No flowers

FRUITING

January - April

PROPAGATION TECHNIQUE

Easily grown from fresh seed. Seedlings transplant well and this species is sometimes common in cultivation. It is often grown as a specimen tree in parks and does well in urban areas on street side verges. Once established tanekaha is able to tolerate full light and considerable drought but young plants do better planted in a less exposed site or at least provided with plenty of water during their early stages of establishment.

ETYMOLOGY

phyllocladus: Leaf branch, referring to the leaf-like stems

trichomanoides: Fern-like

TAXONOMIC NOTES

A distinct as yet undescribed species allied to *Phyllocladus trichomanoides* is known from the 120ha exposure of ultramafic rock at North Cape, Te Pahi. This unnamed species differs from *P. trichomanoides* by its shorter stature and spreading growth habit, longer phyllodes, larger fruits and longer fruiting season. It still awaits formal description. In the past this form had been referred to the hybrid *P. toatoa* x *P. trichomanoides*. However *Phyllocladus toatoa* is not known from Te Pahi and the North Cape tree comes true from seed.

ATTRIBUTION

Fact sheet prepared for NZPCN by P.J. de Lange 1 August 2004. Description adapted from Allan (1961).

REFERENCES AND FURTHER READING

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

CITATION

Please cite as: de Lange, P.J. (Year at time of access): *Phyllocladus trichomanoides* Fact Sheet (content continuously updated). New Zealand Plant Conservation Network.

<https://www.nzpcn.org.nz/flora/species/phyllocladus-trichomanoides/> (Date website was queried)

MORE INFORMATION

<https://www.nzpcn.org.nz/flora/species/phyllocladus-trichomanoides/>

Pectinopitys ferruginea

COMMON NAME

Miro, brown pine

SYNONYMS

Podocarpus ferruginea D.Don, *Stachypitys ferruginea* (D.Don) Bobrov et Melikyan nom. illegit., *Stachycarpus ferruginea* (D.Don) Tieghem, *Prumnopitys ferruginea* (D.Don) Laubenf.

FAMILY

Podocarpaceae

AUTHORITY

Pectinopitys ferruginea (G.Benn. ex D.Don in Lamb.) C.N.Page

FLORA CATEGORY

Vascular – Native

ENDEMIC TAXON

Yes

ENDEMIC GENUS

No

ENDEMIC FAMILY

No

STRUCTURAL CLASS

Trees & Shrubs - Gymnosperms

NVS CODE

PRUFER

CHROMOSOME NUMBER

2n = 36

CURRENT CONSERVATION STATUS

2012 | Not Threatened

PREVIOUS CONSERVATION STATUSES

2009 | Not Threatened

2004 | Not Threatened

DISTRIBUTION

Endemic. North, South and Stewart Islands.

HABITAT

Common tree of lowland to montane forest.

FEATURES

Stout tree up to 25 m tall. Trunk 1-1.5 m diam., in adults clear of branches for 2/3 of length. Bark thick, grey. Falling in thick, sinuous flakes. Leaves feathery, dark green, green to bronze-green, distichous, erect, narrow-linear, acute, falcate to subfalcate, acute to subacute, mid vein distinct, margins recurved, juveniles up to 30 mm long, those of adults 15-25 x 2-3 mm. Male cones (strobili) solitary, axillary, 5-15 mm long. Ovules solitary (rarely paired), on short branchlets 10 or less mm. long. Fruit a broadly oblong to sub-spherical red, pink-red fleshy drupe up to 20 mm long - fleshy, oily, smelling and tasting strongly of terpenes. Stone elliptic to broadly elliptic 11-17 mm long, dark brown to black-brown.



A miro tree. Photographer: Jeremy Rolfe



Miro. Photographer: Jeremy Rolfe

SIMILAR TAXA

The bright green to bronze-green, feathery foliage, and pink-red, to red plum-like drupes are quite unlike any other New Zealand conifer. However young miro plants might be confused with yew (*Taxus baccatus*), but can be distinguished by their lack of petioles.

FLOWERING

June - August - October

FLOWER COLOURS

No flowers

FRUITING

Fruits take 12-18 months to mature. Ripe fruits are mainly found from November - April

PROPAGATION TECHNIQUE

Easily grown from fresh seed. Seed may take up to 2 years to germinate. Can be grown from hard-wood cuttings but rather slow to strike.

THREATS

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

ETYMOLOGY

ferruginea: Rust coloured

CULTURAL USE/IMPORTANCE

The large, oily, red fruits are an important part of the diet of the New Zealand Wood Pigeon/Kereru/Kukupa (*Hemiphaga novaezelandiae*).

TAXONOMIC NOTES

Stachypitys proposed by Bobrov & Melikyan (2000) is regarded as illegitimate because it is a paronym of *Stachyopitys* a fossil conifer genus. More recently Page (2019) created the genus *Pectinopitys* to accommodate New Zealand miro, allied species in Eastern Australia (one), New Caledonia (one), and three South American species. It has long been recognised that miro was an 'ill fit' in *Prumnopitys*, which was why Bobrov & Melikyan (2000) made an attempt to move it out of that genus, so this more recent segregation should come as no surprise.

ATTRIBUTION

Prepared by P.J. de Lange for NZPCN, 3 February 2006. Description based on Allan (1961)

REFERENCES AND FURTHER READING

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

Bobrov, A.V.F.Ch.; Melikyan, A.P. 2000: Morphology of female reproductive structures and an attempt of the construction of phylogenetic system of orders Podocarpaceae, Cephalotaxales and Taxales. *Botanicheskii Zhurnal (Moscow & Leningrad)* 85(7):50–68.

Page, C.N. 2019: New and maintained genera in the taxonomic alliance of *Prumnopitys* s.l (Podocarpaceae), and circumscription of a new genus: *Pectinopitys*. *New Zealand Journal of Botany* 57(1): 137-153.

CITATION

Please cite as: de Lange, P.J. (Year at time of access): *Pectinopitys ferruginea* Fact Sheet (content continuously updated). New Zealand Plant Conservation Network.

<https://www.nzpcn.org.nz/flora/species/pectinopitys-ferruginea/> (Date website was queried)

MORE INFORMATION

<https://www.nzpcn.org.nz/flora/species/pectinopitys-ferruginea/>

Prumnopitys taxifolia

COMMON NAME

Matai, black pine

SYNONYMS

Dacrydium taxifolium Banks et Solander ex D.Don in Lamb., *Dacrydium mai* A.Cunn., *D. mayi* Houtte. ex Gord., *Podocarpus matai* Lamb. Ex Hook.f., *Prumnopitys spicata* Kent in Veitch, *Stachycarpus spicatus* (Mirbel) Masters, *Podocarpus taxifolia*

FAMILY

Podocarpaceae

AUTHORITY

Prumnopitys taxifolia (D.Don) de Laub.

FLORA CATEGORY

Vascular – Native

ENDEMIC TAXON

Yes

ENDEMIC GENUS

No

ENDEMIC FAMILY

No

STRUCTURAL CLASS

Trees & Shrubs - Gymnosperms

NVS CODE

PRUTAX

CHROMOSOME NUMBER

2n = 38

CURRENT CONSERVATION STATUS

2012 | Not Threatened

PREVIOUS CONSERVATION STATUSES

2009 | Not Threatened

2004 | 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, divaricating 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.



Kowhai Bush, Wairarapa. Photographer: Jeremy Rolfe



Matai at Rotopounamu. Photographer: Nick Singers

SIMILAR TAXA

Easily recognised by the distinctive filiramulate divaricating juvenile to subadult growth form, charcoal grey hammered bark, dark green to glaucous adult foliage, spicate male cones, and by the ovoid, plum-coloured drupes.

FLOWERING

(October-) November - February

FLOWER COLOURS

No flowers

FRUITING

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

PROPAGATION TECHNIQUE

Easily grown from fresh seed. Seed may take up to 2 years to germinate Can be grown from hard-wood cuttings but rather slow to strike.

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.

ETYMOLOGY

prumnopitys: From the Greek prymnos 'hindmost' or 'stern' and pitys 'pine', referring to the location of the resin duct

WHERE TO BUY

Commonly cultivated and frequently sold by most commercial nurseries and outlets - usually from plants raised from seed, however some nurseries stock cutting grown plants raised from adult foliage, thus bypassing the filiramulate, divaricating juvenile growth-form. A very popular garden tree.

CULTURAL USE

Gum from the trunk is the basis for "Matai Beer", a deep, rich brew still made in some parts of the country. The dark, hard, durable timber is much sought after for floors and furniture.

ATTRIBUTION

Prepared by P.J. de Lange for NZPCN, 3 February 2006. Description based on Allan (1961)

REFERENCES AND FURTHER READING

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

CITATION

Please cite as: de Lange, P.J. (Year at time of access): Prumnopitys taxifolia Fact Sheet (content continuously updated). New Zealand Plant Conservation Network. <https://www.nzpcn.org.nz/flora/species/prumnopitys-taxifolia/> (Date website was queried)

MORE INFORMATION

<https://www.nzpcn.org.nz/flora/species/prumnopitys-taxifolia/>

Melicytus ramiflorus

COMMON NAME

Mahoe, hinahina, whitey wood

SYNONYMS

Melicytus ramiflorus J.R.Forst. et G.Forst. subsp. *ramiflorus*

FAMILY

Violaceae

AUTHORITY

Melicytus ramiflorus J.R.Forst. et G.Forst.

FLORA CATEGORY

Vascular – Native

ENDEMIC TAXON

Yes

ENDEMIC GENUS

No

ENDEMIC FAMILY

No

STRUCTURAL CLASS

Trees & Shrubs - Dicotyledons

NVS CODE

MELRAM

CHROMOSOME NUMBER

2n = 32

CURRENT CONSERVATION STATUS

2012 | Not Threatened

PREVIOUS CONSERVATION STATUSES

2009 | Not Threatened

2004 | Not Threatened

BRIEF DESCRIPTION

Common small tree with a knobby pale trunk and thin light green toothed leaves that have the vein network much more visible on the paler underside. Leaves 5-20cm long, tapering to tip. Flowers greenish, in clusters along twigs. Fruit purple.

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.



Boulder Hill, Lower Hutt. Mar 2013.
Photographer: Jeremy Rolfe



Mahoe. Photographer: Jeremy Rolfe

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.

SIMILAR TAXA

Most frequently confused with *M. macrophyllus* which differs by the leathery, somewhat fleshy dark green, often mottled purple, obovate-oblong leaves with rather coarse serrations. Flowers are also larger (6.5-8 mm diam.) and the broader petals are usually white. *M. macrophyllus* is a species of kauri forests, and is not known with certainty south of Auckland City. The Waikari Creek (near Dunedin) record cited in the New Zealand Flora is the result of specimen mislabelling.

FLOWERING

November - February

FLOWER COLOURS

Green, Yellow

FRUITING

November - March

PROPAGATION TECHNIQUE

Easy from fresh seed. Can be grown from semi-hardwood cuttings but generally slow without a mist unit.

ETYMOLOGY

melicytus: From the Greek meli (honey) and kytos (hollow container), referring to the staminal nectaries of the flowers. Literally "honey-cave"

ramiflorus: Branch-flowering

WHERE TO BUY

Commonly cultivated and often available from commercial nurseries. In many urban areas abutting indigenous forest mahoe self naturalises into gardens. The fruits are bird dispersed, so plants can also appear many kilometres from forest remnants.

TAXONOMIC NOTES

Past treatments have recognised four subspecies in *M. ramiflorus*, subsp. *oblongifolius* of Norfolk Island, subsp. *fastigiata* of Fiji and subsp. *samoensis* of Samoa. Recent treatments, particularly that of Art Whistler have advocated that all of these subspecies should be regarded as distinct species. NZPCN has followed this recent opinion.

ATTRIBUTION

Fact sheet prepared by P.J. de Lange for NZPCN (1 June 2013)

CITATION

Please cite as: de Lange, P.J. (Year at time of access): *Melicytus ramiflorus* Fact Sheet (content continuously updated). New Zealand Plant Conservation Network. <https://www.nzpcn.org.nz/flora/species/melicytus-ramiflorus/> (Date website was queried)

MORE INFORMATION

<https://www.nzpcn.org.nz/flora/species/melicytus-ramiflorus/>

Pittosporum eugenioides

COMMON NAME

Tarata, lemonwood

SYNONYMS

Pittosporum elegans Raoul, *P. microcarpum* Putt.

FAMILY

Pittosporaceae

AUTHORITY

Pittosporum eugenioides A.Cunn.

FLORA CATEGORY

Vascular – Native

ENDEMIC TAXON

Yes

ENDEMIC GENUS

No

ENDEMIC FAMILY

No

STRUCTURAL CLASS

Trees & Shrubs - Dicotyledons

NVS CODE

PITEUG

CHROMOSOME NUMBER

2n = 24

CURRENT CONSERVATION STATUS

2012 | Not Threatened

PREVIOUS CONSERVATION STATUSES

2009 | Not Threatened

2004 | Not Threatened

BRIEF DESCRIPTION

Tree bearing light green wavy-edge oval leaves and with a contrasting pale green central vein, dense sprays of yellow flowers and small dry fruits. Leaf buds covered in dark-edged scales. Fruit pointed, 5-6mm long which splits into two to show a papery layer covering black sticky seeds.

DISTRIBUTION

Endemic. Common in the North and South Islands.

HABITAT

Common tree of regenerating and mature forest in coastal to montane situations.



Female flowers. Oct 2006. Photographer: Peter de Lange



Female flowers. Oct 2006. Photographer: Peter de Lange

FEATURES

Gynodioecious tree up to 12 m tall but usually much less. Trunk 0.6-1 m diam, stout, clad in persistent pale-grey bark, branches numerous, erect then spreading. Leaf buds sticky, resinous. Leaves borne on slender petioles 10-20 mm long, alternate, 50-100(-150) x 25-40 mm, yellow-green, green, more or less blotched and mottled with paler green or yellow-green (sometimes white), somewhat leathery, glossy, smelling strongly when crushed of ivy or resin, elliptic to elliptic-oblong, apex acute to subacute; leaf margin undulate (very rarely not so), midrib pale green. Inflorescences terminal, numerous, subcorymbose compound umbels. Flowers pale yellow to yellow, very fragrant. Peduncles 10-20 mm, pedicels 5 mm, both sparsely hairy. Sepals 2 mm, ovate to narrow-ovate, pale caducous. Petals 5, 5-7 mm long, narrow-oblong. Capsules 2-valved (rarely 3), 5-6 mm, ovoid to elliptic, caducous, seeds immersed in dark yellow viscid pulp, whole structure covered in long persistent papery endocarp.

SIMILAR TAXA

Well marked from all other indigenous and exotic *Pittosporum* spp. in New Zealand, by the yellow-green, mottled lanceolate leaves with undulating margins, and pale-yellow to yellow flowers arranged in subcorymbose compound umbels.

FLOWERING

October - December

FLOWER COLOURS

Yellow

FRUITING

October - January

PROPAGATION TECHNIQUE

Easy from fresh seed. Can be grown from semi-hardwood cuttings.

ETYMOLOGY

pittosporum: Pitch seed

eugenioides: Like *Eugenia*, a species of myrtle

WHERE TO BUY

Commonly cultivated and available from most garden centres, and then often as a variegated form rather than the pure plant. Occasionally seen for sale in European and English garden centres.

ATTRIBUTION

Fact sheet prepared for NZPCN by P.J. de Lange 30 August 2006. Description adapted from Cooper (1956).

REFERENCES AND FURTHER READING

Cooper, R.C. 1956: The Australian and New Zealand species of *Pittosporum*. *Annals of the Missouri Botanical Garden* 43: 87-188

Gardner, R. 1999. Notes towards an excursion Flora. *Pittosporum eugenioides* as a wild plant. *Auckland Botanical Society Journal*, 54, 1

CITATION

Please cite as: de Lange, P.J. (Year at time of access): *Pittosporum eugenioides* Fact Sheet (content continuously updated). New Zealand Plant Conservation Network.

<https://www.nzpcn.org.nz/flora/species/pittosporum-eugenioides/> (Date website was queried)

MORE INFORMATION

<https://www.nzpcn.org.nz/flora/species/pittosporum-eugenioides/>

Dysoxylum spectabile

COMMON NAME

Kohekohe, New Zealand mahogany

SYNONYMS

Trichilla spectabilis G.Forst., *Hartighsea spectabilis* Juss.

FAMILY

Meliaceae

AUTHORITY

Dysoxylum spectabile (G.Forst.) Hook.f.

FLORA CATEGORY

Vascular – Native

ENDEMIC TAXON

Yes

ENDEMIC GENUS

No

ENDEMIC FAMILY

No

STRUCTURAL CLASS

Trees & Shrubs - Dicotyledons

NVS CODE

DYSSPE

CHROMOSOME NUMBER

2n = 84

CURRENT CONSERVATION STATUS

2012 | Not Threatened

PREVIOUS CONSERVATION STATUSES

2009 | Not Threatened

2004 | Not Threatened

BRIEF DESCRIPTION

Canopy tree bearing leaves with 4 pairs of large dark green glossy leaflets along a stem with fifth leaflet at the tip and a swollen base where leaf stem joins the twig. Inhabiting warmer forests. Flowers small, in sprays projecting from trunk and branches. Fruit orange, covered by a husk.

DISTRIBUTION

Endemic. North and South Islands. In the South Island not extending much beyond the Marlborough Sounds, reaching a southern limit near the Hurunui River (Napenape).

HABITAT

Common and sometimes dominant or co-dominant tree of coastal to lowland forest.



Kohekohe. Photographer: Wayne Bennett



Kohekohe. Photographer: Wayne Bennett

FEATURES

Tree up to 15 m tall usually with a broad, spreading canopy. Trunk up to 1 m diam., branches stout, erect then spreading. Bark pale brown, under bark green. Leaves compound, imparipinnate, alternate on pulvinate petioles up to 40 mm long, leaflet pairs 4-6, (50-)-150(-200) x (20-)30(-80) mm, opposite to subopposite, bright green, yellow-green to dark green, ovate to obovate-oblong, leathery, margins somewhat undulate. Plants gynodioecious, with fixed female and inconstant males on different trees. Inflorescence a cymose, drooping, panicle arising from trunk and branches (cauliflorous). Flowers c. 30 mm diam., fleshy. Pedicels short. Calyx divided to base, lobes broad-oblong, abruptly pointed, ciliate, petals linear, 10 mm, spreading, waxy white or greenish. Capsules, woody, broad-obovoid to subglobose, 3-4-celled, c. 25 mm long, green. Seeds 2 per cell, orange or scarlet.

SIMILAR TAXA

A very distinctive tree which with its large compound green leaves and cauliflorous flowering habit could not easily be confused with any other indigenous, naturalised or exotic species present in New Zealand.

FLOWERING

March - June

FLOWER COLOURS

Green, White

FRUITING

April - August

LIFE CYCLE

Arillate seeds are dispersed by frugivory (Thorsen et al., 2009).

PROPAGATION TECHNIQUE

Easy from fresh seed.

THREATS

Not Threatened. However, where possum and rat numbers are high this species is not actively regenerating. Possums defoliate trees, and will heavily browse inflorescences such that few succeed in flowering and setting fruit. Rats are major seed predators. Only where control of these animals is undertaken, or on possum and rodent-free offshore islands can one see kohekohe flowering, fruiting and regenerating freely. If numbers of these introduced animals remain unchecked, it is clear that kohekohe will decline and vanish from large parts of its natural range.

TOLERANCES

Easily grown in a variety of situations and moisture levels. Intolerant of cold, and frost-sensitive.

ETYMOLOGY

dysoxylum: Foetid-smelling wood

spectabile: Showy

WHERE TO BUY

Occasional available from specialist native plant, and some mainline commercial nurseries.

ADDITIONAL NOTES

The name of Pukekohe, a town south of Auckland, is an abbreviation of "Puke kohekohe" which means "Hill of the kohekohe".

ATTRIBUTION

Fact sheet prepared by P.J. de Lange for NZPCN (1 June 2013)

REFERENCES AND FURTHER READING

Duguid, F. 1985. Kohekohe *Dysoxylum spectabile* as an accidental epiphyte. Wellington Botanical Society Bulletin, 42: 11

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

CITATION

Please cite as: de Lange, P.J. (Year at time of access): *Dysoxylum spectabile* Fact Sheet (content continuously updated). New Zealand Plant Conservation Network.

<https://www.nzpcn.org.nz/flora/species/dysoxylum-spectabile/> (Date website was queried)

MORE INFORMATION

<https://www.nzpcn.org.nz/flora/species/dysoxylum-spectabile/>

Agathis australis

COMMON NAME

Kauri

SYNONYMS

Dammara australis D.Don in Lamb., *Podocarpus zamiaefolius* Richard

FAMILY

Araucariaceae

AUTHORITY

Agathis australis (D.Don) Lindl.

FLORA CATEGORY

Vascular – Native

ENDEMIC TAXON

Yes

ENDEMIC GENUS

No

ENDEMIC FAMILY

No

STRUCTURAL CLASS

Trees & Shrubs - Gymnosperms

NVS CODE

AGAAUS

CHROMOSOME NUMBER

2n = 26

CURRENT CONSERVATION STATUS

2018 | Threatened – Nationally Vulnerable

PREVIOUS CONSERVATION STATUSES

2012 | Not Threatened | Qualifiers: DP

2009 | Not Threatened

2004 | Not Threatened

DISTRIBUTION

Endemic. Occurring from Te Pahi south to Pukenui (near Kawhia) in the West and near Te Puke in the East. Over much of its former range it has been heavily logged, such that the best stands now only occur in the Coromandel and Waitakere Ranges, on Great and little Barrier Islands, and in Northland at Waipoua, Trounson, Omahuta, Puketi, Herekino, Warawara and Radar Bush forests. Despite its northerly limit this species has been successfully grown as far south as Oban, Stewart Island, and seedlings have been observed near planted adults in Wellington, Nelson and Christchurch.

HABITAT

The species forms its own forest type - Kauri forest - which is typified by dense canopies of kauri. Common associates in the northern half of its range may include taraire (*Beilschmiedia tarairi*), northern rata (*Metrosideros robusta*), rimu (*Dacrydium cupressinum*), towai (*Weinmannia silvicola*), and makamaka (*Ackama rosifolia*). Historically kauri forest seems to have been best developed on river terraces, coastal plains and the generally flat flood basalts of the Tangihua complex, which make the dominant geology of Waipoua, Omahuta, Puketi, Trounson. Some people believe that the hill and range occurrences, which is where most stands can now be seen, are relictual stands not truly favoured by the species, but merely examples of where it can grow, and of course locations where it was usually left because log extraction was less feasible.



Female cones, Awhitu Peninsula, Auckland region. Photographer: John Sawyer



Coromandel, October. Photographer: John Smith-Dodsworth

FEATURES

Stout, monoecious forest tree 30-60 m tall, with trunk 3-4(-7) m diam. Trunk typically devoid of branches for majority of its height. Trees at ricker development stage have a columnar growth form with trunk scarcely free of branches. As tree matures the basal branches are progressively abscised, eventually leaving bare trunk typical of mature specimens. Bark blue-grey, falling in large thick flakes with scalloped margins, undersides of discarded bark and freshly exposed underbark rust brown. Leaves (needles) alternate to subopposite, sessile, thick and leathery; juvenile leaves 50-100 mm x 5-12 mm, lanceolate, pinkish green, often black-spotted (a fungus specific to kauri causes this); adult leaves 20-35 mm, oblong, apex obtuse. Male cones 20-50 mm long, stout, cylindrical, female cones globose 50-75 mm diam., cone-scales (carpidia) deciduous, at first broad but then gradually narrowing toward base, bearing one ovule per scale. Seeds ovoid, compressed, margins winged.

SIMILAR TAXA

None - though could be confused with the distantly allied Queensland Kauri (*Agathis robusta*) which is commonly cultivated in warmer parts of New Zealand. Kauri can be distinguished from that species by its smaller, narrower needles, and by the needles often spotted with black. Queensland Kauri is much faster growing but adult trees are not nearly as massive as kauri.

FLOWERING

Female cones produced from September - December. Male cones throughout the year but most common from September to January

FLOWER COLOURS

No flowers

FRUITING

Mature cones occur anytime from December through to May, with rare persistent examples found on trees right up to about August

LIFE CYCLE

Winged seeds are dispersed by wind (Thorsen et al., 2009).

PROPAGATION TECHNIQUE

Easy from fresh seed. Very difficult from cuttings. Can be grafted onto seedling kauri.

THREATS

Now listed as threatened because of the ongoing decline caused by *Phytophthora agathidicida* for which as yet there is no known effective preventive or treatment. Aside from ongoing losses caused by this disease, kauri on private land remain vulnerable to illegal logging, while trees are still periodically removed (although only by permit or with approval) for cultural purposes, such as for making waka (canoes) or other Maori buildings and structures. Some small southerly populations are rather vulnerable to goat browse destroying regenerating seedlings and saplings.

Phytophthora agathidicida remains the main threat to kauri. This fungus-like organism has caused the death of kauri trees throughout large parts of that species range and it is now a serious threat to the species (see the information and links provided below and see images above of lesions and thinning caused by the disease).

ETYMOLOGY

agathis: A ball of thread

australis: Southern

KAURI DIEBACK

Kauri dieback is a microscopic fungus-like plant pathogen (a disease causing agent) that only affects kauri. Research has identified PTA as a distinct and previously undescribed species of Phytophthora. Kauri dieback is believed to be a soil-borne species spread by soil and soil water movement, plant to plant transmission through underground root-to-root contact, and human and animal vectors. Symptoms include yellowing of foliage, loss of leaves, canopy thinning (see image above) and dead branches. Affected trees can also develop lesions that bleed resin (see image to the right), extending to the major roots and sometimes girdling the trunk as a 'collar rot'. Kauri dieback can kill trees and seedlings of all ages. A new website has been established that focuses on Kauri dieback entitled [Keep Kauri Standing](#).

Follow this link for an [up-to-date FAQ](#) (December 2017).

EXTERNAL LINKS

- [Kauri dieback \(Auckland Council biosecurity information\)](#)
- [Keep Kauri Standing](#) (website)
- [Kauri \(Wikipedia\)](#)
- [Kauri forest \(Te Ara Encyclopedia of NZ\)](#)

ATTRIBUTION

Fact Sheet Prepared for NZPCN by P.J. de Lange May 2004. Description adapted from Allan (1961).

REFERENCES AND FURTHER READING

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

[Ogden, J. 1988. Kauri: Key to Auckland's past. Auckland Botanical Society Journal, 43: 17-19.](#)

[Enright, N., Cameron, E.K. 1988. The soil seed bank of a kauri \(Agathis australis\) forest remnant near Auckland, New Zealand. NZ Journal of Botany, Vol. 26, 223-236](#)

[Sem, G. and Enright, N.J. 1995. The soil seed bank in Agathis australis \(D. Don\) Lindl. \(kauri\) forests of northern New Zealand. New Zealand Journal of Botany, 33 \(2\). pp. 221-235. <http://dx.doi.org/10.1080/0028825X.1995.10410485>](#)

[Mirams, R.V. 1957. Aspects of the natural regeneration of the kauri \(Agathis australis Salisb.\). Transactions of the Royal Society of New Zealand, Vol. 84, Part 4, 661-680](#)

[Sando, C.T. Notes on Agathis australis. NZ Journal of Forestry.](#)

[J. B. Dickie and R. D. Smith \(1995\). Observations on the survival of seeds of Agathis spp. stored at low moisture contents and temperatures. Seed Science Research, 5, pp 5-14. doi:10.1017/S0960258500002531.](#)

[Wyse, S.V., Burns, B.R. 2013. Effects of Agathis australis \(New Zealand kauri\) leaf litter on germination and seedling growth differs among plant species. NZ Journal of Ecology, 37\(2\), 178-183](#)

CITATION

Please cite as: de Lange, P.J. (Year at time of access): Agathis australis Fact Sheet (content continuously updated). New Zealand Plant Conservation Network. <https://www.nzpcn.org.nz/flora/species/agathis-australis/> (Date website was queried)

MORE INFORMATION

<https://www.nzpcn.org.nz/flora/species/agathis-australis/>

Pseudopanax lessonii

COMMON NAME

Houpara

SYNONYMS

Panax lessonii DC.

FAMILY

Araliaceae

AUTHORITY

Pseudopanax lessonii (DC.) K.Koch

FLORA CATEGORY

Vascular – Native

ENDEMIC TAXON

Yes

ENDEMIC GENUS

No

ENDEMIC FAMILY

No

STRUCTURAL CLASS

Trees & Shrubs - Dicotyledons

NVS CODE

PSELES

CHROMOSOME NUMBER

2n = 48

CURRENT CONSERVATION STATUS

2012 | Not Threatened

PREVIOUS CONSERVATION STATUSES

2009 | Not Threatened

2004 | Not Threatened

BRIEF DESCRIPTION

Coastal tree with fleshy hand-shaped leaves

DISTRIBUTION

Endemic. Three Kings to Poverty Bay and northern Taranaki

HABITAT

Coastal forest and scrub



Leaves of *Pseudopanax lessonii*. Photographer: Wayne Bennett



Motuoruhi, Coromandel, March. Photographer: John Smith-Dodsworth

FEATURES

Small tree to 6 m tall; branches stout, with leaves crowded towards tips of branchlets. Leaves alternate, leaflets 3-5, palmate, lateral leaflets smaller; juvenile leaves larger than adult. Petiole to 15 cm long, stout, sheathing stem at base; stipules absent. Leaflets subsessile, terminal leaflet on short petiolule, obovate-cuneate, sinuate-crenate to bluntly serrate in distal half, subacute to obtuse, dark green above, paler beneath, midvein obvious, lateral veins obscure, c. 5-10 x 2-4 cm. Inflorescence a terminal compound umbel; male (staminate) primary rays (branchlets) 4-8 c. 4-5 cm long, flowers racemosely arranged along secondary rays; pistillate (female) primary rays shorter, flowers in irregular umbellules. Petals greenish, acute; anthers on filaments < petals. Ovary 5-loculed, each containing 1 ovule; style branches 5, connate, tips spreading. Fruit fleshy, dark purple, broadly oblong, 7 x 5 mm, style branches retained on an apical disc. 5 Seeds per fruit, narrowly ovate to ovate or oblong, dimpled, 5.5-8.0 mm long.

SIMILAR TAXA

Vegetatively similar to *Pseudopanax colensoi* which has obviously-toothed leaflets

FLOWER COLOURS

Green

ETYMOLOGY

pseudopanax: False cure

ATTRIBUTION

Description adapted from Allan (1961), Eagle (2006) and Webb and Simpson (2001).

REFERENCES AND FURTHER READING

Allan, H.H. 1961. Flora of NZ, Vol. I. Government Printer, Wellington

Eagle, A. 2000. Eagle's complete trees and shrubs of NZ. Te Papa Press, Wellington

Webb, C.J. & Simpson, M.J.A. 2001. Seeds of NZ gymnosperms and dicotyledons. Manuka Press, Christchurch.

MORE INFORMATION

<https://www.nzpcn.org.nz/flora/species/pseudopanax-lessonii/>

Pseudopanax arboreus

COMMON NAME

Fivefinger, five finger, whauwhaupaku

SYNONYMS

Panax arboreus Murray, *Panax arboreus* Murray var. *arboreus*, *Neopanax arboreus* (Murray) Philipson var. *arboreus*, *Pseudopanax arboreus* (Murray) Philipson

FAMILY

Araliaceae

AUTHORITY

Pseudopanax arboreus (L.f.) Allan

FLORA CATEGORY

Vascular – Native

ENDEMIC TAXON

Yes

ENDEMIC GENUS

Yes

ENDEMIC FAMILY

No

STRUCTURAL CLASS

Trees & Shrubs - Dicotyledons

NVS CODE

PSEARB

CHROMOSOME NUMBER

2n = 48

CURRENT CONSERVATION STATUS

2012 | Not Threatened

PREVIOUS CONSERVATION STATUSES

2009 | Not Threatened

2004 | Not Threatened

BRIEF DESCRIPTION

Small bushy tree with glossy green fleshy toothed leaves arranged in fans of 5 (occ. up to 7) leaflets. Fruit purple, in obvious clusters

DISTRIBUTION

Endemic. Widespread (though rare in Central Otago). North and South Islands

HABITAT

Coastal to montane (10-750 m a.s.l.). Moist broadleaf forest. Frequently epiphytic. A frequent component of secondary forest. Streambanks and forest margins.



Banks Peninsula. Photographer: Melissa Hutchison



Fivefinger. Photographer: Jeremy Rolfe

FEATURES

Us. Dioecious. Small multi-branched tree to 8 m tall, branches and branchlets brittle. Leaves alternate, leaflets 5-7 (us. 5), palmate. Petioles c. 15-20 cm long, sheathing branchlet at base. Petiolules c. 3-5 cm long, pale green. Leaflets obovate-oblong to oblong-cuneate, thinly coriaceous, coarsely serrate-dentate, acute or acuminate to obtuse; midveins and main lateral veins obvious above and below; terminal lamina 10-20 x 4-7 cm. Inflorescence and panicle, terminal, compound; flowers usually unisexual; 8-20 primary rays (branchlets), up to 10 cm long; 15-20 secondary rays; umbellules with 10-15 flowers in each. Calyx truncate or obscurely 5-toothed; flowers c. 5 mm diam., sweet-scented; petals 5, white to pink flushed, ovate to triangular, acute; stamens 5, obvious, filaments c. = petals; ovary 2-loculed, each containing 1(-2) ovules; style branches 2, spreading. Fruit fleshy, 5-8 mm diam., style branches retained on an apical disc, very dark purple, laterally compressed. Seeds 2(-3) per fruit, wrinkled, 3-6 mm long.

SIMILAR TAXA

Similar to other *Pseudopanax* species, but has a greater number of leaflets borne on distinct petiolules. Vegetatively similar to *Schefflera digitata* (pate) which has thinner, finely serrate and larger leaflets with usually 7 leaflets per leaf.

FLOWERING

June to August

FLOWER COLOURS

Red/Pink, White

FRUITING

August to February

PROPAGATION TECHNIQUE

Easy from fresh, cleaned, seed

THREATS

Not Threatened. In places the petiolules of *Pseudopanax arboreus* (and other fleshy-leaved *Pseudopanax* species) are a conspicuous element of possum (*Trichosurus vulpecula*) diet and the forest floor can become littered with discarded leaflets.

ETYMOLOGY

pseudopanax: False cure

arboreus: From the Latin arbor 'tree', meaning tree-like

TAXONOMIC NOTES

This species was transferred back to *Neopanax* Allan by: Frodin, D.G.; Govaerts, R. 2003: World Checklist and Bibliography of Araliaceae, The Cromwell Press, European Union.

ATTRIBUTION

Description adapted from Allan (1961) and Webb and Simpson (2001).

REFERENCES AND FURTHER READING

Allan, H.H. 1961. Flora of NZ, Vol. I. Government Printer, Wellington

Webb, C.J. & Simpson, M.J.A. 2001. Seeds of NZ gymnosperms and dicotyledons. Manuka Press, Christchurch.

MORE INFORMATION

<https://www.nzpcn.org.nz/flora/species/pseudopanax-arboreus/>

Weinmannia racemosa

COMMON NAME

Kamahi, tawheo, tawhero, tawherowhero

SYNONYMS

Fact Sheet Under Development

FAMILY

Cunoniaceae

AUTHORITY

Weinmannia racemosa L.f.

FLORA CATEGORY

Vascular – Native

ENDEMIC TAXON

Yes

ENDEMIC GENUS

No

ENDEMIC FAMILY

No

STRUCTURAL CLASS

Trees & Shrubs - Dicotyledons

NVS CODE

WEIRAC

CHROMOSOME NUMBER

2n = 30

CURRENT CONSERVATION STATUS

2012 | Not Threatened

PREVIOUS CONSERVATION STATUSES

2009 | Not Threatened

2004 | Not Threatened

BRIEF DESCRIPTION

Tree to small shrub, young stems bearing deciduous stipules, leaves variable but as adults most simple, with deeply toothed margins, flowers white or pink, clustered in spike-like racemes

DISTRIBUTION

Endemic. North, South, Stewart Island. The exact northern limits of *Weinmannia racemosa* are uncertain but probably lie somewhere along the Manukau Harbour and Hunua Ranges across the Kaimai Range. North of here the distinction between *Weinmannia racemosa* and *W. silvicola* is often confused. This needs further study.

HABITAT

Coastal to subalpine. A widespread and common tree of disturbed habitats in coastal and lowland to montane forest, often becoming locally dominant in higher altitude montane forest in the higher ranges of the North Island and western South Island.



Tararua Forest Park. Dec 2007. Photographer: Jeremy Rolfe



Stokes Valley. Aug 2002. Photographer: Jeremy Rolfe

FEATURES

Tree up to 28 m tall often forming a narrowly domed canopy (but this will vary according to local conditions). Trunk up to 1.2 m diameter. Branches numerous, erect to spreading, Foliage heterophyllous. with distinct seedling, juvenile and adult leaves (reversion shoots common). Stipules caducous, 3-6 mm long, lanceolate, finely pubescent, yellow-green to pinkish. Seedling and juvenile leaves membranous to subcoriaceous, 10-60 × 10-30 mm; lamina simple to 3-lobed or 3-foliolate, ovate-elliptic to elliptic or lanceolate, apices subacute to acute, margins serrate to incised-serrate; adult leaves coriaceous, on petioles up to 20 cm long, lamina 30-100 × 20-40 mm lamina simple, elliptic, ovate-elliptic to broad-ovate, apices obtuse to subacute, margins rather coarsely, bluntly serrate. Inflorescences in racemose; racemes 60-1140 mm long, rachises and pedicels finely, pilose-pubescent; pedicels 2-4 mm long, clustered, ascending to spreading. Sepals 1.0-1.5 mm. long, ovate, persistent; petals 4(-5), 2-3 mm long, ovate-oblong, white, cream or pale pink; stamens 8-10, exserted, filaments up to 10 mm long, white or pinkish white, anthers 0.2-0.3 mm diameter, cream; nectaries 8, red; ovary, narrowly ovoid 0.8 mm diameter, covered in appressed hairs, carpels 2, free almost to base. Styles 3-4 mm long, pale pink, persistent; stigma 0.2-0.4 mm, pink or pale pink, punctate. Fruit a pubescent, broadly cylindrical capsule 4.0-5.8 x 2.7-3.1 mm, initially greyish drying honey-brown or dark brown. Seeds numerous, 1.0-1.5 mm long, narrowly elliptic to elliptic-oblong, orange-brown, apices bearing dense hair tufts, otherwise glabrous.

SIMILAR TAXA

Fact Sheet Under Development

FLOWERING

July - January

FLOWER COLOURS

White

FRUITING

October - May

PROPAGATION TECHNIQUE

Easily grown from fresh seed. Can also be grown from semi-hardwood cuttings. This is an attractive tree tolerant of a wide range of conditions and soil types though it does best in high light, and in free-draining soil. The flowers are very attractive to a range of insects and birds

ETYMOLOGY

weinmannia: Named after Johann Wilhelm Weinmann (13 March 1683 - 1741) who was a Germany apothecary and botanist and is noted for his creation of the florilegium *Phytanthoza iconographia* between 1737 and 1745

racemosa: Raceme bearing

ATTRIBUTION

Fact sheet prepared for NZPCN by P.J. de Lange (13 October 2012). Description prepared by P.J. de Lange.

REFERENCES AND FURTHER READING

McKenzie, R. 1960. The distributional overlap of *Weinmannia sylvicola* and *Weinmannia racemosa*. Auckland Botanical Society Journal, 17: 7-8

CITATION

Please cite as: de Lange, P.J. (Year at time of access): *Weinmannia racemosa* Fact Sheet (content continuously updated). New Zealand Plant Conservation Network.

<https://www.nzpcn.org.nz/flora/species/weinmannia-racemosa/> (Date website was queried)

MORE INFORMATION

<https://www.nzpcn.org.nz/flora/species/weinmannia-racemosa/>

Phormium tenax

COMMON NAME

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

SYNONYMS

None

FAMILY

Xanthorrhoeaceae

AUTHORITY

Phormium tenax J.R.Forst. et G.Forst.

FLORA CATEGORY

Vascular – Native

ENDEMIC TAXON

Yes

ENDEMIC GENUS

No

ENDEMIC FAMILY

No

STRUCTURAL CLASS

Herbs - Monocots

NVS CODE

PHOTEN

CHROMOSOME NUMBER

2n = 32

CURRENT CONSERVATION STATUS

2012 | Not Threatened

PREVIOUS CONSERVATION STATUSES

2009 | Not Threatened

2004 | 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.



Flax. Photographer: John Sawyer



Phormium tenax seed heads (Korari).
Photographer: Jeremy Rolfe

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.

SIMILAR TAXA

Could only be confused with the so called mountain flax (*Phormium cookianum*) from which it is easily distinguished by the erect rather than pendulous seed pods

FLOWERING

(September-) October-November (-January)

FLOWER COLOURS

Red/Pink, Yellow

FRUITING

(November-) December (-March)

PROPAGATION TECHNIQUE

Very easy from fresh seed. Most commonly grown by the division of rooted fans from established plants.

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.

ETYMOLOGY

phormium: Basket or basketwork

tenax: Tough

WHERE TO BUY

Very commonly cultivated throughout New Zealand and in many parts of the world. However, most cultivated material available is a mixture of hybrid, variegated and/or colour mutations. The actual wild forms of the species are now rarely available in mainline garden centres and nurseries.

CULTURAL USE/IMPORTANCE

Harakeke is an important plant used in weaving. For more information go to the [Weaving Plant Database](#) run by Landcare Research. A report funded by the Sustainable Farming Fund identified numerous uses for flax to increase its abundance in the landscape including buffering or establishing corridors. For more information read “[Integrating New Zealand Flax into Land Management Systems](#)” by Elizabeth McGruddy (2006).

FLAX DIEBACK

‘Yellow-leaf’ is one of the most serious diseases of harakeke (similar to the ‘sudden decline’ in cabbage trees). The disease is characterised by abnormal yellowing of the leaves. Scheele (1997) described how “growth of young leaves may be stunted and eventually the whole plant may collapse. Underground, the roots die off, the rhizome tissues collapse and rot spreads towards the crown of the plant”.

The cause has been identified as being a phytoplasma (a bacterium), transmitted by the native flax plant hopper. The hopper injects the bacterium into the leaf, while sucking the sap. Yellow-leaf is found in North and South Island, but is more prevalent in North Island (Boyce et al, 1951). For more information read “[Integrating New Zealand Flax into Land Management Systems](#)” by Elizabeth McGruddy (2006).

ATTRIBUTION

Fact sheet prepared by P.J. de Lange for NZPCN (1 June 2013)

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

CITATION

Please cite as: de Lange, P.J. (Year at time of access): Phormium tenax Fact Sheet (content continuously updated). New Zealand Plant Conservation Network. <https://www.nzpcn.org.nz/flora/species/phormium-tenax/> (Date website was queried)

MORE INFORMATION

<https://www.nzpcn.org.nz/flora/species/phormium-tenax/>

Glossary

abaxial	Facing away from the stem of a plant (especially denoting the lower surface of a leaf).
acerose	Narrow with a sharp stiff point.
achene	A simple, dry, one-seeded (one-celled) fruit.
acicular	Needle-shaped.
acidic	Having a low pH, opposite of basic or alkaline.
acrosopic	Pointing towards, or on the side of, the apex.
acuminate	Gradually tapered to a point. Sharply pointed.
acute	Pointed or sharp, tapering to a point with straight sides.
adnate	Fusion of unlike parts, e.g. stamens fused to petals.
adventive	A plant that grows in the wild in New Zealand but which was introduced to the country by humans.
agglutinated	Stuck together.
allelopath	An organism that releases compounds that are toxic to other species.
allelopathy	The release by an organism of compounds that are toxic to other species.
alternate	Attached singly at each node but changing from one side of a stem to the other.
alveolate	Honeycombed with ridged partitions.
amplexicaul	Clasping or surrounding the stem.
anamorph	Asexual fruiting stage, usually of an ascomycete fungus.
anastomosing	Rejoining after branching, as in some leaf veins.
annual	A plant that completes its complete life cycle within the space of a year.
annual evergreen	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.
annulus	Line of thickened cells that governs the release of spores from a sporangium.
anterior	Towards the front.
anther	The pollen-bearing portion of the stamen.
antheridium	Male reproductive organ formed on the prothallus of a fern.
anthesis	Flowering period from when the bud opens
apex	Tip; the point furthest from the point of attachment.
apices	Plural of apex. Tip, the point furthest from the point of attachment.
apiculate	Bearing a short slender and flexible point.
apiculus	A small, slender point.
apomixis	A form of reproduction whereby seed is formed without the usual mode of sexual fusion.
appressed	Pressed against another organ or surface.
aquatic	Growing, or living in, or frequenting water. Applied to plants and animals and their habitats. Opposite of terrestrial (land living).
archegonium	Female reproductive organ of a fern formed on the prothallus.
arcuate	Curved into an arch.
aril	An often fleshy appendage on the outside of a seed.
artificial thinning	Selectively removing vegetation to create gaps to facilitate natural invasion of native plants, or to plant later successional plants.
ascending	Growing obliquely upward.
asexual	Vegetative reproduction, lacking sexual involvement by sperm or egg cells.
attenuate	Narrowing gradually.
auricle	A small, ear-shaped appendage.
auriculate	Bearing a small, ear-shaped appendage.
autogamous	Self-fertilising flowers.
autotrophic	Of or relating to organisms (as green plants) that can make complex organic nutritive compounds from simple inorganic sources by photosynthesis.
awn	A stiff or bristle like projection often from the tip or back of an organ.

axil	The upper angle between the leaf and the stem.
axis	The longitudinal supporting structure around which organs are borne, e.g., a stem bearing leaves.
barbellate	Barbed, having or covered with protective barbs or quills or spines or thorns or setae.
basal	At the base.
basisropic	Pointing towards the base.
beak	A prominent extension of an organ.
bifid	Deeply split into two lobes.
bifurcate	Divided into two.
biosecurity	Preventing, eradicating, controlling and managing risks posed by pests and diseases.
biotic	Pertaining to the living parts of the environment.
bipinnate	With each primary pinna divided to the midrib into a secondary pinna.
biserrate	Doubly serrate.
blade	The flattened part of a leaf.
blunt	Not pointed at the ends.
bog	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.
bottleneck	A genetic term; refers to the fact that in smaller populations there could be lower genetic variability.
brachyblasts	Short shoots.
bract	A reduced leaf or leaf-like structure at the base of a flower.
bracteate	Bearing bracts: leaves or leaf-like structure reduced at the base of a flower.
bracteolate	With small bracts.
bracteole	A small bract.
bracteoles	Bracts directly below the flower.
brevideciduous	Brief (1 month or less) loss of most leaves from the canopy just before flowering or during flushing of a new cohort of leaves.
bryophyte	Plant group including mosses, liverworts and hornworts.
bryophytes	Plant group including mosses, liverworts and hornworts.
bulbil	A bud produced vegetatively on the stem or frond that is capable of breaking off and growing into a new plant.
bullate	With rounded projections covering the surface as if blistered.
caespitose	Growing in dense tufts.
calli	Circular, warty, stalked thickenings commonly found on the lip (labellum) of the orchid (plural of callus).
callose	Hardened or thickened.
callus	Stalked thickening on the lip (labellum) of an orchid.
calyx	The group of sepals, or outer floral leaves, of a flower.
campanulate	Bell-shaped.
canaliculate	With longitudinal channels or grooves.
canopy	The uppermost cover formed by the branches and leaves of trees or the spread of bushes, shrubs and ground covers.
canopy closure	Stage where canopies of shrub and tree species meet.
canopy manipulation	Selectively removing vegetation to create gaps to facilitate natural invasion of native plants, or to plant later successional plants.
capillary	Hair-like.
capitula	Plural of capitulum: A dense head-like inflorescence of many flowers as occurs in most Asteraceae (daisies).
capitulum	A dense head-like inflorescence of many flowers as occurs in most Asteraceae (daisies).
capsule	A dry fruit formed from two or more fused carpels that splits open when ripe.
carbon sinks	Carbon locked away, or sequestered e.g. by trees.
carpel	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.

cauda	Tail-like appendage. (pl. caudae; adj. caudate).
caudex	The axis of a woody plant, esp. a palm or tree fern, comprising the stem and root.
cauline	Belonging to the stem, as in cauline leaves emerging from the stem.
cerise	Bright or deep red.
chartaceous	Having a papery texture.
chlorophyll	The green pigment of plants.
chlorotic	Lacking chlorophyll, therefore yellowish, suffering from chlorosis.
cilia	Short small hair-like structures on a cell or microorganism.
ciliate	With small hairs (cilia).
ciliolate	Diminutive of ciliate, i.e., having very small hairs.
cladode	Flattened stem with the function of a leaf.
cladodes	Usually flattened, photosynthetically active branches, these may be leaf-like (e.g., <i>Phyllocladus</i>) or branch-like (e.g., <i>Carmichaelia</i>).
clavate	Club-shaped, gradually widening towards apex.
cleft	Having indentations that extend about halfway to the center, as in certain leaves.
cleistogamous	Flowers that self-fertilise without opening.
coherent	Sticking together of like parts.
column	Stamen and stigmas fused to form a single organ.
columnar	Shaped like a column.
composite	Many small flowers tightly packed together e.g., daisy flowers.
compound	Composed of several similar parts (cf simple).
concave	Curved inward.
concolorous	Of the same colour.
conical	Cone-shaped.
connate	Fusion of like parts.
conspecific	Individuals of the same species.
cordate	Heart-shaped with the notch at the base.
coriaceous	Leather-like; thick, tough, and somewhat rigid.
corolla	The whorl of petals of a flower.
corymb	Modified raceme where stalks of lower flowers are elongated to same level as the upper flowers.
cosmopolitan	A species or other taxonomic group that is distributed widely throughout the world.
costa	The midrib.
crenate	With rounded teeth (bluntly toothed) along the margin.
crisped	Margin tightly wavy or crinkled, curled or wavy.
cristate	With a crest.
crown	The growing point of an upright rhizome or trunk. This usually produces a tuft or ring of fronds.
crura	The two small projections at the mouth of a utricle in <i>Carex</i> .
cucullate	Hood-shaped.
culm	The erect stem of a grass.
cuneate	Wedge-shaped.
cupular	Cup-shaped.
cuttings	Stems and/or leaves taken from plants for propagation.
cyathium	A cup-like structure that surrounds the inflorescence in <i>Euphorbia</i> .
cyme	Inflorescence at the terminus of a branch and where new flowering branches emerge laterally below the flower.
cytorace	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).
cytotype	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).
deciduous	Marked leaflessness in winter, and greater than 90% leaves lost by beginning of spring flush.

decrecent	Diminishing.
decumbent	With a prostrate or curved base and an erect or ascending tip.
decurrent	Attached by a broadened base.
decurved	Curved downward.
deflexed	Bent abruptly downward.
dehiscence	The time of opening at maturity to release the contents, e.g., a capsule releasing the seeds.
dehiscent	Splitting open at maturity to release contents (of a fruit).
deltoid	Shaped broadly like an equilateral triangle.
dentate	Toothed along the margin with the teeth pointing outward, not forward.
denticles	Minute teeth.
denticulate	Having a very finely toothed margin.
dichotomous	Divided into two equal branches.
digitiform	Finger-like.
dioecious	Having male and female flowers on separate plants of the same species.
diploid	With two complete sets of chromosomes in each cell.
disarticulating	Separating at a joint.
discoïd	Disc-shaped.
disjunct	A species or other taxonomic group that occupies areas that are widely separated and scattered and therefore have a discontinuous distribution.
distal	Toward the apex, away from the point of attachment (cf. proximal).
distichous	In two rows on opposite sides of the axis.
divaricating	Branching at a very wide angle with stiff intertwined stems.
domatia	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.
dorsal	Of the back or outer surface relative to the axis. (cf. ventral).
drupe	A stone fruit, the seed enclosed in a bony covering (endocarp) which is surrounded by a + fleshy layer (mesocarp).
early successional species	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.
echinate	Having sharply pointed spines or bristles.
ecological district	A characteristic landscape and biological community defined in the PNA (Protected Natural Area) programme.
ecological restoration	Attempt to reinstate original (pre-disturbance) state of a habitat, plant community or ecosystem.
ecosourced	Plants sourced from seed collected from similar naturally growing plants in the area of the planting site.
ecosourcing	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.
eglandular	Without glands.
elaiosome	Fleshy, oil-rich structure attached to seed that attracts ants which act as dispersers.
ellipsoid	Elliptic in long section and circular in cross-section.
elliptic	Broadest at the middle.
emarginate	With a notch at the apex.
emarginated	Having a shallow notch at the tip, as in some petals and leaves.
emergent	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.
emergent marginals	An aquatic plant having most of its structure above water. Other aquatic plants are submerged or floating.
endemic	Unique or confined to a place or region, found naturally nowhere else.

endophyte	An endosymbiont (usually a bacterium or fungus) that lives within a plant for at least part of its life without causing any apparent disease.
endophytes	Endosymbionts (usually bacteria or fungi) that live within plants for at least part of their lives without causing any apparent disease.
endosperm	The nutritive tissue of a seed, consisting of carbohydrates, proteins, and lipids.
enrichment planting	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.
ensiform	Sword shaped.
entire	Smooth. Without teeth, notches or divisions.
entomophilous	Pollinated by insects.
epicalyx	Calyx-like structure outside, but close to, the true calyx.
epigeal	Growing on or close to the ground or emerging from the ground after germination (often used for cotyledons).
epiphyte	A plant that grows upon another plant but is not parasitic and does not draw nourishment from it.
epiphytic	Growing upon another plant but not parasitic and not drawing nourishment it.
erose	Irregularly toothed, as if gnawed.
estuarine	Pertaining to the meeting of freshwater and seawater wetlands.
ethnobotany	The study of people's classification, management and use of plants.
eusporangia	Sporangia that arise from groups of epidermal cells.
evanescent	Lasting a very short time or running a short distance.
ex situ	Away from the place of natural occurrence.
ex-situ	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.
excurrent	Having the axis prolonged to form an undivided main stem or trunk (as in conifers).
extravaginal	Outside an enclosing sheath.
falcate	Hooked or curved like a sickle.
fastigiate	Branches erect and close to central axis.
fen	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.
ferruginous	Rust-like (a colour term).
fertile frond	Fronds that bear sporangia.
filamentous	Resembling a filament.
filiform	Thread like, resembling a filament.
filiramulate	Branching at a very wide angle with stiff intertwined stems.
fimbriae	Plural of fimbria: Fringe. A fimbria is composed of many fimbriae (individual hair-like structures).
fimbriate	With fringes.
flabellate	Fan shaped.
flaccid	Limp, not rigid, flabby.
flange	A projecting rim.
flexuose	With curves or bends.
floccose	Having tufts of soft woolly hairs.
floret	A small flower, usually one of a cluster - the head of a daisy for example.
foliaceous	Leaf-like.
foliolate	Having leaflets.
founder effect	When a small number of plants (and therefore their genes) from a larger population are selected some genetic information is lost.
frond	A leaf, the complete leaf of a fern including the stipe and lamina.
fulvous	Orange-yellow.
funneliform	Funnel-shaped.
fusiform	Broadest near the middle and tapering toward both ends.
galea	Helmet- or hood-shaped.

galeate	Shaped like a helmet or hood.
gametophyte	A plant that produces sperm and egg cells and in which sexual reproduction takes place - in ferns this is known as the prothallus.
gene pool	The mixture of all genes and gene variations of a group or population.
genetic diversity	The variety of genes in a plants or populations.
genetic variation	Differences displayed by individuals within a plant which may be favoured or eliminated by selection.
geniculate	Abruptly bent.
genus	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.
gibbous	Swollen or enlarged on one side, as in a gibbous moon.
glabrescent	Lacking hair or a similar growth or tending to become hairless.
glabrous	Without or devoid of hairs, smooth.
gland	A structure that secretes a sticky or oily substance.
glandular	A structure that secretes a sticky or oily substance.
glaucous	Covered with a fine, waxy, removable powder that imparts a white or bluish cast to the surface.
gley	A soil prone to seasonal inundation.
globose	Globe-shaped.
glume	One of two bracts at the base of a grass spikelet.
groundwater	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.
gymnosperm	Plants in the class Gymnospermae that have seeds which are not enclosed in an ovary.
gynodioecious	A species population containing plants that produce bisexual (perfect) flowers, and plants that produce only female (pistillate) flowers.
gynoecium	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.
hastate	Spear like. Shaped like an arrowhead, but with basal lobes pointing outward rather than downward.
haustorium	The absorbing organ of a parasite or hemiparasite.
hemi-parasite	Obtains water and nutrients from the roots of other plants but also manufactures food through photosynthesis.
hemi-parasitic	Obtaining water and nutrients from the roots of other plants then manufacturing food through photosynthesis.
herbarium	The place where collections of dried/pressed plants are kept.
hermaphrodite	Having both male and female sexual characteristics and organs.
heteroblastic	Exhibiting differences in leaf shapes or forms in juvenile and adult phases of the plant.
heteroblasty	The state of being heteroblastic (i.e., exhibiting differences in leaf shapes or forms in juvenile and adult phases of the plant).
hirsute	Hairy.
hyaline	Membranous, thin and translucent.
hybrid	An individual that is the offspring of a cross between two different varieties or species.
hybridise	Breeding with a member of a different plant or type.
hydrophyte	A plant species adapted to growing in or on water or in wet situations. Aquatic or semi-aquatic.
hymenium	The fertile, spore-bearing layer of a fruitbody.
hypanthium	A ring-like, cup-shaped, or tubular structure of a flower on which the sepals, petals, and stamens are borne.
imbricate	Overlapping.
imbricating	Overlapping.
imparipinnate	Odd-pinnate, a leaf shape; pinnate with a single leaflet at the apex.
in-situ	On site conservation relating to the maintenance of plants in the wild.
inbreeding	Genetic similarity in offspring of closely related individuals.

incoherent	Not sticking together.
incursion	Entrance of a pest into an area where it is not present.
indumentum	A covering of fine hairs (or sometimes scales).
indusia	Plural of indusium, a membrane covering a sorus of a fern.
indusium	A thin tissue that covers the sorus in many ferns. Plural: indusia.
inflorescence	The arrangement of flowers on the stem. A flower head.
infundibuliform	Funnel-like.
interkeel	The space between the keel and the leaf blade.
internode	The part of an axis between two nodes; the section of the stem between leaves.
internodes	Part of a stem between two nodes.
intramarginal	Within or near the margin.
involucral bracts	The scales surrounding the flower head or capitula.
involucre	A group of bracts surrounding a flower head.
involute	With margins rolled inward toward the upper side.
irritable	Responding to touch.
jugate	Paired.
juvenile	A plant of non-reproducing size.
keel	A prominent or obvious longitudinal ridge (as in a boat).
labellar	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.
labellum	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.
lacinia	A jagged lobe.
lacinae	Jagged lobes.
lacinate	Cut into narrow, irregular lobes or segments.
lacustrine	Of or having to do with a lake, of, relating to, or formed in lakes, growing or living in lakes.
lamina	The expanded flattened portion or blade of a leaf, fern frond or petal.
lanceolate	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.
lateral	On or at the side.
lax	With parts open and spreading, not compact.
laxly	With parts open and spreading, not compact.
leaflet	One section of a compound leaf.
lemma	The lower of two bracts enclosing the flower in grasses.
lenticillate	Bark that is covered in fine lenticles (breathing pores).
ligulate	Strap-like, tongue-shaped.
ligule	The membrane between the leaf and the stem of a grass; the "petal" of a ray floret in a composite inflorescence.
linear	Long and narrow with more or less parallel sides.
littoral	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.
lobe	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> .
lobed	Part of a leaf (or other organ), often rounded, formed by incisions to about halfway to the midrib.
lobule	A small lobe or sub-division of a lobe.
lustrous	Glossy, shiny.
lycophytes	Seedless vascular plants that belong to the phylum Lycophyta (characterised by microphylls - primitive leaves found in ancient plants).
lyrate	Pinnatifid or pinnatisect terminal lobe much larger than lower lobes.
maculate	Blotched or spotted.
mangrove	Coastal wetland dominated by Manawa or mangrove <i>Avicennia marina</i> var. <i>resiiifera</i> . Northern New Zealand only, salt marsh replaces it further south.

margin	The edge or border of a leaf.
marine	Pertaining to the sea and saltwater systems.
marsh	A tract of wet land principally inhabited by partially-submerged herbaceous vegetation. Has fewer woody plants than swampier habitats.
mealy	Dry, powdery, crumbly.
median	In the middle.
membranous	Very thin, like a membrane.
mid-lobe	The middle part into which a leaf is divided.
midrib	The central or principal vein of a leaf or pinna of a fern.
mire	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.
molecular techniques	Where proteins and genes are used to investigate plant relationships.
monitoring	Recording of quantitative data over time to document changes in condition or state of species or ecosystems.
monoecious	Having male and female flowers on the same plant of the same species.
montane	Land between 300 and 800 metres above sea level.
mucronate	Tipped with a short, sharp, point.
mucronulate	Having a very small mucro; diminutive of mucronate.
multi-annual evergreen	Overlapping annual cohorts of leaves always present.
multifid	Cleft into many lobes or segments.
multiseptate	With many septa.
muricate	Rough with short, hard points like the shell of Murex, a genus of tropical sea snails with elaborately pointed shells.
mycorrhiza	A symbiotic relationship between a fungus and a plant.
mycorrhizal associations	Symbiotic association between fungi and plant roots which assists plant health by allowing increased ability for uptake of nutrients and promote plant growth.
napiform	A long swollen but tapering root – like a parsnip, or carrot.
native	Naturally occurring in New Zealand (i.e., not introduced accidentally or deliberately by humans).
naturalised	Referring to plants that have escaped from cultivation (including gardens or forest plantations) and can now reproduce in the wild (without human assistance).
nectary	Organ that produces nectar.
nerve	Prominent vein or rib.
nerves	Strands of conducting and usually strengthening tissue in a leaves or similar structures.
net veins	Veins that repeatedly divide and re-unite.
net venation	Feather-like or hand-like venation on a leaf.
nival	Growing at high altitudes. From Latin: nivalis, snowy etc. from nix, nivis, snow.
node	The point at which leaves, branches or roots arise on a stem.
ob-	Prefix meaning inverted, in reverse direction.
obcordate	Heart shaped with the notch at the apex.
oblanceolate	Tapering and widest towards the apex or inversely lanceolate.
oblique	Slanting; of a leaf, larger on one side of the midrib than the other, in other words asymmetrical.
oblong	Rectangular.
obovate	Roughly elliptical or reverse egg shaped and widest near the apex (i.e., the terminal half broader than the basal half).
obtuse	Blunt or rounded at the apex, with the sides meeting at an angle greater than 90°.
operculate	With a small lid.
opposite	A pair of organs attached at nodes in pairs on either side of a stem or axis.
orbicular	Almost or approximately circular.
outbreeding depression	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.

outer canopy deciduous	Marked reduction in leaf number in the outer canopy in exposed high light environments over winter.
oval	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.
ovary	Part of a flower containing the ovules and later the seeds.
ovate	Egg-shaped and widest at base.
ovoid	Oval; egg-shaped, with rounded base and apex.
pakihi	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.
palea	The small upper bract enclosing the flower of a grass.
palea	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'.
paleae	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).
palmately	Radiating from a point, as fingers radiating from the palm of a hand.
palmatifid	Deeply divided into several lobes arising from more or less the same level.
palmatisect	Intermediate between palmate and palmatifid, i.e. the segments are not fully separated at the base; often more or less digitate.
palustrine	Pertaining to wet or marshy habitats. Term covers mires and marshes.
pandurate	Fiddle-shaped.
panicle	Highly branched (multiple raceme).
papilla	A short rounded projection.
papillae	A soft, fleshy projection, usually small and nipple-like.
papillate	With short rounded projections.
papillose	Warty, with short rounded projections or gland-dotted.
parallel venation	Veins are parallel along leaf.
parasite	An organism that derives all its nourishment from its host.
patent	Spreading or expanded, e.g., spreading petals.
peat	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 ₂) to the atmosphere.
pedicel	The stalk of a single flower in an inflorescence or fruit (either in a cluster or existing singularly).
peduncle	The stalk of a solitary flower or the main stalk of an inflorescence or flower cluster.
pedunculate	Describing fruits, which are borne on a stalk (a peduncle).
pellucid	Transparent.
peltate	Shield-like, with the stalk attached well inside the margin.
pendent	Hanging down from its support.
pendulous	Hanging or drooping.
penicillate	With a tuft of hairs at the end, like a brush.
perennial	A plant lasting for three seasons or more.
perianth	A collective term for the calyx (sepals or tepals) and corolla (petals) of the flower, especially when these are indistinguishable.
petal	Part of flower inside the sepals; usually coloured.
petiolate	Having a petiole.

petiole	Leaf stalk.
phloem	The vascular tissue in land plants that is primarily responsible for the distribution of sugars and nutrients manufactured in a shoot.
photopoint	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.
pilose	Bearing long, soft hairs.
pinna	A segment of a divided lamina that is classified as primary, secondary or tertiary according to the degree of dissection of the lamina.
pinnae	Divisions of a pinnate leaf.
pinnate	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.
pinnatifid	Pinnately lobed, cleft more than halfway to the midrib. Not cleft all the way to the rachis.
pinnatisect	Pinnately divided almost to midrib but segments still confluent.
pioneer	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.
pistil	The female reproductive organ of a flower, consisting of an ovary, style, and stigma.
pistillate	A flower with one or more pistils, but no stamens.
plano-convex	Flat on one side, convex on the other.
plumose	Feathery.
podzol	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.
pole	A subcanopy size individual with a long thin trunk and foliage tuft of a potential canopy tree.
pollinia	Compact masses of orchid pollen.
population enhancement	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.
porrect	Extending forward.
procumbent	Lying and flat along the ground but not rooting.
propagate	To reproduce a plant by sexual (i.e., from seed) or asexual (e.g., from cuttings) means.
prostrate	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).
provenance	The place of origin (of a plant that is in cultivation).
proximal	Toward the base or point of attachment (cf. distal).
pseudobulb	Thickened surface stem; usually looking like a bulb.
pseudoterminal	Falsely terminal – as in a bud which appears to occupy a terminal position but does not.
puberulent	Minutely clad in short, soft hairs.
pubescence	Covering of soft, fine hairs.
pubescent	Covered in short, soft hairs.
pungent	Ending in a stiff sharp point.
pustule	Small blister-like elevation.
quadrate	Square, rectangular.
raceme	An unbranched, elongated inflorescence with pedicellate flowers maturing from the bottom upward i.e., flowers attached to the main stem by short stalks.
rachis	The axis of an inflorescence or of a compound leaf.
ray	An outer ring of strap-like florets in the head of Asteraceae (daisy) flowers.
re-introduction	Translocating wild or cultivated individuals to sites where the taxon has been known to occur in the past, but from which it has disappeared.
recurved	Curved backward.
reflexed	Bent back on itself.
reniform	Kidney shaped.
repand	With a slightly wavy margin.
replum	The outer structure of a pod in which the valves have dehisced (persists after the opening of the fruit).

restiad	Area dominated by rush-like plants (collectively known as restiads) of the family Restionaceae. Includes Chatham Island and North Island Sporodanthus and oioi (<i>Apodasmia similis</i>).
retorse	Pointing backward.
retuse	A shallow notch at the rounded or blunt apex of a leaf.
rhizoid	Any of various slender filaments that function as roots in mosses and ferns and fungi.
rhizomatous	With underground creeping stems.
rhizome	An underground stem (usually spreading horizontally or creeping) or short and erect.
rhombic	Diamond-shaped.
rhomboid	Diamond shaped, nearly rhombic.
riparian	Relating to or living or located on the bank of a natural watercourse (as a river) or sometimes of a lake or a tidewater.
riparian margin	Refers to the edges of streams, rivers, lakes or other waterways.
riparian plants	Refers to plants found growing near the edges of streams, rivers or other waterways.
riparian zone	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".
riverine	Pertaining to rivers, streams and such like flowing water systems.
rootstock	A short, erect, underground stem.
rosette	A radiating cluster of leaves.
rostellum	In orchids, a modified stigma that prevents self-fertilisation.
rosulate	A dense radiating cluster of leaves.
rugose	Wrinkled.
rugulose	Having small wrinkles.
runcinate	Sharply pinnatifid or cleft, the segments directed downward.
runner	A trailing stem that roots at the nodes.
rupestral	Growing on rocks.
rushes	A group of distinctive wetland plants. They have solid stems (grasses have hollow stems), true rushes <i>Juncus</i> sp. have rounded leaves.
sagittate	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.
salt marsh	A coastal wetland, with specialized salt tolerant plants (halophytes).
sapling	A juvenile tree that has reached the stage of 1 or 2 main stems but is still in the shrub layer.
saprophyte	A plant lacking chlorophyll and living on dead organic matter.
saprophytic	Lacking chlorophyll and living on dead organic matter.
sarcotesta	The fleshy, often highly coloured outer layer of the seed coat in some species, e.g., titoki (<i>Alectryon excelsus</i>).
scabrid	Roughened or rough with delicate and irregular projections.
scale	Any thin, flat, membranous structure.
scape	A leafless flower stem.
schizocarp	A fruit which splits when dry, from the Greek <i>skhizein</i> 'split' and <i>karpos</i> 'fruit'.
schizocarps	Plural of schizocarp, a fruit which splits when dry, from the Greek <i>skhizein</i> 'split' and <i>karpos</i> 'fruit'.
scutiform	Shield-shaped.
sedges	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".
seedling	A newly germinated plant.
self sustaining	Able to sustain itself, or replace itself, independently of management i.e. regenerate naturally.
self thinning	Natural tree death in a crowded, even-aged forest or shrubland.
semi-deciduous	Partial leaflessness in winter, and greater than 50% leaves lost by the beginning of spring flush.
sepal	Outer part of flower; usually green.
serrate	Sharply toothed with teeth pointing forwards towards apex.
serrulate	Finely serrate, i.e., finely toothed with asymmetrical teeth pointing forward; like the cutting edge of a saw.

sessile	Attached by the base without a stalk or stem.
seta	The stalk of a fruiting moss capsule.
sheath	A portion of an organ that surrounds (at least partly) another organ (e.g., the tubular envelope enclosing the stem in grasses and sedges).
silicles	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).
silique	A capsule, usually 2-celled, with 2 valves falling away from a frame (replum) bearing.
simple	Of one part; undivided (cf compound).
sinuate	With a wavy margin.
sinus	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.
sorus	A cluster of two or more sporangia on the margin or underside of the lamina of a fern, sometimes protected by an indusium.
spathulate	Spatula or spoon-shaped, a rounded blade tapering gradually to the base.
spheroidal	Almost spherical but elliptic in cross section.
spicate	Arranged in a spike.
spike	Flowers attached to main stem without stalks.
spikelet	Collection of individual grass florets borne at the end of the smallest branch of the inflorescence.
sporangia	Plural of sporangium. Structures in which spores are produced.
sporangium	Structure in which spores are produced.
spore	A single-celled reproductive unit similar in function to that of the seed in a flowering plant.
sporophyte	The spore producing plant in ferns that is usually the visible part.
stamen	The male reproductive organ of a flower where pollen is produced. Consists of an anther and its stalk.
stamens	The male, pollen bearing organ of a flower.
standing water	Where water lies above the soil surface for much of the year.
stellate	Irregularly branched or star shaped.
stigma	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.
stipe	The stalk of a frond.
stipitate	Borne on a stipe or stalk.
stipulate	A leaf with stipules.
stipule	A scale-like or leaf-like appendage at the base of a petiole, usually paired.
stolon	A stem which creeps along the ground, or even underground.
stoloniferous	Producing stolons.
stramineous	Chaffy, like straw or straw-colored.
stria	A fine line or groove.
striae	Fine lines or grooves.
striate	Fine longitudinal lines or minute ridges.
style	The elongated part of the flower between the ovary and the stigma.
sub-	A prefix meaning under, somewhat or almost.
subglabrous	Very slightly, but persistently, hairy.
suborbicular	Slightly rounded in outline.
substrate	The surface upon which an orchid grows.
subtended	Immediately beneath, occupying a position immediately beneath a structure, i.e., flower subtended by bract.
subulate	Slender and tapering to a point.
succession	Progressive replacement of one species or plant community type by another in an ecosystem.
successional	Referring to species, plant communities or habitats that tend to be progressively replaced by another.
succulent	Fleshy and juicy.

summer-green	Used in New Zealand to indicate herbs or sub-shrubs that die down to a root stock or rhizomatous network.
supplementary planting	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.
surface water	Water present above the substrate or soil surface.
surveillance	Regular survey for pests inside operational and managed areas e.g. nurseries, standout areas on parks.
survey	Collection of observations on the spatial distribution or presence or absence of species using standardised procedures.
sustainable land management	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.
swamp	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.
symbiote	An organism that has an association with organisms of another species whereby the metabolic dependence of the two associates is mutual.
symbiotic	The relation between two different species of organisms that are interdependent; each gains benefits from the other (see also symbiosis).
sympatric	Occupying the same geographical region.
synangia	Structures made up of fused sporangia.
synonym	A botanical name that also applies to the same taxon.
systematics	The study of taxonomy, phylogenetics, and taxagenetics.
tabular	Shaped like a rectangular tablet.
taxa	Taxonomic groups. Used to refer to a group at any level e.g., genus, species or subspecies.
taxon	A taxonomic group. Used to refer to a group at any level e.g., genus, species or subspecies.
taxonomy	The process or science of classifying, naming, and describing organisms.
tepal	An individual member of the perianth.
terete	Cylindrical and tapering.
terminal	At the tip or apex.
ternatifid	Leaflets in threes,.
tetrad	A group of four.
tomentum	A hairy covering of short closely matted hairs.
translocation	The movement of living organisms from one area to another.
trifid	Divided into three.
trifoliate	Having three leaflets.
trigonus	Three-angled.
tripinnate	With each secondary pinna divided to the midrib into tertiary pinnae.
triquetrous	Triangular in cross section and acutely angled.
truncate	With the apex or base squared at the end as if cut off.
tuberculate	Bearing small swellings.
tubular	Tube-shaped.
turbinate	Top-shaped.
turgid	Distended through internal pressure.
type locality	The place or source where a holotype or type specimen was found for a species.
ultramafic	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.
umbel	Umbrella like; the flower stalks arise from one point at the stem.
undulate	Wavy edged.
undulose	Wavy edged.

unitubular	A tube partitioned once – literally one tube (compare – multitubular – many tubes).
utricle	A thin loose cover enveloping some fruits (eg., <i>Carex</i> , <i>Uncinia</i>).
valvate	Opening by valves.
vascular plant	A plant that possesses specialised conducting tissue (xylem and phloem). This includes flowering plants, conifers and ferns but excludes mosses, algae, lichens and liverworts.
velutinous	Thickly covered with delicate hairs; velvety.
ventral	Of the front or inner (adaxial) surface relative to the axis. (cf. dorsal).
vermiform	Worm-shaped.
vernucose	Glossy, literally as if varnished, e.g., <i>Hebe vernucosa</i> has leaves than appear as if varnished.
verrucose	Having small rounded warts.
verticillium	A fungus disease that will cause wilting and death.
villous	Covered with long, soft, fine hairs.
water table	The level at which water stays in a soil profile. The zone of saturation at the highest average depth during the wettest season.
wetland	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 a aquatic or semi-aquatic environment.
whipcord	A shrub in which the leaves are reduced to scales that are close-set and pressed against the stem.
whorl	A ring of branches or leaves arising at the same level around the stem of a plant.
whorled	Aranged in a ring around the stem.