Plant Field Guide for Rēkohu

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Made on the New Zealand Plant Conservation Network website – www.nzpcn.org.nz

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, threatened mosses, liverworts and fungi.

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

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

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

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

The New Zealand Botanic Region

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

About the Network

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

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

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

That work has included:

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

What is a threatened plant?

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

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

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

Astelia chathamica

Common Name(s):
Chatham Island astelia or kakaha, Moriori flax

Current Threat Status (2012):
At Risk - Recovering

Distribution:
Endemic to the Chatham Islands where it is known from Chatham Island and Pitt Island.

Habitat:
Kakaha occupies a range of moist sites. It can be found on forest floors, cliffs, rock bluffs, lakeshore scarps and stream margins, as well as in swamps. It was formerly widespread, but now tends to be restricted to sheltered, rocky, or protected spots in the bush or scrub where it is safe from grazing.

Flowering:
October - December

Fruiting:
February - July

Threats:
Browsing and physical destruction by stock and feral animals have impacted severely on this species.

***Attribution:**
Fact Sheet prepared for NZPCN by P.J. de Lange 1 August 2003.

References and further reading:
Walls, G.; Baird, A.; de Lange, P.J.; Sawyer, J.W.D. 2002: Threatened plants of the Chatham Islands. Wellington, Department of Conservation.

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

For more information, visit:
http://nzpcn.org.nz/flora_details.asp?ID=49

Caption: Flowers. Cultivated plant, Dunedin
Photographer: John Barkla

Caption: Otoi Creek, Chatham Islands
Photographer: John Sawyer

Austroderia turbaria

Common Name(s):
Chatham Island toetoe

Current Threat Status (2012):
Threatened - Nationally Endangered

Distribution:
Endemic to the Chatham Islands. Found on both Chatham and Pitt Islands.

Habitat:
A species usually found on the margins of slowly flowing streams draining peat bogs, or on lake margins. It has also been found in light wells created by tree falls within swamp forest.

Features*:
Tall, hermaphrodite, tussock of wetlands. Leaf-sheath inter-nerves and margins conspicuously hairy. Ligule 2 mm. Collar underside glabrous, top side sparsely hairy. Leaf-blade up to 1.5 x 0.15 m, glaucous, tapering to long, thin point; under surface with long inter-rib hairs, upper surface with conspicuous, dense, weft of hairs at base otherwise glabrescent; lamina margins scabrid. Culm to 2 m, internodes glabrous. Inflorescences 400-800 mm, dense, plumose, drooping, branches and pedicels covered in copious long hairs, these longer than spikelet. Spikelets with 2 florets. Glumes equal, 25 mm or less, 1-nerved, thin; upper with 10 mm or less hairs, lower less hairy or glabrous. Lemma 9 mm. Palea 7 mm, long-hairy, apex hair-tipped, keels ciliate. Callus hairs 3 mm. Rachilla 1 mm, glabrous. Anthers 1.7-2.6 mm. Gynoecium with ovary to 0.8 mm, stigma-styles 2.5 mm. Seeds ovate, rugose, 3 mm.

Flowering:
October - January

Fruiting:
December - July

Threats:
This plant is one of the most threatened in the Chathams archipelago. As of 2005 there are ten wild populations and 344 mature plants known. These occur in often small and widely fragmented locations and so remain highly vulnerable to catastrophic events. Browsing and trampling by cattle is a major problem, and the species is also greedily devoured wherever sheep and pigs can reach it. There is some indication that fungal diseases such as Fusarium wilt may have been responsible for the recent near loss of this species from the northern part of Chatham Island. Fire, floods and competition from other vegetation are also threats. The species is also at some risk through hybridism with species of New Zealand toetoe that have been introduced to the Chatham Islands.

Caption: Adult plant in full flower
Photographer: Gillian M. Crowcroft, February 1996, Harold Pierce Reserve, Waitangi West, Rekohu (Chatham Island)

Caption: In cultivation ex Pitt Island. Oct 2007.
Photographer: Jeremy Rolfe

***Attribution:**
Fact sheet prepared for NZPCN by P.J. de Lange 1 October 2006. Description adapted from Edgar & Connor (2000).

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

Thorsen, M. J.; Dickinson, K. J. M.; Seddon, P. J. 2009. Seed dispersal systems in the New Zealand flora. Perspectives in Plant Ecology, Evolution and Systematics 11: 285-309

For more information, visit:
http://nzpcn.org.nz/flora_details.asp?ID=14

Brachyglottis huntii

Common Name(s):
Rautini, Chatham Island Christmas tree

Current Threat Status (2012):
Threatened - Nationally Vulnerable

Distribution:
Endemic to the Chatham Islands. Found on both Chatham Island and Pitt Island. It was once much more common and widespread on Chatham Island but has declined seriously over the last century. On Pitt Island it is still quite widespread; expanding where stock and feral animals are in low numbers, but diminishing elsewhere.

Habitat:
Brachyglottis huntiii prefers frequently disturbed and/or early successional habitats, such as those found along stream and river sides, open shrubland, drier swamps, and along ridge crests. It is usually found growing on permanently moist forest and restiad peats and cannot tolerate protracted periods of drought, or heavy shade.

Features*:
Aromatic, small woody tree up to 6 x 6 m. Bark grey, flaking usually in small shards. Branches stout, spreading, usually bearing numerous leaf scars, leaf toward apex, dead leaves long persistent. Leaves 70-180 x 20-40 mm, ovate, elliptic-lanceolate, grey green, apex subacute, lamina entire or finely toothed in upper third; buds and emergent leaves viscid, resinous, rather aromatic, initially densely clad on both surfaces with fulvous tomentum, becoming glabrescent with age. Inflorescences in dense, terminal panicles, subtended by leaves, all parts viscous, resinous. Pedicels stout, 5-15 mm long, densely glandular pubescent. Capitula 20-30 mm diam., involucral bracts 10-12(-15), narrow-oblong, obtuse to subacute, grey-green, glandular on under sides, ciliate on margins, apex surmounted by a conspicuous tuft of hairs. Ray-florets 15-20, ligules c. 10 mm long, yellow, broad, recurving with age. Cypsela (seeds) 1.5-1.8 mm long, narrow-oblong, pale brown to brown, grooved, glabrescent; pappus-hairs 5-7 mm long, off-white, slender, distinctly barbellate.

Flowering:
November - February

Fruiting:
Late summer and early autumn

Threats:
Brachyglottis huntii was once much more common and widespread on Chatham Island but has declined seriously over the last century. On Pitt Island it is still quite widespread; expanding where stock and feral animals are in low numbers, but diminishing elsewhere. Threats are myriad and include habitat destruction; browsing and trampling by cattle, sheep, pigs and possums. While fire can destroy plants the disturbance caused can also provide fresh sites for seedlings to colonise.

Caption: Chatham Islands
Photographer: Peter de Lange

Caption: Chatham Islands
Photographer: Peter de Lange

***Attribution:**
Fact Sheet prepared for NZPCN by P.J. de Lange 11 March 2004. Description subsequently published in de Lange et al. (2010)

References and further reading:
de Lange, P.J.; Heenan, P.B.; Norton, D.A.; Rolfe, J.R.; Sawyer, J.W.D. 2010: Threatened Plants of New Zealand. Christchurch, Canterbury University Press.

Thorsen, M. J.; Dickinson, K. J. M.; Seddon, P. J. 2009. Seed dispersal systems in the New Zealand flora. Perspectives in Plant Ecology, Evolution and Systematics 2009 Vol. 11 No. 4 pp. 285-309

For more information, visit:
http://nzpcn.org.nz/flora_details.asp?ID=52

Coprosma chathamica

Common Name(s):
Chatham Island karamu, karamu

Current Threat Status (2012):
At Risk - Naturally Uncommon

Distribution:
Endemic. Chatham Islands group: Rekohu (Chatham Island), Rangiauria (Pitt Island) and Rangatira (South-east Island)

Habitat:
Coastal and inland forest. Mostly on peat and usually in sites that are at least temporarily waterlogged but also on limestone, schist and basalt outcrops in free draining situations. An important canopy tree which co-associates with matipo (Myrsine chathamica) on free draining soils, and swamp akeake (Olearia telmatica) in the waterlogged soils in the lowlands to form one of the main forest types. It is also prominent with tarahinau (Dracophyllum arboreum) in the southern tablelands forests, and less frequently with akeake (Olearia traversiorum) in dune forest and overlying basalt or schist.

Features*:
Tree up to 15 m tall; trunk up to c.600 mm diameter; branches and branchlets rather stout, densely pubescent when young. Leaves on short 8-10 mm long fleshy-coriaceous petioles. Stipules triangular, pubescent, densely ciliate; apical denticle prominent black, surrounded on either side by 2-4 smaller denticles. Lamina of juvenile leaves subcoriaceous, 45-75 × 20-45 mm, dark green to green, broadly ovate to ovate-oblong, obtuse, mucronulate, base cuneately narrowed, margins often hairy; adult lamina 20-35 × 15-30 mm, dark green and rather glossy above, paler below, ovate to ovate-oblong, elliptic to oblong-elliptic, obtuse, mucronulate, base cuneately narrowed, margins slightly recurved, entire to distinctly undulose. Reticulated veins not or scarce evident above, evident below. Male flowers solitary or in clusters of up to 6 on shortly branched axillary peduncles; calyx 0 or vestigial; corolla funnelform, lobes 5, acuminate, > tube. Female flowers 1-6 together; calyx-teeth short, ciliolate; corolla tubular, lobes ovate, acute, > tube. Drupe yellow-red to orange, obovoid, slightly compressed to subdidymous, c.9-12 × 9-14 mm.

Caption: Bark. Te Henga, Chatham Island. May 2013.
Photographer: Jeremy Rolfe

Caption: Chatham Islands
Photographer: John Sawyer

Flowering:
August - December

Fruiting:
November - May

Threats:
An Island endemic that is not really threatened. One of the major forest trees on the Chatham Islands.

***Attribution:**
Description based on Allan (1961) and supplemented with additional measurements and observations taken from herbarium specimens and wild plants.

References and further reading:
Allan, H.H. 1961: Flora of New Zealand. Vol. I, Government Printer, Wellington.

Thorsen, M. J.; Dickinson, K. J. M.; Seddon, P. J. 2009. Seed dispersal systems in the New Zealand flora. Perspectives in Plant Ecology, Evolution and Systematics 11: 285-309

For more information, visit:
http://nzpcn.org.nz/flora_details.asp?ID=1704

Corokia macrocarpa

Common Name(s):
Hokataka, whakataka

Current Threat Status (2012):
At Risk - Naturally Uncommon

Distribution:
Endemic to the Chatham Islands and is found on Chatham, South East, Pitt and Mangere islands.

Habitat:
This small tree or shrub occurs at sites near the sea, but can be found in a range of habitats, including open forest, cliffs, limestone outcrops and near lakes and lagoons, as well as rocky shores and beaches.

Features:
A small tree that can grow up to 6 m tall and has dark brown bark. The leaves are leathery, slightly curled at the margins and may vary in size depending on the habitat. It produces yellow flowers from November to April, while the orange or yellow fruit can be seen throughout the year.

Flowering:
November - April

Fruiting:
Throughout year

Caption: Te Henga, Chatham Island. May 2013.
Photographer: Jeremy Rolfe

Caption: Photo by John Smith-Dodsworth

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

Thorsen, M. J.; Dickinson, K. J. M.; Seddon, P. J. 2009. Seed dispersal systems in the New Zealand flora. Perspectives in Plant Ecology, Evolution and Systematics 11: 285-309

For more information, visit:
http://nzpcn.org.nz/flora_details.asp?ID=457

Corynocarpus laevigatus

Common Name(s):
Karaka, kopi

Current Threat Status (2012):
Not Threatened

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 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.

Features*:
Leafy canopy tree up 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).

Caption: Seedlings. Lake Westmere, Whanganui. Feb 2013.
Photographer: Colin Ogle

Caption: Seedlings. Lake Westmere, Whanganui. Feb 2013.
Photographer: Colin Ogle

Flowering:
August - November

Fruiting:
January - April

Threats:
Abundant and not threatened. Often naturalising in suitable habitats.

***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.

Thorsen, M. J.; Dickinson, K. J. M.; Seddon, P. J. 2009. Seed dispersal systems in the New Zealand flora. Perspectives in Plant Ecology, Evolution and Systematics 11: 285-309

For more information, visit:
http://nzpcn.org.nz/flora_details.asp?ID=1762

Disphyma papillatum

Common Name(s):
Chatham Island ice plant

Current Threat Status (2012):
At Risk - Naturally Uncommon

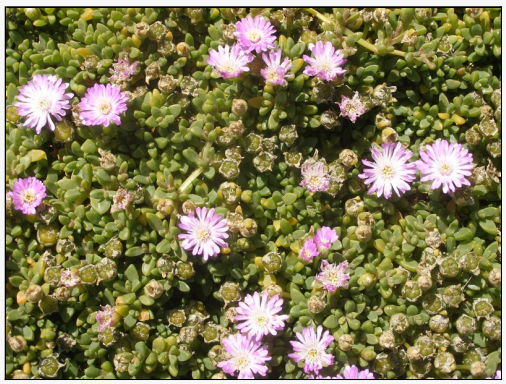
Distribution:
Endemic: Chatham Islands: Rekohu (Chatham), Rangiuaria (Pitt), Rangatira (South East), Mangere, Little Mangere, Rabbit, Castle, Forty Fours, Star Keys, Sisters and Western Reef

Habitat:
Abundant on coastal rocks, cliffs and gravels, often in very exposed, inhospitable sites.

Features*:
Trailing, succulent herb. Stem flattened, 2-angled, glabrous. Leaves 3-angled, acute, tapering to connate base, 4-30 × 5-6 mm; margins papillate. Flowers 20-40 mm diameter. Petals uniformly white, pink, dark blue or purple, in 3-5 rows, 10-30 mm long. Stamens 5-6 mm long; inner filaments hairy at base. Stigmas 5(-6). Capsule valves with widely divergent expanding keels; placental tubercle present, 2-lobed or reduced to a ridge. Seeds yellowish brown to brown, obovoid, distinctly papillate, c.1 mm long.

Flowering:
July - May

Fruiting:
Present throughout the year



Caption: Chatham Island
Photographer: John Sawyer

Caption: Chatham island
Photographer: John Sawyer

Threats:
Not Threatened: Abundant on coastal cliffs, rock stacks, cobble beaches, on offshore islands, and around petrel burrows in open coastal forest.

***Attribution:**
Description based on Webb et al. (1988)

References and further reading:
Webb, C. J.; Sykes, W. R.; Garnock-Jones, P. J. 1988: Flora of New Zealand. Vol. IV. Naturalised Pteridophytes, Gymnosperms, Dicotyledons. 4. Christchurch, New Zealand, Botany Division, D.S.I.R.

Thorsen, M. J.; Dickinson, K. J. M.; Seddon, P. J. 2009. Seed dispersal systems in the New Zealand flora. Perspectives in Plant Ecology, Evolution and Systematics 11: 285-309

For more information, visit:
http://nzpcn.org.nz/flora_details.asp?ID=467

Dracophyllum arboreum

Common Name(s):
Chatham Island grass tree, tarahinau

Current Threat Status (2012):
At Risk - Naturally Uncommon

Distribution:
Endemic. Chatham Islands (Rekohu (Chatham), Rangiuria (Pitt) and Rangatira (South East) Islands)

Habitat:
Dracophyllum arboreum is an important component of Chatham Island forest, especially away from the coast and on the deeper peaty soils. In these sites it is often the dominant tree. Sometimes found in restiad bog where it overlaps with and often forms hybrids with D. scoparium Hook.f.

Features*:
Tree 4–18 m tall. Bark on old branches greyish–brown to brown, finely fissured, young stems yellowish to reddish brown. Leaves dimorphic (juvenile and adult); juvenile leaves crowded at tips of branches, spreading; lamina sheath 9.0–17.0 × 7.4–16.6 mm, yellowish to light green, coriaceous, tapering and margin ciliate or ciliate in upper half only; lamina subcoriaceous to coriaceous, 100–220 × 10–18 mm, linear–triangular, surfaces glabrous, margins densely pubescent; adult leaves spreading; lamina sheath 6–12 × 4–12 mm, light green, membranous, tapering with a ciliate margin; lamina 25–90 × 1–2 mm, linear to linear–triangular, surfaces glabrous with a tuft of scabrid hairs at base of adaxial surface; margins densely pubescent. Inflorescence a terminal spike on lateral branchlets, shorter than leaves, erect to drooping, dense, 15–38 mm long, linear–oblong; inflorescence bract overtopping the flower, 18–20 × 3–5 mm, subulate, surfaces glabrous, adaxial surface pubescent at base, margins ciliate. Flowers 4–9, sessile; flower bract persistent, overtopping flowers, foliose, 5.5–9.0 × 2.5–3.0 mm, ovate to broadly ovate, surfaces glabrous, adaxial surface with a tuft of scabrid hair at apex; margins ciliate. Sepals 4.0–7.0 × 2.5–3.0 mm, ovate lanceolate, longer than corolla tube, surfaces glabrous with the top half pubescent; margins ciliate. Corolla white; corolla tube 4–5 × 2.5–3.0 mm, cylindrical; corolla lobes reflexed, 2.0–2.4 × 1.0–2.0 mm, triangular, shorter than corolla tube; apices acute; adaxial surface papillate. Stamens inserted on corolla tube in upper third, filaments 0.3–1.0 mm long; anthers included, 0.3–0.4 mm long, oblong, light yellow. Ovary 1.7–2.0 × 1.0–2.0 mm, obovate; glabrous, apex round; nectary scales, 1.0–1.2 × 0.5–0.8 mm, oblong, apices irregularly toothed; style included, 2.0–2.5 mm long, glabrous; stigma capitate. Fruit sessile, 1.2–1.5 × 1.0–1.5 mm, oblong, apex round, dark brown, glabrous. Seed 0.6–0.65 mm long, ovoid, yellowish brown, testa slightly reticulate.

Flowering:
Throughout the year

Fruiting:
Throughout the year

Caption: Otoi Stream, Ocean Bay, Chatham Island
Photographer: Gillian Crowcroft

Caption: Tuku-a-Tamatea, Chatham Islands
Photographer: Peter de Lange

Threats:
Reasonably secure and regarded as not threatened. However populations off protected land are vulnerable to clearance for farmland and fires. Many populations in the northern two thirds of the main island are remnant stands on farmed land and are in decline. Despite this tarahinau is abundant over much of the southern table lands and on Pitt Island.

***Attribution:**
Fact sheet prepared for NZPCN by P.J. de Lange (4 October 2012). Description adapted from Venter (2009) supplemented by authors own observations and measurements.

References and further reading:

Venter, S. 2009: A taxonomic revision of the genus *Dracophyllum* Labill. (Ericaceae). Unpublished Phd Thesis, Victoria University of Wellington, Wellington.

Thorsen, M. J.; Dickinson, K. J. M.; Seddon, P. J. 2009. Seed dispersal systems in the New Zealand flora. Perspectives in Plant Ecology, Evolution and Systematics 11: 285-309

For more information, visit:
http://nzpcn.org.nz/flora_details.asp?ID=469

Leptecophylla robusta

Caption: Chatham Islands
Photographer: John Sawyer

Caption: Chatham Islands
Photographer: John Sawyer

Common Name(s):
Poutereterе

Current Threat Status (2012):
At Risk - Naturally Uncommon

Distribution:
Endemic. Chatham Islands (Chatham, Pitt and South-East Islands)

Habitat:
Coastal and inland in forest and scrub, also within restiad bog. Occasionally, such as on the southern tablelands, forming the forest canopy. Uncommon on sand and avoids active sand dune systems.

Features*:
Dioecious shrub or small tree to 8 m tall. Bark firm, dark grey to grey-brown, fibrous ± tessellated and deeply furrowed. Stems grey-brown or grey. Branchlets yellow-brown, orange-brown or brown, rounded, puberulent. Leaf buds prominent, glabrescent, hairs white, sericeous. Leaves erect or spreading, dark green, purple-green or bronze-green above, pale green or cream below, ovate or oblong, 9.9-16.2 × 2.2-3.4 mm wide, flat, apex obtuse, with a callus tip; margin recurved slightly, glabrous or ciliolate only at the apex, upper surface glabrous, lower surface with intervenal papillae and 6-8 conspicuous veins; petiole 1.3-2.8 mm long, upper surface puberulent. Flowers sickly-sweet fragrant, solitary, terminal and axillary, erect, pedicel of male flowers 3.1-4.1 mm long, 2.4-3.2 mm long in females; bracts triangular, 0.7-9.0 × 0.9-1.4 mm, apices obtuse, glabrous outside, ciliolate on the margins toward the apex; bracteoles and sepals glabrous, conspicuously striate when dry; bracteoles 9-12 per flower, imbricate, 1.7-2.2. × 1.5-2.1 mm; sepals ovate, 2.1-2.6 × 1.6-2.1 mm. Corolla tube white to cream, usually equal to calyx, thin U-shaped, 1.7-2.0 mm long; lobes white or cream, more or less equal to tube 1.7-2.1 mm long, apices broadly acute, glabrous or internally occasionally sparsely hairy. Anthers of male flowers 1.1-1.4 mm long, usually enclosed within the corolla; filaments 0.4-0.7 mm long. Ovary spherical 0.7-1.1 × 0.9-1.1 mm, glabrous, 4-5-celled; style straight, glabrous, tapering to the ovary, 1.1-1.4 mm long in males, 0.9-1.2 mm long in females; stigma 0.1 mm high; nectary continuous, 0.4-0.7 mm tall, upper margin usually coarsely toothed. Drupe red, pink or white, fleshy, spherical, 5-8 × 6-10 mm. Endocarp transversely broadly elliptic to transversely elliptic, terete 2.8-4.3 × 3.5-5.0 mm, with c.20 indistinct longitudinal ridges; apex rounded to an apiculate end; base rounded or obtuse, with a small hollow. Surface dark brown weathering to light brown, irregularly granular. Internally 2-5-celled, with up to 5 of these filled.

Flowering:
Throughout the year

Fruiting:
Throughout the year

Threats:
A naturally uncommon species abundant on the main Chatham Islands. It is not especially palatable and so persists in rough pasture and other land accessible to stock. It is mostly threatened by land clearance and its local use for fire wood.

***Attribution:**
Description modified from Weiller (1999). Endocarp description from Webb and Simpson (2001).

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

Weiller, C.M. 1999: Leptecophylla, a new genus for species formerly included in Cyathodes (Epacridaceae). Muelleria 12: 195-214.

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

For more information, visit:
http://nzpcn.org.nz/flora_details.asp?ID=560

Melicytus chathamicus

Common Name(s):
Chatham Island mahoe

Current Threat Status (2012):
At Risk - Naturally Uncommon

Distribution:
Endemic to the Chatham Islands. Present on Chatham (Rekohu), Pitt, South East (Rangitira), Mangere and Little Mangere Islands

Habitat:
A common component of coastal forests, occurring on fertile ground in bush remnants and in coastal scrub.

Features:
A tree that grows up to 8 m tall and has pale bark. The leaves are up to 12 cm long, leathery, lance-shaped and toothed, with either pale green or bright red leaf stalks. The tiny flowers can be seen in spring, while the fruit are white berries speckled with purple, which have been recorded from September to April. Male and female flowers occur in separate plants.

Flowering:
Spring.

Fruiting:
September - April

Threats:
Browsing animals can prevent regeneration and long exposure of forest remnants to grazing has commonly resulted in the loss of this species from the forest.

For more information, visit:
http://nzpcn.org.nz/flora_details.asp?ID=582

Caption: Melicytus chathamicus
Photographer: Peter de Lange

Caption: Melicytus chathamicus
Photographer: Peter de Lange

Myosotidium hortensia

Caption: Kaingaroa, Chatham Islands
Photographer: John Sawyer

Caption: Otauwe, Chatham Island
Photographer: John Sawyer

Common Name(s):
Chatham Island Forget-me-not, Kopakopa, Kopukapuka

Current Threat Status (2012):
Threatened - Nationally Vulnerable

Distribution:
Endemic to the Chatham Islands. Found on Chatham (Rekohu), Pitt, South East, Mangere and most of the smaller islands, islets and some rock stacks.

Habitat:
Coastal cliffs, rock outcrops, sandy and rocky beaches just above the strand zone and coastal forest openings.

Features*:
Robust, perennial herb, forming patches up to 1 m tall by 1.0–1.5 m diameter. Root stock stout, cylindric, rather fleshy, where emergent covered in numerous leaf scars, becoming woody with age. Petioles 0.1–0.5 m long, grooved above, channelled below. Lamina of basal leaves up to 0.4 m across, dark green to yellow-green, broadly ovate-cordate to reniform, thick, fleshy to coriaceous; upper surface glossy, glabrous; lower surface paler, minutely and evenly covered in retrorse hairs; margins entire; veins prominent, indented above, elevated below. Inflorescences lateral corymbose cymes, somewhat woody at base, with stem leaves; lower stem leaves similar to basal leaves, upper stem leaves smaller, oblong to broadly lanceolate or elliptic. Cymes 100–200 mm diameter, pedicels 10–15 mm long. Calyx lobes 5, 1.8–4.5 × 2.0–2.5 mm, broadly elliptic, covered in appressed hairs, apex obtuse, margin entire. Corolla 12–15 mm diameter, dark blue to pale blue, often flushing purple with age, occasionally white; lobes 5, 4.0–4.5 × 5.0–6.0 mm, orbicular, rounded, spreading, overlapping, apex obtuse; tube 2 mm long, throat partially occluded by 5 fleshy protuberances. Filaments c. 0.5 mm long, inserted near throat; anther included, 1.0–1.2 mm long. Ovary 4-lobed, style 0.7–1.0 mm long, stigma capitate. Fruit a nutlet, 10–15 mm diameter, brown to black, winged around margin; seed obovate, 7.5–9.0 mm long, testa black-brown.

Flowering:
September - November

Fruiting:
October - May

Threats:
Formerly abundant around the coasts and islets, the range of M. hortensia has been significantly reduced to scattered remnants by farming, competition from marram grass (Ammophila arenaria) and the depredations of feral animals, such as cattle, horses, sheep, possums, pigs, rats and weka who trample, uproot and browse plants. Possums, rodents, and weka are serious predators of flowers and fruits. Weed encroachment, especially by marram grass, has eliminated this species from most of its former dune habitat. Removing whole plants for private use in gardens is an ongoing problem for the more accessible populations. Coastal development destroyed the only known white-flowered wild plants, and remains a potential threat elsewhere.

***Attribution:**
Fact Sheet prepared for NZPCN by P.J. de Lange 1 February 2008. Description based on de Lange et al. (2010).

References and further reading:

de Lange, P.J.; Heenan, P.B.; Norton, D.A.; Rolfe, J.R.; Sawyer, J.W.D. 2010: Threatened Plants of New Zealand. Canterbury University Press, Christchurch.

Garnock-Jones PJ. 2014: Evidence-based review of the taxonomic status of New Zealand's endemic seed plant genera, New Zealand Journal of Botany, DOI: 10.1080/0028825X.2014.902854

Heenan, P.B., Schönberger, I. 2009. Typification of Myosotis hortensia Decne., the basionym of Myosotidium hortensium (Decne.) Baill., and its synonym Cynoglossum nobile Hook.f. (Boraginaceae). New Zealand Journal of Botany, Vol. 47: 121–125

For more information, visit:
http://nzpcn.org.nz/flora_details.asp?ID=73

Myrsine chathamica

Caption: Henga, Chatham Island. May 2013.
Photographer: Jeremy Rolfe

Caption: Myrsine chathamica
Photographer: Peter de Lange

Common Name(s):
Chatham Island matipo, Chatham Island mapou

Current Threat Status (2012):
Not Threatened

Distribution:
Endemic. Abundant on the Chatham Islands, occasional on some islands and headlands of Stewart Island and the Foveaux Strait

Habitat:
On the Chatham Islands matipo (Myrsine chathamica) is an important forest species ranging from coastal sites to the table lands. Near the coast it often forms the dominant forest cover on limestone and schist outcrops, and it is tolerant of kopi (Corynocarpus laevigatus) so mixed kopi-matipo forests are commonly seen. It is less commonly found in the sand country except where sand dunes abut limestone or schist outcrops. In swamp forest it can be locally dominant and is also a major component of the forest cover on the peaty soils of the tablelands. On Stewart and the adjoining Foveaux Strait islands it forms only a minor component of the mixed coastal forest cover seen in these areas.

Features*:
Stout, densely branched, gynodioecious, spreading tree up to 12 m tall (rarely decumbent forming sprawling patches up to 5 m diameter). Trunk up to 0.20 m dbh; usually multi-trunked or branched from near base, often bearing numerous root suckers and epicormic growth in exposed conditions; bark dark red-brown, brown or grey-brown, firm (not flaking). Branches numerous, initially upright, then spreading, often twisted, lenticellate; branchlets yellow-green to orange-green, lenticellate, initially clad in 0.2-0.35 mm long, stiff, patent to erecto-patent hairs becoming glabrous with age. Leaves alternate, coriaceous, glabrous, adaxially glossy dark green to green, abaxially paler oil-glands numerous, minute (scarcely evident adaxially, more so abaxially); midrib orange to pale yellow, initially minutely pubescent, slightly raised adaxially, prominently so abaxially, venation evident; petioles 5-10 mm long, rather rigid and somewhat fleshy when fresh, finely covered in 0.2-0.35 mm long, stiff hairs. Lamina 20-75(-120) × 15-40(-80) mm, flat, dish-shaped or recurved along margins, obovate, elliptic, broad-elliptic, apex emarginate or obtuse, margins entire. somewhat thicker than rest of lamina. Inflorescence in dense (1-)3-5(-10)-flowered fascicles. Flowers greenish yellow, pale yellow, or cream, and then spotted dark red or maroon, or wine-red spotted purple-black pedicels 4.6-7.2 mm long in fuit. Pistillate flowers: calyx 1.8-2.2 mm, tube 0.3-0.76 mm, lobes 4(-5),erecto-patent, 0.8-1.1 x 0.6-0.8 mm, oblanceolate, apex acute to subacute, margins ciliolate, cilia white; corolla 2.6-3.0 mm, tube 0.34-0.38 mm,lobes 4(-5), 2.0-2.4 x 1.0 mm, elliptic to elliptic-oblong, margins densely ciliolate,cilia white, apex rounded or obtuse. Antherodes malformed, 0.42-6.0 x 0.3-0.4 mm, apiculus recurved or absent; pollen absent. Ovary 1.8 x 2.3 mm, ellipsoid. Stigma sessile, 2.2 mm diameter, tholiform. Bisexual flowers: calyx 1.6-2.0 mm, tube 0.22-0.70 mm, lobes 4(-5), 0.6-0.9 x 0.6-0.9 mm, deltoid, margins minutely ciliolate, cilia white. Corolla 3.0-4.3 mm, tube 0.3-0.6 mm, lobes 4(-5), 2.8-4.2 × 1.4-2.0 mm, oblong-elliptic, elliptic, margins densely ciliolate,cilia white, apex obtuse to subacute. Anthers 1.9-2.1 × 0.9-1.2 mm, apiculus upright; pollen white. Ovary rudimentary or functional, if functional then 1.2-2.0 mm long. ellipsoid. Stigma sessile 2 mm diameter, tholiform. Drupe (5-)8-10 mm diameter, violet to purple, often white-spotted, globose. Endocarp 5.5-7.0 × 5.3-6.5 mm, circular or broadly elliptic, orange to light brown, surface smooth or slightly irregular, often longitudinally veined. Endocarp description adapted from Webb & Simpson (2001).

Flowering:
September - October

Fruiting:
July - February

Threats:
Not Threatened. However, Myrsine chathamica is uncommon on Stewart Island.

***Attribution:**
Fact sheet prepared for NZPCN by P.J. de Lange 11 February 2011. Endocarp description adapted from Webb & Simpson (2001).

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

For more information, visit:
http://nzpcn.org.nz/flora_details.asp?ID=1008

Olearia chathamica

Common Name(s):
keketerehe

Current Threat Status (2012):
At Risk - Declining

Distribution:
Endemic to the Chatham Islands where it is known from the southern tablelands, Pitt, Mangere and South-East Islands.

Habitat:
A small tree of rocky spurs, steep coastal cliffs and scarps and open forest developed on deep peat, mostly on steep, rocky areas inaccessible to stock. Occasionally it is found in sphagnum bogs, lake shore scarps and valley flank tree lands.

Features*:
A small tree with a rounded canopy. Leathery pointed leaves with toothed edges, glossy upper surfaces and downy white undersides. It produces sprays of large daisy flowers with white rays and pale violet to deep purple centres. It flowers from October to March and fruits from November to April. Could be confused with Chatham aster (Olearia semidentata) from which it differs in its habitat preferences, taller, heavily branched tree-form, wider darker green leaves, and white flowers with deep purple discs.

Flowering:
October - March

Fruiting:
November - April

Threats:
Threatened by fire and domestic and feral browsers (sheep, cattle, pigs and possums) and land clearance for farming. Forest degradation on the southern tablelands, as a consequence of unrestricted stock access, and feral animals also threatened this species. Recruitment failure over in many populations has resulted in moribund stands verging on the point of collapse. The species is now secure only on cliffs east of Rangaika, parts of Pitt, Mangere and South East islands.

Caption: Olearia chathamica
Photographer: Peter de Lange

Caption: Olearia chathamica
Photographer: Peter de Lange

***Attribution:**
Fact Sheet prepared for NZPCN by P.J. de Lange 1 August 2003.

References and further reading:
Walls, G.; Baird, A.; de Lange, P.J.; Sawyer, J.W.D. 2002: Threatened plants of the Chatham Islands. Wellington, Department of Conservation.

For more information, visit:
http://nzpcn.org.nz/flora_details.asp?ID=606

Olearia traversiorum

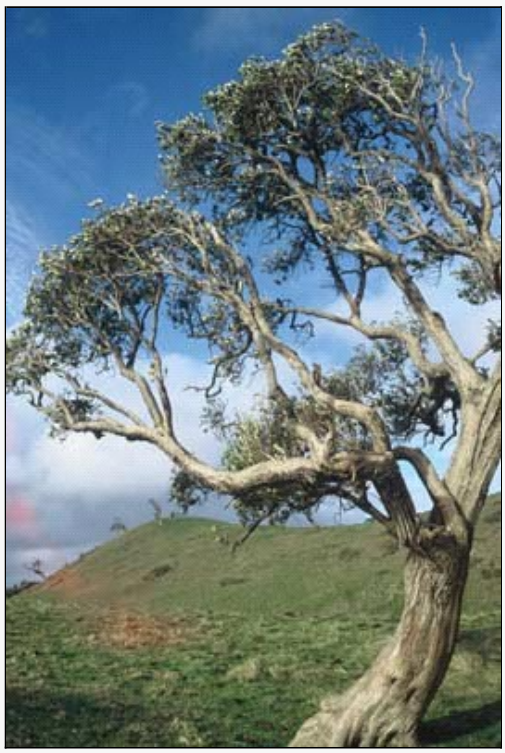
Common Name(s):
Chatham Island akeake, Chatham Island tree daisy

Current Threat Status (2012):
Threatened - Nationally Vulnerable

Distribution:
Endemic. Chatham Islands

Habitat:
A tree common of lowland forests, now most commonly found on dune systems. It also occurs along the edge of larger lagoons and lakes (but only in free draining soils) and sometimes on cliff tops.

Features*:
Tree 12–18 m tall; trunks up to 1 m diameter, upright to spreading; occasionally with epicormic shoots. Bark light grey, becoming coarsely fibrous, deeply fissured, and rough textured on trunk and old branches; branchlets quadrangular, stout, 2.0–2.6 mm diameter. Leaves opposite, lamina 15–80 × 10–46 mm, broadly elliptic, obovate, broad-obovate, or occasionally elliptic; upper surface dark green, glossy, midrib raised and prominent; underside with dense appressed, off-white, tomentum; apex subacute to obtuse, with a small apiculus; base cuneate to obtuse, sometimes attenuate; petiole 5–10 mm long, covered in dense appressed tomentum. Inflorescence an axillary panicle with 5–68 capitula, persistent after fruiting; primary branches in 3–6 opposite pairs; lower pairs of branches with 3–19 capitula, upper 1–3 branches each with 1–3 capitula. Bracts subtending primary branches, 2.0–5.0 × 0.8–1.2 mm, lanceolate to narrowly triangular, apex subacute. Bracteoles 2.0–3.0 × 0.5–0.8 mm, margin entire, apex subacute. Capitulum 5.0–7.0 mm long, involucre cylindric; involucral bracts 10–14, 1–2-seriate, upper surface glabrous, underside moderately to densely hairy, margins entire, apex acute to subacute; outer bracts 2.0–2.8 × 0.8–1.1 mm, narrowly triangular to elliptic; inner bracts 3.3–4.0 × 0.6–1.1 mm, lanceolate to narrow triangular. Florets 7–11 per capitulum; corolla usually cream to buff, sometimes pale yellow. Pistillate florets 3–5. Hermaphrodite florets 3–7. Style 4.5–5.5 mm long; stigmatic arms 0.4–0.6 mm long. Ovary 0.8–1.6 × 0.4–0.6 mm. Anthers 1.3–1.5 mm long, white, dehiscent in bud, apex apiculate; filaments 0.5–0.6 mm long, inserted at top of corolla tube. Seeds 1.2–2.1 × 0.6–0.8 mm, narrow-cylindric, light brown, with 4–5 pale ribs, sparsely to moderately hairy; pappus 2.2–3.3 mm long, off-white to buff, finely scabrid.



Caption: Nr Tennants Lake, Chatham Island
Photographer: Peter de Lange

Caption: Cult. July
Photographer: John Smith-Dodsworth

Flowering:
November – January

Fruiting:
January – June

Threats:
The wood of this tree is used for fence posts and as firewood.

***Attribution:**
Description based on Heenan et al. (2008). New Zealand Journal of Botany 46(4): 567-583.

For more information, visit:
http://nzpcn.org.nz/flora_details.asp?ID=609

Pseudopanax chathamicus

Common Name(s):
hoho, Chatham Island lancewood

Current Threat Status (2012):
Naturally Uncommon

Distribution:
Endemic. Chatham Islands only.

Habitat:
A tree species found in most Chatham Island forests, more common in coastal forest where the soil is moist for much of the year. Hoho often occurs in gullies or on gentle slopes, with karamu and matipo.

Features*:
Small tree to 7(-12) m tall, lower trunk us. unbranched, branchlets fleshy. Leaves alternate, leaflets absent, ascending-spreading (not deflexed in young plants). Petioles c. 15-20 cm long, sheathing branchlet at base. Leaves of juvenile 5-15 cm long, lanceolate to oblong, cuneately narrowed to short petiole, acute to subacute, coarsely serrate in upper part only; leaves of young adult thicker, subcoraiaceous, 15-30 x 3-3.5 cm, variable in shape on same plant, oblong to elliptic- to obovate-oblong, distinctly apiculate, margins serrate to sinuate to nearly entire; adult leaves similar but shorter (10-15 cm long), thicker, margins smoother, and on petiole 10-20 mm long, midrib prominent, veins evident. Inflorescence an umbel, terminal, compound; staminate (male) with 5-10 primary rays, c. 5 cm long, flowers racemosely arranged; pistillate (female) with shorter primary rays, umbellules 2-5 (or more) flowered. Ovary 5-loculed, 5-ovuled, style branches connate. Fruit fleshy, broad-oblong, 6-5 mm diam., rounded style branches retained on an apical disc, very dark purple. Seeds 5 per fruit (often only 1 or 2 viable), grooved on lateral face, 4-6(-7) mm long.

Flowering:
October - May

Fruiting:
November - September

***Attribution:**
Description adapted from Allan (1961) and Webb & 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.

For more information, visit:
http://nzpcn.org.nz/flora_details.asp?ID=646

Caption: Pseudopanax chathamicus flowers
Photographer: Peter de Lange

Caption: Pseudopanax chathamicus seedlings
Photographer: Peter de Lange

Rhopalostylis sapida

Common Name(s):
Nikau palm

Current Threat Status (2012):
Not Threatened

Distribution:
Endemic. North Island, South Island from Marlborough Sounds and Nelson south to Okarito in the west and Banks Peninsula in the east. Also on Chatham and Pitt Islands. However Chatham Islands plants have adistinct juveniel form, larger fruits, and thicker indumentum on the fronds.

Habitat:
Primarily a species of coastal to lowland forest in the warmer parts of New Zealand.

Features:
Trunk up to 15 m, stout, covered in grey-green leaf scars, otherwise green. Crownshaft 0.6(-1) m long, dark green, smooth, bulging. Fronds up to 3 m long; leaflets to 1 m, closely set (sometimes over lapping), ascending. Spathes c.300 x 150 mm., between pink and yellow, caducous. Inflorescence shortly stalked, with many branches, 200-400 mm long. Flowers sessile, unisexual, tightly packed, lilac to pink. Males in pairs, caducous, stamens 6. Females solitary, with minute staminodes, ovary 1-locular, stigmas terminal, recurved, persistent. Fruit c.10 x 7 mm, elliptic-oblong, flesh red.

Flowering:
November - April

Fruiting:
February - November

Threats:
Not Threatened

References and further reading:

Esler, A.E. 1969. Leaf fall and flowering of nikau. Wellington Botanical Society Bulletin, 36: 19-22

Greenwood, R.M. 1969. Notes on growth of young nikau plants. Wellington Botanical Society Bulletin, 36: 22-23

For more information, visit:
http://nzpcn.org.nz/flora_details.asp?ID=1259

Caption: Rhopalostylis sapida
Photographer: Pat Enright

Caption: Rhopalostylis sapida
Photographer: Pat Enright

Veronica barkeri

Common Name(s):
Barker's koromiko, Chatham Island tree hebe

Current Threat Status (2012):
Threatened - Nationally Critical

Distribution:
Endemic to the Chatham Islands. Found on Chatham, South East and Pitt Islands.

Habitat:
Forest and scrub, especially on coastal scarps, forested streamsides and the banks of incised streams. Often epiphytic on tree fern trunks.

Features*:
Tree up to 13 m tall producing a dense, rounded to conical, canopy when mature. Branches erect, old stems brown, branchlets green, red-brown or purple, pubescent, hairs uniform; internodes 3–30 mm. Leaf bud pubescent (rarely glabrous) sinus absent. Leaves erecto-patent to patent; lamina 24–90 × 4–30 mm, linear-lanceolate or lanceolate, subcoriaceous, flat to weakly concave, apex acute; margin narrowly cartilaginous, minutely pubescent (hairs eglandular), upper surface yellow-green to light green, midrib distinctly hairy, hairs glandular or rarely eglandular, lower surface paler than upper, conspicuously (or faintly) pitted, each pit containing a single twin-headed glandular hair, midrib hairy, sometimes the rest of the underside also uniformly eglandular pubescent or glabrous. Inflorescence racemose, lateral and unbranched, 20–50-flowered, 28–80 mm long, mostly equal to subtending leaves rarely shorter or longer; peduncle 6–15 mm; rachis 22–68 mm. Bracts alternate, deltoid, oblong, obtuse to acute. Flowers hermaphrodite or gynodioecious. Pedicels 1.0–6.0 mm long, always longer than bracts. Calyx 1.5–4.2 mm long; lobes deltoid, lanceolate to broadly lanceolate, acute to obtuse, externally hairy. Corolla tube 1.4–2.0 × 1.6–1.9 mm, broadly funnelform, shorter than calyx; lobes longer than corolla tube, white tinged with pale blue or mauve, or distally or completely dark blue or pink at anthesis, white or pale blue with age, elliptic, lanceolate, rhomboid or ovate, obtuse, cucullate, suberect to recurved. Stamen filaments 4–5 mm long, white, mauve or blue, straight or incurved at apex in bud; anthers 1.5–2.0 mm long, purple. Ovary 1.1–1.3 mm long, ovoid, hairy; style 2.5–4.5 mm long, hairy. Capsules 4.0–5.0 × 2.8–3.3 mm, hairy, loculicidal split extending ⅓–¾-way to base. Seeds 1.1–2.0 × 1.0–1.4 mm, strongly flattened, ellipsoid-oblong to broadly ellipsoid, winged, pale to dark brown.

Caption: In cultivation, Chatham Islands
Photographer: John Sawyer

Caption: In cultivation, Chatham Islands
Photographer: John Sawyer

Flowering:
December - March

Fruiting:
January - April

Threats:
Extinct in the northern two thirds of the main Chatham Island (though it has been planted at several reserve within that area). Browsing animals (especially cattle, sheep, possums and pigs) pose the greatest threat. Fire and clearance for farming are other threats. Young plants on the ground are highly vulnerable to being browsed. Stem borers can limit fruit production in some seasons. There is some evidence to suggest that isolated trees set lower levels of viable seed. This needs further research.

***Attribution:**
Fact Sheet Prepared by P.J. de Lange (1 November 2009). Description based on Bayly & Kellow (2006) but see also de Lange et (2010)

References and further reading:

Bayly M.; Kellow A. 2006: An Illustrated Guide to New Zealand Hebes.Te Papa Press: Wellington

de Lange, P.J.; Heenan, P.B.; Norton, D.A.; Rolfe, J.R.; Sawyer, J.W.D. 2010: Threatened Plants of New Zealand. Canterbury University Press, Christchurch.

Thorsen, M. J.; Dickinson, K. J. M.; Seddon, P. J. 2009. Seed dispersal systems in the New Zealand flora. *Perspectives in Plant Ecology, Evolution and Systematics 11*: 285-309

For more information, visit:
http://nzpcn.org.nz/flora_details.asp?ID=103

Veronica chathamica

Caption: Hebe chathamica, Kaingaroa, Chatham Island
Photographer: Peter de Lange

Caption: Hebe chathamica, Otauwe point, Chatham Island
Photographer: Peter de Lange

Common Name(s):
Chatham Island koromiko

Current Threat Status (2012):
At Risk - Naturally Uncommon

Distribution:
Endemic. New Zealand: Chatham Islands (Chatham, Pitt, Mangere, Little Mangere, South-East, Star Keys, Sisters, Forty Fours, and Rabbit Islands –also many near shore rock stacks)

Habitat:
Mostly coastal though can occasionally be found growing well inland on exposed rock outcrops, and common along the shores of Te Whanga. Usually in salt meadow, on cliff tops, on rock stacks, on cobble beaches, more rarely in coastal forest around petrel burrows.

Features*:
Spreading low shrub often form mats up to 1 m across and 0.25 m tall. Branches prostrate, decumbent or pendent, rooting freely from nodes, old stems brown or grey; branchlets green or red-brown, pubescent; internodes 1.9-25.5 mm. Leaf bud distinct; sinus mostly absent, if present, small and rounded. Leaves erecto-patent to recurved; lamina elliptic, obovate or oblanceolate, coriaceous, flat, 8.5-33.0 × 3.3-16.5 mm; apex subacute to obtuse; margin narrowly cartilaginous, usually glabrous, sometimes pubescent, often red-tinged; upper surface green to dark green, dull, glabrous, occasionally minutely hairy along midrib, lower surface light green, glabrous, rarely hairy along midrib. Inflorescences with 20-40 flowers, lateral, unbranched, 13-41 mm; peduncle 5-20 mm, rachis 2-18 mm. Bracts alternate often with lowermost pair opposite, then subopposite or alternate above, lanceolate to linear-lanceolate, acute, margins glabrous, occasionally hairy, usually hairy outside. Flowers hermaphrodite. Pedicels 1.0-2.6 mm. Calyx 2.5-4.0 mm; lobes linear-lanceolate or deltoid, acute, ciliate, usually hairy outside. Corolla tube hairy inside and occasionally outside, 2.5-4.0 × 2.0-2.3 mm, cylindric, usually = or > calyx (rarely < calyx); lobes white, tinged purplish mauve, completely dark purple-mauve, elliptic or ovate, obtuse, patent, shorter than corolla tube, hairy inside, sometimes scarcely, and then only on the base of the inner surface. Stamen filaments 4.0-4.5 mm long; anthers pale brown or pale mauve, 2.0-2.4 mm. Nectarial disc ciliate or glabrous. Ovary sometimes hairy, 1.2-1.5 mm; style 5-6 mm, glabrous or sometimes hairy. Capsules subacute, 3.5-5.0 × 2.5-3.5 mm, glabrous or occasionally minutely hairy, loculicidal split extending to ¼ way to base. Seeds flattened, broad ellipsoid to sub-discoid, brown, 1.2-1.6 × 0.9-1.3 mm.

Flowering:
December – July

Fruiting:
January – December

Threats:
A Naturally Uncommon, range-restricted island endemic. Of the three Chatham Island endemic hebes, this species is the most common and least threatened. However, in disturbed sites it commonly forms hybrid swarms with Veronica dieffenbachii, and in some sites such as Kaiangaroa hybrids are more common than either parent.

***Attribution:**
Fact Sheet by Peter J. de Lange (18 August 2006): Description modified from Bayly and Kellow (2006)

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

Thorsen, M. J.; Dickinson, K. J. M.; Seddon, P. J. 2009. Seed dispersal systems in the New Zealand flora. Perspectives in Plant Ecology, Evolution and Systematics 11: 285-309

For more information, visit:
http://nzpcn.org.nz/flora_details.asp?ID=524

Veronica dieffenbachii

Common Name(s):
Dieffenbach's koromiko

Current Threat Status (2012):
At Risk - Naturally Uncommon

Distribution:
Endemic. New Zealand: Chatham Islands (Chatham, Pitt, Mangere, South East Islands).

Habitat:
Mostly coastal where it usually grows in mixed shrubland and along forest margins. Also on limestone outcrops on the coast or inland, and it is a feature of the limestone cliffs lining Te Whanga lagoon. Rarely in coastal forest, where it often grows near petrel burrows

Features*:
Upright bushy or spreading shrub up to 2 × 3 m. Branches suberect to erect, rarely spreading and ± pendent, old stems grey or brown; branchlets green (rarely tinged maroon), puberulent, pubescent or glabrous; internodes 2.9-34.0 mm. Leaf bud distinct; sinus absent. Leaves erecto-patent to recurved; lamina elliptic, oblong-elliptic, oblanceolate to obovate, coriaceous, flat, or with recurved margins, 26.0-110.0 × 4.5-25.0 mm; apex subacute or obtuse, base truncate to subcordate or amplexicaul; margin cartilaginous, glabrous or finely ciliate; upper surface light to dark green, often glaucescent, hairy along midrib, rarely uniformly eglandular pubescent; lower surface light green or glaucescent, glabrous or minutely and uniformly pubescent. Inflorescences with 34-140 flowers, lateral, unbranched, 50-120 mm long; peduncle 9-20 mm; rachis 35-100 mm. Bracts alternate, lanceolate, linear-lanceolate or deltoid, acute to subacute, occasionally hairy outside. Flowers hermaphrodite. Pedicels 0.7-3.8 mm. Calyx 1.5-4.4 mm, 4-5-lobed, lobes lanceolate, ovate or deltoid, acute to subacute, occasionally hairy outside. Corolla tube hairy inside, 2.5-3.5 × 1.5-1.8 mm, shortly cylindric, > calyx; lobes white, elliptic or ovate, obtuse, patent to recurved, slightly shorter than corolla tube, hairy inside, or with sparse hairs toward the base on the inner surface. Stamen filaments white, 3.5-4.0 mm; anthers magenta, 1.5-1.9 mm. Nectarial disc ciliate, rarely glabrous. Ovary glabrous, sometimes hairy, 0.9-1.1 mm; style 4.0-7.3 mm, glabrous, sometimes hairy. Capsules obtuse or subacute, 3.5-5.6 × 2.7-4.3 mm, glabrous or sometimes hairy, loculicidal split ¼ way to base. Seeds flattened, ± discoid, ± smooth, brown to pale brown, 0.8-1.5 × 0.8-1.2 mm.


Caption: Hebe dieffenbachii
Photographer: Peter de Lange


Caption: Hebe dieffenbachii
Photographer: Peter de Lange

Flowering:
December – May

Fruiting:
January - December

Threats:
A Naturally Uncommon, range-restricted island endemic. This species probably has declined and it is certainly less common than H. chathamica, however, it is still very widespread, and actively regenerating in fenced off areas. Hybridism with Veronica chathamica is an issue at some sites (e.g., Rangatira (South East Island)).

***Attribution:**
Fact Sheet by Peter J.de Lange (18 August 2006): Description modified from Bayly & Kellow (2006)

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

Thorsen, M. J.; Dickinson, K. J. M.; Seddon, P. J. 2009. Seed dispersal systems in the New Zealand flora. Perspectives in Plant Ecology, Evolution and Systematics 11: 285-309

For more information, visit:
http://nzpcn.org.nz/flora_details.asp?ID=525

Definitions of botanical terms

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

Glossary

Term	Definition
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.
Acroscopic	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	When the flower is fully developed and functioning. The time of pollination or bloom.
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.
Basiscopic	Pointing towards the base
Beak	A prominent extension of an organ
Bifid	Deeply split into two lobes.
Bifurcate	Divided into two.

Term	Definition
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 of 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., Phyllocladus) or branch–like (e.g., Carmichaelia)
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.

Term	Definition
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 Carex
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 Euphorbia
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., Nematoceras trilobum 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., Nematoceras trilobum 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.
Decrescent	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.
Discoid	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.

Term	Definition
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.
Ferrugineous	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 fimbrillae (individual hair-like structures).
fimbriate	With fringes.
Flabellate	Fan shaped.
Flaccid	Limp, not rigid, flabby.
Flange	A projecting rim.

Term	Definition
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	abrubtly bent
Genus	A taxonomic rank of closely related forms that is further subdivided in to species (plural = genera). In a scientific name (e.g., Sicyos australis), 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.

Term	Definition
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.
Laciniae	Jagged lobes.
Laciniate	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 Cotula and Leptinella.
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 Avicennia marina var. resiifera. 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.

Term	Definition
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 widdest 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).

Term	Definition
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

Term	Definition
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 (Apodasmia similis)
Retrorse	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 horizontallly or creeping) or short and erect.
Rhombic	Diamond-shaped.
Rhomboid	Diomond 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 Juncus 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 (Alectryon excelsus).
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 skhizein 'split' and karpos 'fruit'
schizocarps	Plural of schizocarp, a fruit which splits when dry, from the Greek skhizein 'split' and karpos '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".

Term	Definition
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 of 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.

Term	Definition
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.
Trigonous	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 partioned once – literally one tube (compare – multitubular – many tubes)
Utricle	A thin loose cover enveloping some fruits (eg., Carex, Uncinia)
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.
Vernicose	Glossy, literally as if varnished, e.g., Hebe vernicosa has leafs 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.

Term	Definition
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.