Otokia Creek Lower Marsh planting Guide

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

This book is a guide to the plants that the Otokia Creek and Marsh habitat trust in Brighton Otago plan to grow in our nursery and then use to restore the Lower Otokia Creek marsh. This marsh is a regionally significant wetland.

Apodasmia similis

Male plant, Colville, November. Photographer: John Smith-Dodsworth

Female plant, Colville, November. Photographer: John Smith-Dodsworth

COMMON NAME
Jointed wire rush, oioi

SYNONYMS
Leptocarpus similis Edgar

FAMILY
Restionaceae

AUTHORITY
Apodasmia similis (Edgar) Briggs et L.A.S.Johnson

FLORA CATEGORY
Vascular – Native

ENDEMIC TAXON
Yes

ENDEMIC GENUS
No

ENDEMIC FAMILY
No

STRUCTURAL CLASS
Rushes & Allied Plants

NVS CODE
APOSIM

CHROMOSOME NUMBER
2n = 48

CURRENT CONSERVATION STATUS
2012 | Not Threatened

PREVIOUS CONSERVATION STATUSES
2009 | Not Threatened
2004 | Not Threatened

DISTRIBUTION
Endemic. Three Kings, North, South, Stewart and Chatham Islands.

HABITAT
Mostly coastal in estuaries, saltmarshes, dunes and sandy flats and hollows. Occasionally inland in gumland scrub, along lake margins, fringing peat bogs or surrounding hot springs.

FEATURES
Dioecious, rush-like perennial herb. Rhizomes 3-7 mm diameter, covered in closely sheathing, imbricating, dark brown scales, 10-20 mm long, each enclosing a tuft of coarse brown hairs. Culms numerous, 0.5-2.6 x 1.5-2.5(-3.0) mm, densely packed, erect, sometimes with upper third decurved to more or less pendulous, simple, terete, glaucous, grey-green, yellow-green or red-green. leaves reduced to bract-like sheaths, these dark brown or maroon-black, regularly spaced at 70-90 mm intervals at the base of the culm, 10-60 mm apart higher up; margins entire. Male inflorescences, paniculate or fascicled, bearing numerous stalked spikelets; upper floral bracts ovate-lanceolate, mucronate, red-brown to maroon, margins membranous; tepals 6-4 more or less completely hyaline, the outer longer, brownish, the inner shorter, paler; stamens 3; ovary rudimentary. Female inflorescences fascicled, spikelets more or less sessile; upper floral bracts ovate, mucronate, > tepals; tepals 6, the outer keeled, lanceolate, acuminate, inner flat, smaller, more or less hyaline, more obtuse, mucronate; styles 3, united to midway, bright red to orange-red; staminodes 0. Fruit c.1x 0.5 mm, triquetrous, indehiscent. Seed c.1 x 0.4 mm, oblong-elliptical, golden-brown, surface reticulate, both ends apiculate, one end dark brown, the other, almost white.

SIMILAR TAXA
Easily distinguished from Sporadanthus F.Muell and Empodisma L.A.S.Johnson et D.F.Cutler by the unbranched, mostly grey-green, or reddish stems bearing regularly spaced bract-like, sheathing dark brown or maroon-black leaves, and terminal, many-flowered, paniculate to fascicled male and female spikelets.

FLOWERING
October - December

FLOWER COLOURS
Brown, Red/Pink

FRUITING
December - March

LIFE CYCLE
Fruit are possibly disperesed by water and wind (Thorsen et al., 2009).

PROPAGATION TECHNIQUE
Easily grown from fresh seed and rooted pieces. Does well in a range of soils and moisture regimes. Requires full sun to flourish. Now a very popular tub and traffic island plant in some cities - most material seen is from the Chatham Islands.

ETYMOLOGY
apodasmia: From the Greek apodasmios meaning ‘separated’, referring to the widely disjunct distribution of the species (there are two species in Australia, one in New Zealand and one in Chile) (Briggs & Johnson, 1998)
similis: Similar to another species

WHERE TO BUY
Occasionally available from mainstream plant and specialist native plant nurseries. Most stock seen is of the large, glaucous Chatham Island form.

CULTURAL USE/IMPORTANCE
Needs critical comparison with Apodasmia chilensis (Gay) B.G.Briggs et L.A.S.Johnson , particularly the Chatham Island plants which seem a close match for that South American species.

ATTRIBUTION
Description adapted from Edgar and Moore (1970).

REFERENCES AND FURTHER READING
Briggs, B.G. & Johnson, L.A.S. (1998) New genera and species of Australian Restionaceae (Poales). Telopea 7: 345-373. http://www.rbgsyd.nsw.gov.au/__data/assets/pdf_file/0004/73237/Tel7Bri345.pdf
Moore, L.B.; Edgar, E. 1970: 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 2009 Vol. 11 No. 4 pp. 285-309

CITATION

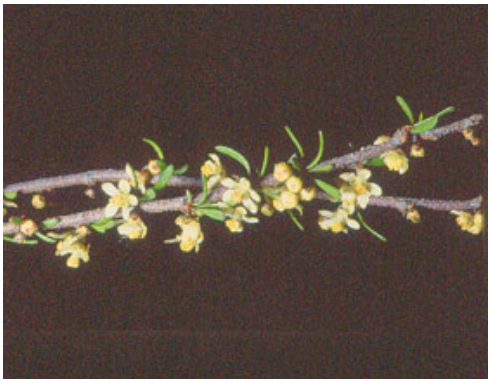
Please cite as: de Lange, P.J. (Year at time of access): Apodasmia similis Fact Sheet (content continuously updated). New Zealand Plant Conservation Network. https://www.nzpcn.org.nz/flora/species/apodasmia-similis/ (Date website was queried)

MORE INFORMATION

https://www.nzpcn.org.nz/flora/species/apodasmia-similis/

Plagianthus divaricatus

Flowers, Kanuka Block, Port Levy. Photographer: Melissa Hutchison



Kennedy bay, September. Photographer: John Smith-Dodsworth

COMMON NAME
Salt marsh ribbonwood, marsh ribbonwood

FAMILY
Malvaceae

AUTHORITY
Plagianthus divaricatus J.R.Forst. et G.Forst.

FLORA CATEGORY
Vascular – Native

ENDEMIC TAXON
Yes

ENDEMIC GENUS
Yes

ENDEMIC FAMILY
No

STRUCTURAL CLASS
Trees & Shrubs - Dicotyledons

NVS CODE
PLADIV

CHROMOSOME NUMBER
2n = 42

CURRENT CONSERVATION STATUS
2012 | Not Threatened

PREVIOUS CONSERVATION STATUSES
2009 | Not Threatened
2004 | Not Threatened

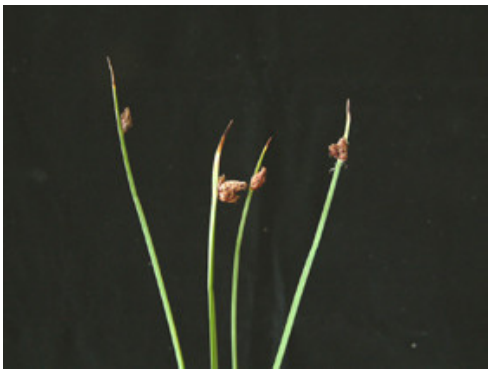
BRIEF DESCRIPTION
Bushy tangled shrub with wide-angled thin twigs bearing small very narrow clusters of leaves and small drooping flowers inhabiting estuary areas. Twigs with star-shaped hairs (lens needed). Leaves 5-20mm long by 0.5-2mm wide. Fruit a 5mm wide dry capsule.

FLOWER COLOURS
Yellow

ETYMOLOGY
plagianthus: Oblique or lop-sided flower (petals uneven at the base)
divaricatus: Spreading and interlacing

MORE INFORMATION
https://www.nzpcn.org.nz/flora/species/plagianthus-divaricatus/

Schoenoplectus pungens



Raglan harbour, March. Photographer: John Smith-Dodsworth

Raglan harbour, March. Photographer: John Smith-Dodsworth

COMMON NAME
Three-square

SYNONYMS
Scirpus pungens Vahl; Scirpus novae-zelandiae Colenso; Scirpus americanus Pers. mispl. name; Schoenoplectus americanus (Pers.) Volkart ex Schinz et R.Keller, mispl. name; Fimbristylis rara R.Br.; Iria rara (R.Br.) Kuntze

FAMILY
Cyperaceae

AUTHORITY
Schoenoplectus pungens (Vahl) Palla

FLORA CATEGORY
Vascular – Native

ENDEMIC TAXON
No

ENDEMIC GENUS
No

ENDEMIC FAMILY
No

STRUCTURAL CLASS
Sedges

NVS CODE
SCHPUN

CURRENT CONSERVATION STATUS
2012 | Not Threatened

PREVIOUS CONSERVATION STATUSES
2009 | Not Threatened
2004 | Not Threatened

DISTRIBUTION
Indigenous. North, South and Chatham Islands. In the North Island found from West Auckland and Coromandel south, often scattered and apparently absent from Taranaki, extending inland along the Waikato River. In the South Island scattered and uncommon in Westland and Fiordland - found inland at Pareora Gorge (Canterbury) and Central Otago. Common on Chatham Island. Widespread in western Europe, America and Australia.

HABITAT
Coastal to montane (up to 400 m a.s.l.). Usually not far from the sea in saltmarshes, brackish swamps and estuaries. Also more rarely found inland around freshwater lakes and ponds, and in damp saline slacks. Also recorded from waters draining geothermal sites along the Waikato River.

FEATURES
Summer-green perennial. Rhizome 2-8 mm diameter, woody, with membranous, chartaceous scales at the nodes and numerous reddish fibrous roots. Culms 0.15-1.8 m, 1-6 mm diameter, pale glaucous-grey to dark green, triquetrous, with concaves sides, smooth, soft, bearing 1-2 very thin, membranous sheaths at the base. Leaves 1-4, < culm, 1-3 mm wide, linear, channelled, becoming triangular with margins sparingly scabrid towards the obtuse apex, adaxial surface membranous with obvious internal septa; sheaths long, closed, largely membranous. Inflorescence apparently lateral, of 1-4 unequal, closely compacted, sessile, spikelets; subtending bract 20-60 mm long, similar to stem and continuous with it, scabrid towards apex. Spikelets 6-11 x 3-5 mm, ovate, elliptic, dark purple-brown. Glumes broadly ovate, smooth, membranous, margins fimbriate, emarginate, midrib prolonged, mucronate, small, round teeth of glume apex. Hypogynous bristles 2-6, < nut, retrorsely scabrid, red-brown. Stamens 3. Style-branches 3. Nut 3 x 2 mm, obovoid, plano-convex to subtrigonous, prominently apiculate, smooth, grey-brown.

SIMILAR TAXA
Schoenoplectus pungens is not easily confused with either S. californicus (C.A.Mey.) Palla or S. tabernaemontani (C.C.Gmel.) Palla, species that are much taller (up to 4 m cf. 1 m in S. pungens), and have umbellate inflorescences bearing many spikelets, rather than dense, compact, sessile inflorescences of 1-3 spikelets. Furthermore, neither S. californicus or S. tabernaemontani have culms that are uniformly 3-angled for their entire length.

FLOWERING
October - January

FRUITING
January - June

PROPAGATION TECHNIQUE
Easily grown from fresh seed and the division of whole plants.

ETYMOLOGY
pungens: Sharp-pointed

WHERE TO BUY
Not commercially available

ATTRIBUTION
Description adapted from Moore and Edgar (1970).

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

MORE INFORMATION
https://www.nzpcn.org.nz/flora/species/schoenoplectus-pungens/

Dacrycarpus dacrydioides

kahikatea - Carter Scenic Reserve, Wairarapa. Photographer: John Sawyer

Kahikatea. Photographer: DoC

COMMON NAME
Kahikatea, white pine

SYNONYMS
Dacrydium excelsum D.Don in Lamb., Dacrydium ferrugineum Houttee ex Gord., Dacrydium thuioides Banks et Solander ex Carr., Nageia excelsa Kuntze, Podocarpus dacrydioides Richard, Podocarpus thujoides R.Br. In Bennett, Podocarpus excelsus (D.Don) Druce; Podocarpus excelsus (D. Don.) Druce

FAMILY
Podocarpaceae

AUTHORITY
Dacrycarpus dacrydioides (A.Rich.) de Laub.

FLORA CATEGORY
Vascular – Native

ENDEMIC TAXON
Yes

ENDEMIC GENUS
No

ENDEMIC FAMILY
No

STRUCTURAL CLASS
Trees & Shrubs - Gymnosperms

NVS CODE
DACDAC

CHROMOSOME NUMBER
2n = 20

CURRENT CONSERVATION STATUS
2012 | Not Threatened

PREVIOUS CONSERVATION STATUSES
2009 | Not Threatened
2004 | Not Threatened

DISTRIBUTION
Endemic. North, South and Stewart Islands

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

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

SIMILAR TAXA
A distinctive tree of usually swampy alluvial terraces. The columnar growth form of subadults, buttressed and fluted trunk bases, scale-like leaves, and terminal fruits bearing the distinctive circular seeds serve to immediately distinguish this species from all other indigenous conifers.

FLOWERING
October - January

FLOWER COLOURS
No flowers

FRUITING
February - April

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

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

ETYMOLOGY
dacrycarpus: Tear shaped fruit
dacrydioides: Like a dacrydium

WHERE TO BUY
Commonly cultivated and frequently sold by most commercial nurseries and outlets. A very popular garden tree. A form with distinctly glaucous foliage is occasionally on offer.

CULTURAL USE/IMPORTANCE
Kahikatea is New Zealands tallest indigenous tree. The white odourless timber was used extensively to make butter boxes, for much of the late 1800s and early 1900s. It was this practice which all but eliminated kahikatea-dominated swamp forest from the North Island and northern South Island.

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

REFERENCES AND FURTHER READING
Allan, H.H. 1961: Flora of New Zealand. Vol. I. Wellington, Government Printer.
Gardner, R. 2001. Notes towards an excursion Flora. Rimu and kahikatea (Podocarpaceae). Auckland Botanical Society Journal, 56: 74-75

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

MORE INFORMATION
https://www.nzpcn.org.nz/flora/species/dacrycarpus-dacrydioides/

Pennantia corymbosa

Pennantia corymbosa. Photographer: Wayne Bennett

Pennantia corymbosa. Photographer: Wayne Bennett

COMMON NAME
Kaikomako

FAMILY
Pennantiaceae

AUTHORITY
Pennantia corymbosa J.R.Forst. et G.Forst.

FLORA CATEGORY
Vascular – Native

ENDEMIC TAXON
Yes

ENDEMIC GENUS
No

ENDEMIC FAMILY
No

STRUCTURAL CLASS
Trees & Shrubs - Dicotyledons

NVS CODE
PENCOR

CHROMOSOME NUMBER
2n = 50

CURRENT CONSERVATION STATUS
2012 | Not Threatened

PREVIOUS CONSERVATION STATUSES
2009 | Not Threatened
2004 | Not Threatened

BRIEF DESCRIPTION
A dense tangled shrub with zig-zagging branches bearing small leaves with 3-4 large lobes at the tip growing into a small tree bearing much larger leaves that still have small lobes at the tip (though these are less obvious). Juvenile leaves 7-15mm long, adult leaves 5cm long by 3cm wide.

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

FLOWER COLOURS
White

ETYMOLOGY
pennantia: After Pennant, a zoologist
corymbosa: Bearing flowers in corymbs

REFERENCES AND FURTHER READING
Beddie, A.D. 1958. Precocious fruiting of *Pennantia corymbosa*. Wellington Botanical Society Bulletin, 3-: 12-14
Gardner, R. 1998. No kaikomako (*Pennantia corymbosa*) on Great Barrier Island. Auckland Botanical Society Journal, 53: 75-76

MORE INFORMATION

https://www.nzpcn.org.nz/flora/species/pennantia-corymbosa/

Myrsine divaricata

Pisa Range. Photographer: John Barkla

Mt Ruapehu, September. Photographer: John Smith-Dodsworth

COMMON NAME
Weeping matipo, weeping mapou

FAMILY
Primulaceae

AUTHORITY
Myrsine divaricata A.Cunn.

FLORA CATEGORY
Vascular – Native

ENDEMIC TAXON
Yes

ENDEMIC GENUS
No

ENDEMIC FAMILY
No

STRUCTURAL CLASS
Trees & Shrubs - Dicotyledons

NVS CODE
MYRDIV

CHROMOSOME NUMBER
2n = 46

CURRENT CONSERVATION STATUS
2012 | Not Threatened

PREVIOUS CONSERVATION STATUSES
2009 | Not Threatened
2004 | Not Threatened

BRIEF DESCRIPTION
Common tall shrub often with weeping widely branching twigs bearing small heart-shaped spotted leaves that have a dark blotch at the base. Twigs often curved downwards. Leaves 5-15mm long by 5-10mm wide, in clusters along twigs. Fruit pale purple to black.

DISTRIBUTION
Endemic. North, South, Stewart and Auckland Islands. Uncommon north of the Waikato.

FLOWER COLOURS
White, Yellow

ETYMOLOGY
myrsine: Myrrh
divaricata: Spreading or branching at wide angles

MORE INFORMATION
https://www.nzpcn.org.nz/flora/species/myrsine-divaricata/

Carex virgata

Coromandel, January. Photographer: John Smith-Dodsworth

Coromandel, January. Photographer: John Smith-Dodsworth

COMMON NAME
Swamp sedge, pukio, toitoi, toetoe

SYNONYMS
Carex paniculata var. virgata (Boott) Cheeseman; Carex appressa var. virgata (Boott) Kük.

FAMILY
Cyperaceae

AUTHORITY
Carex virgata Sol. ex Boott

FLORA CATEGORY
Vascular – Native

ENDEMIC TAXON
Yes

ENDEMIC GENUS
No

ENDEMIC FAMILY
No

STRUCTURAL CLASS
Sedges

NVS CODE
CARVIR

CURRENT CONSERVATION STATUS
2012 | Not Threatened

PREVIOUS CONSERVATION STATUSES
2009 | Not Threatened
2004 | Not Threatened

DISTRIBUTION
Indigenous. New Zealand: North, South, Stewart and Chatham Islands.

HABITAT
Widespread from sea level to about 1000 m a.s.l. in open, swampy conditions and also in damp sites within lowland forest. In parts of the country this sedge is often the dominant carice of lowland alluvial forest.

FEATURES
Rhizomatous, densely clumped to tussock-forming sedge. Rhizome 5 mm. diameter. Culms 150–900 mm. x c.1.5 mm, trigonous, grooved, harshly scabrid; basal sheaths shining, grey-brown to dark brown, sometimes black. Lvs much > culms, 0.5–1.2 m tall, 1.5–4.5 mm wide, channelled, light green, harsh and rigid, keel and margins strongly scabrid. Inflorescence a narrow 100–260 mm long panicle with stiff erect branchlets, the lower-most quite distant. Spikes, androgynous, 4–6 mm. long, sessile, grey- or yellow-brown, male flowers terminal, lower spikes on each branchlet subtended by a pale membranous bract with a long scabrid awn often > spike. Glume ± = or slightly < utricles, membranous, ovate, acute, dull brown, with a prominent pale midrib, this often scabrid in lowermost glumes. Utricles 2.0–2.5 x c.1.0 mm, plano-convex, ovoid, light grey with distinct brown nerves; tapering to a brown beak c.0.5 mm long with a bifid orifice and conspicuously denticulate margins; abruptly contracted to a narrow stipe c.0.2 mm. long. Stigmas 2. Nut slightly > 1 mm. long, biconvex, ovoid, dark brown.

SIMILAR TAXA
Carex virgata most closely resembles C. appressa R.Br., especially as the inflorescence of both species is a stiff contracted panicle, further, both species have similar distinctly nerved utricles. However, C. virgata has more slender culms, narrower leaves and paler brown, less dense-flowered panicles. Plants of C. virgata could also be confused with C. secta Boott as they can occasionally become elevated on trunks formed by matted rhizomes and semi-decayed culms. However, in such rare examples of C. virgata, plants never attain the height reached by C. secta. Further, the inflorescences of C. virgata are never drooping, and obviously branched, with the basal branchlets often distant.

FLOWERING
October - December

FRUITING
December - May

LIFE CYCLE
Nuts surrounded by inflated utricles are dispersed by granivory and wind (Thorsen et al., 2009).

PROPAGATION TECHNIQUE
Easily grown from fresh seed and by the division of established plants. A fast growing sedge often popular in wetland restoration and riparian plantings.

ETYMOLOGY
carex: Latin name for a species of sedge, now applied to the whole group.
virgata: Twiggy

NOTES ON TAXONOMY
On the Chatham Islands C. virgata either hybridises with or appears to intergrade with C. appressa.

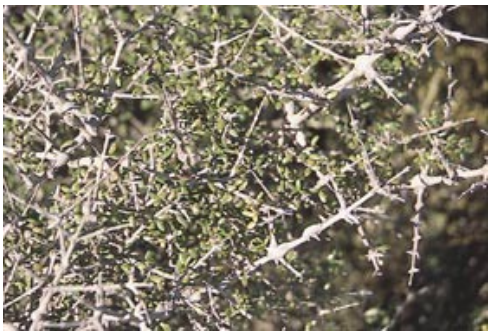
ATTRIBUTION
Fact Sheet prepared by P.J. de Lange (10 August 2006). Description adapted from Moore and Edgar (1970)

REFERENCES AND FURTHER READING
Moore, L.B.; Edgar, E. 1970: Flora of New Zealand. Vol. II. Government Printer, Wellington.
Thorsen, M. J.; Dickinson, K. J. M.; Seddon, P. J. 2009. Seed dispersal systems in the New Zealand flora. Perspectives in Plant Ecology, Evolution and Systematics 2009 Vol. 11 No. 4 pp. 285-309

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

MORE INFORMATION
https://www.nzpcn.org.nz/flora/species/carex-virgata/

Coprosma propinqua var. propinqua



Mingimingi. Eastbourne. June 2001. Photographer: Jeremy Rolfe

Pauatahanui Inlet. Photographer: Jeremy Rolfe

COMMON NAME
Mingimingi

FAMILY
Rubiaceae

AUTHORITY
Coprosma propinqua A.Cunn. var. propinqua

FLORA CATEGORY
Vascular – Native

ENDEMIC TAXON
Yes

ENDEMIC GENUS
No

ENDEMIC FAMILY
No

STRUCTURAL CLASS
Trees & Shrubs - Dicotyledons

NVS CODE
COPPVP

CHROMOSOME NUMBER
2n = 44

CURRENT CONSERVATION STATUS
2012 | Not Threatened

PREVIOUS CONSERVATION STATUSES
2009 | Not Threatened
2004 | Not Threatened

BRIEF DESCRIPTION
Very common bushy shrub (or low-growing mound in some coastal areas) with wide-angled branches bearing clusters of pairs of variably shaped dark green glossy narrow leaves. Young leaves with dark stalk. Adult leaves often curved sideways, 10-4mm long by 2-3mm wide, paler underneath and with 1-3 pits. Fruit pale blue.

FLOWER COLOURS
Green

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

ETYMOLOGY
coprosma: From the Greek kopros ‘dung’ and osme ‘smell’, referring to the foul smell of the species, literally ‘dung smell’
propinqua: From the Latin propinquus ‘near, neighbouring’, meaning closely related to another species

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

MORE INFORMATION

https://www.nzpcn.org.nz/flora/species/coprosma-propinqua-var-propinqua/

Aristotelia serrata

Waikuku, Aorangi. Photographer: John Sawyer

December 1981. Photographer: Jeremy Rolfe

COMMON NAME
Makomako, wineberry

FAMILY
Elaeocarpaceae

AUTHORITY
Aristotelia serrata (J.R.Forst. et G.Forst.) W.R.B.Oliv.

FLORA CATEGORY
Vascular – Native

ENDEMIC TAXON
Yes

ENDEMIC GENUS
No

ENDEMIC FAMILY
No

STRUCTURAL CLASS
Trees & Shrubs - Dicotyledons

NVS CODE
ARISER

CHROMOSOME NUMBER
2n = 28

CURRENT CONSERVATION STATUS
2012 | Not Threatened

PREVIOUS CONSERVATION STATUSES
2009 | Not Threatened
2004 | Not Threatened

BRIEF DESCRIPTION
Much-branced small tree with thin heart-shaped sharply toothed leaves flushed with pink on the underside

DISTRIBUTION
Endemic. North, South and Stewart Islands. Throughout, but less common in drier areas.

HABITAT
Lowland to montane forests. Often forming dense thickets following disturbance.

FEATURES
Dioecious tree to c. 10 m tall; trunk and branches upright, to 30 cm diam.; bark smooth, grey, spotted with lenticels; branchlets light to dark red, pubescent. Leaves opposite to subopposite; petiole slender, to 50 mm long, greenish often flushed pink; midvein conspicuous above, raised below; secondary veins obvious and raised below giving surface a wrinkled uneven appearance; lamina membranous, 5-12 x 4-8 cm, glabrate (pubescence may persist on veins below), broad-ovate, margin deeply doubly and irregularly sharply serrate, tip acuminate, base cordate to truncate,upper surface light or dark green, undersides pale green, frequently infused with purple or pink. Juvenile leaves larger. Inflorescences conspicuous, axillary, flowers 4-6 mm diam., in panicles 6-10 cm long, on slender pubescent pedicels 5-10 mm long. Sepals 4, ovate, c. 3 mm long, pubescent, pink; petals 4, 3-lobed (often deeply), c. 9 mm long, white to light pink to red. Stamens many, on glandular minutely pubescent disc, not exceeding petals. Ovary 3-4- celled, styles 3-4. Fruit a c. 8-seeded fleshy depressed-obovoid berry, 5 x 4 mm, bright red to black. Seed irregularly angled, ventral surface flattened, cicular or broadly elliptic, 1.9-3.1 mm, surface irrregular, aril absent.

SIMILAR TAXA
Superficial similarity to Entelea arborescens which is only found in northern New Zealand and which has a single (usually) cork trunk and a less sharply-toothed margin. The leaves of this species are never pink-flushed. Superficial similarity also to Hoheria and Plagianthus species, but the bark of these species falls in thin stringy strips (this is also evident when branchlets are broken).

FLOWERING
September-December

FLOWER COLOURS
Red/Pink, White

FRUITING
November-January

LIFE CYCLE
Fleshy berries are dispersed by frugivory (Thorsen et al., 2009).

ETYMOLOGY
aristotelia: Named after Aristotle, the Greek philosopher and polymath
serrata: Saw-toothed

ATTRIBUTION
Description adapted from Allan (1961), Heenan and de Lange (2006), Eagle (2000) and Webb and Simpson (2001).

REFERENCES AND FURTHER READING
Allan, H.H. 1961. Flora of New Zealand. Government Printer, Wellington
Heenan, P.B, de Lange, P.J. 2006. Pseudowintera insperata (Winteraceae), an overlooked and rare new species from northern New Zealand. NZ J. Botany 44: 89-98
Eagle, A. 2000. Eagle's complete trees and shrubs of NZ. Te Papa Press, Wellington
Webb, C.J. & Simpson, M.J.A. 2001. Seeds of NZ gymnosperms and dicotyledons. Manuka Press, Christchurch.

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

MORE INFORMATION
https://www.nzpcn.org.nz/flora/species/aristotelia-serrata/

Cordyline australis

Cordyline australis. Photographer: Wayne Bennett

Cabbage tree. Photographer: DoC

COMMON NAME
Cabbage tree, ti, ti kouka, palm lily

SYNONYMS
Dracaena australis Forst.f., Dracaenopsis australis (Forst.f.) Planchon

FAMILY
Asparagaceae

AUTHORITY
Cordyline australis (Forst.f.) Endl.

FLORA CATEGORY
Vascular – Native

ENDEMIC TAXON
Yes

ENDEMIC GENUS
No

ENDEMIC FAMILY
No

STRUCTURAL CLASS
Trees & Shrubs - Monocotyledons

NVS CODE
CORAUS

CHROMOSOME NUMBER
2n = 38

CURRENT CONSERVATION STATUS
2012 | Not Threatened

PREVIOUS CONSERVATION STATUSES
2009 | Not Threatened
2004 | Not Threatened

BRIEF DESCRIPTION
Common palm-like tree with an erect trunk branching into tufts of tough long narrow pointed leaves and with bushy sprays of small white flowers. Bark rough. Leaves 30-100cm long, only slightly tapered at base, dead leaves often forming a skirt around branches. Fruit small, white.

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

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

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

SIMILAR TAXA
Could be confused with the northern, primarily offshore island C. kaspar and its close relative, the Norfolk Island C. obtecta (probably both these should be merged). From these it can be distinguished by the larger heavily branched tree form, narrower leaves with a rather smaller, ill-defined, flat petiole, and smaller seeds. C. australis is rather variable, and some northerly offshore islands forms of it are either hybrids with, or might be better placed with C. kaspar.

FLOWERING
(September-) October-December (-January)

FLOWER COLOURS
White

FRUITING
(December-) January-March

LIFE CYCLE
Fleshy berries are dispersed by frugivory (Thorsen et al., 2009).

PROPAGATION TECHNIQUE
One of the most widely cultivated New Zealand natives, very popular in Europe, Britain and the U.S.A. Easily grown from fresh seed (seedlings often spontaneously appear in gardens from bird-dispersed seed), emergent shoot, stem and even trunk cuttings. Very hardy and will tolerate most soils and moisture regimes but dislikes long periods of drought. Excellent in pots and tubs. Numerous cultivars exist that will suit any situation.

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

ETYMOLOGY
cordyline: From the Greek kordyle ‘club’
australis: Southern

WHERE TO BUY
Common in cultivation, and widely sold both within New Zealand and around the world.

NOTES ON THEIR STATUS
Cabbage trees, because they are very resilient are often the last indigenous plant to persist within cleared land. However, even these specimens will over time die, and unless such remnants are fenced as the young seedlings are greedily eaten by livestock. Cabbage trees remain a common and thriving species within much of the more highly modified ecosystems of coastal and lowland New Zealand. Recently there has been some evidence to suggest the severity of Sudden Decline is lessening.

FORAGING FOR CABBAGE TREE
Click on the Radio New Zealand National logo to listen to This Way Up. Simon Morton interviews Johanna Knox about foraging for Cordyline australis - the cabbage tree or Ti Kouka (duration: 13’35”).

ATTRIBUTION

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

REFERENCES AND FURTHER READING

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

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

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

CITATION

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

MORE INFORMATION

https://www.nzpcn.org.nz/flora/species/cordyline-australis/

Fuchsia excorticata

Franz Josef. Dec1981. Photographer: Jeremy Rolfe

Christchurch. Oct 1981. Photographer: Jeremy Rolfe

COMMON NAME
Kotukutuku, tree Fuchsia

FAMILY
Onagraceae

AUTHORITY
Fuchsia excorticata (J.R.Forst. et G.Forst.) L.f.

FLORA CATEGORY
Vascular – Native

ENDEMIC TAXON
Yes

ENDEMIC GENUS
No

ENDEMIC FAMILY
No

STRUCTURAL CLASS
Trees & Shrubs - Dicotyledons

NVS CODE
FUCEXC

CHROMOSOME NUMBER
2n = 22

CURRENT CONSERVATION STATUS
2012 | Not Threatened

PREVIOUS CONSERVATION STATUSES
2009 | Not Threatened
2004 | Not Threatened

BRIEF DESCRIPTION
Spreading small tree with thin flaky orange bark and bearing thin pointed leaves that are white underneath. Leaves up to 10mm long by 1.5-3cm wide, margin with small teeth, deciduous in southern areas. Flower colourful, in clusters from trunk or branches. Fruit dark purple, blunt at tip and base.

FLOWER COLOURS
Green, Violet/Purple

LIFE CYCLE
Fleshy berries are dispersed by invertebrate frugivory (Thorsen et al., 2009).

ETYMOLOGY
fuchsia: After Leonhart Fuchs (17 Jan 1501 - 10 May 1566), a German physician and regarded as one of the three founding fathers of botany.
excorticata: Loose-barked

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

MORE INFORMATION

https://www.nzpcn.org.nz/flora/species/fuchsia-excorticata/

Austroderia richardii

Kakanui Mountains, Otago. Photographer: John Barkla

Cortaderia richardii. Photographer: John Smith-Dodsworth

COMMON NAME
Toetoe

SYNONYMS
Arundo richardii Endl.; Arundo kakao Steud.; Arundo australis A.Rich.; Gynerium zeelandicum Steud.; Cortaderia richardii (Endl.) Zotov

FAMILY
Poaceae

AUTHORITY
Austroderia richardii (Endl.) N.P.Barker et H.P.Linder

FLORA CATEGORY
Vascular – Native

ENDEMIC TAXON
Yes

ENDEMIC GENUS
Yes

ENDEMIC FAMILY
No

STRUCTURAL CLASS
Grasses

NVS CODE
AUSRIC

CHROMOSOME NUMBER
2n = 90

CURRENT CONSERVATION STATUS
2012 | Not Threatened

PREVIOUS CONSERVATION STATUSES
2009 | Not Threatened
2004 | Not Threatened

DISTRIBUTION
Endemic. Confined to the South Island. Possibly in the North Island, east of Cape Palliser. Naturalised in Tasmania.

HABITAT
Abundant, from the coast to subalpine areas. Common along stream banks, river beds, around lake margins, and in other wet places. Also found in sand dunes, especially along the Foveaux Strait.

FEATURES
Tall, gracile, slender tussock-forming grass up to 3 m tall when flowering. Leaf sheath glabrous, green, covered in white wax. Ligule 3.5 mm. Collar brown, basally glabrous, upper surface with short, stiff hairs surmounting ribs. Leaf blade 2-3 x 0.25 m, green, dark-green, often somewhat glaucous, upper side with thick weft of hairs at base, otherwise sparsely hairy up midrib with abundant, minute prickle teeth throughout. Undersurface with leaf with 5 mm long hairs near leaf margins, otherwise harshly scabrid. Culm up to 3 m, inflorescence portion up to 1 m tall, pennant-shaped, drooping, narrowly plumose. Spikelets numerous, 25 mm with 3 florets per spikelet. Glumes equal, > or equal to florets, 1- or 3-nerved. Lemma 10 mm, scabrid. Palea 6 mm, keels ciliate. Callus hairs 2 mm. Rachilla 1 mm, glabrous. Flowers either perfect (anthers 4.5 mm) or female (3 mm). Ovary 1 mm (perfect), stigma -styles 2.5 mm; female flowers with ovary 1.3 mm, stigma-style 4 mm. Seed 3-4 mm.

SIMILAR TAXA
Closest to Austroderia toetoe form which it is best distinguished by the green rather than ivory leaf-sheaths, and by the green rather than ivory culm internodes. Also recognisable by the very slender, gracile leaves, culms and inflorescences. The inflorescences in this species are rather beautiful and resemble fine, narrow, pennants. Around the Foveaux Strait area and at Mason Bay, Stewart Island, some populations of A. richardii are distinctly rhizomatous.

FLOWERING
September - November

FRUITING
October - March

LIFE CYCLE
Florets are wind dispersed (Thorsen et al., 2009).

PROPAGATION TECHNIQUE
Easily grown from fresh seed (as a revegetation exercise ripe seed heads can be pinned to soil surface, and if kept damp, soon germinate) and division of established plants.

THREATS
Abundant and not threatened. Often naturalising in suitable habitats.

ETYMOLOGY
richardii: Named after Achille Richard (1794-1852) - a French botanist who described several New Zealand plant species

WHERE TO BUY
Commonly cultivated in the South Island, and offered by many specialist native plant nurseries. Not commonly cultivated in the North Island.

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

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

MORE INFORMATION
https://www.nzpcn.org.nz/flora/species/austroderia-richardii/

Prumnopitys taxifolia

Kowhai Bush, Wairarapa. Photographer: Jeremy Rolfe

Matai at Rotopounamu. Photographer: Nick Singers

COMMON NAME
Matai, black pine

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

FAMILY
Podocarpaceae

AUTHORITY
Prumnopitys taxifolia (D.Don) de Laub.

FLORA CATEGORY
Vascular – Native

ENDEMIC TAXON
Yes

ENDEMIC GENUS
No

ENDEMIC FAMILY
No

STRUCTURAL CLASS
Trees & Shrubs - Gymnosperms

NVS CODE
PRUTAX

CHROMOSOME NUMBER
2n = 38

CURRENT CONSERVATION STATUS
2012 | Not Threatened

PREVIOUS CONSERVATION STATUSES
2009 | Not Threatened
2004 | Not Threatened

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

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

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

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

FLOWERING
(October-) November - February

FLOWER COLOURS
No flowers

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

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

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

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

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

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

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

REFERENCES AND FURTHER READING
Allan, H.H. 1961: Flora of New Zealand. Vol. I. Government Printer, Wellington

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

MORE INFORMATION
https://www.nzpcn.org.nz/flora/species/prumnopitys-taxifolia/

Kunzea robusta

Otari Wilton's Bush, Wellington. Photographer: Jeremy Rolfe

Kunzea robusta in a young stand. Photographer: Peter de Lange

COMMON NAME
Rawirinui, kanuka

SYNONYMS
None - first described in 2014

FAMILY
Myrtaceae

AUTHORITY
Kunzea robusta de Lange et Toelken

FLORA CATEGORY
Vascular – Native

ENDEMIC TAXON
Yes

ENDEMIC GENUS
No

ENDEMIC FAMILY
No

STRUCTURAL CLASS
Trees & Shrubs - Dicotyledons

CHROMOSOME NUMBER
2n = 22

CURRENT CONSERVATION STATUS
2018 | Threatened – Nationally Vulnerable

PREVIOUS CONSERVATION STATUS
2013 | Not Threatened

BRIEF DESCRIPTION
Widespread, common tree of North and South Islands. Bark usually basally detached long leathery strips. Branches bearing masses of green leaves and clusters of small white flowers. Branchlets usually copiously covered in silky, appressed hairs. Leaves variable in size (up to 28 mm long), soft to grasp. Flowers borne in 'corymbiform' clusters, white with a red centre. Fruit a small dry capsule 2.2–4.6 × 3.2–5.3 mm.

DISTRIBUTION
Endemic. New Zealand: North and South Islands.

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

FEATURES

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

SIMILAR TAXA

Kunzea robusta is usually a tall tree (up to 30 m tall) inhabiting coastal to montane successional forested habitats; with the adult leaf surfaces glabrous except for the margins and midrib which are more or less finely covered with a thin, often interrupted band of deciduous hairs tending toward glabrate; and with inflorescences that are initially corymbiform, often elongating toward end of flowering season; and bearing foliose and squamiform, mostly deciduous pherophylls .

FLOWERING

August–June

FLOWER COLOURS

Red/Pink, White

FRUITING

Jul–May

PROPAGATION TECHNIQUE

Easily grown from fresh seed. Can be grown with great difficulty from semi-hardwood cuttings.

THREATS

Myrtle Rust (*Austropuccinia psidii*) is an invasive fungus which threatens native myrtle species - learn more myrtlerust.org.nz

ETYMOLOGY

kunzea: Named after Gustav Kunze (4 October 1793, Leipzig -30 April 1851), 19th century German botanist from Leipzig who was a German professor of zoology, an entomologist with an interest mainly in ferns and orchids
robusta: Sturdy

TAXONOMIC NOTES

Due to website space limitations the description of *Kunzea robusta* provided here is much abridged from that offered in de Lange (2014). As circumscribed by de Lange (2014) remains a variable species, and that treatment recognises three races which may warrant further study. *Kunzea robusta* is the most widespread, common New Zealand species, and it is not only highly variable, but readily forms hybrids with other *Kunzea* in disturbed habitats. Nevertheless, even in hybrid zones branchlet hairs and bark characters will help distinguish this species.

ATTRIBUTION

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

REFERENCES AND FURTHER READING

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

CITATION

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

MORE INFORMATION

https://www.nzpcn.org.nz/flora/species/kunzea-robusta/

Plagianthus regius subsp. regius

Plagianthus regius. Photographer: John Barkla

Rimutaka Rail Trail. Dec 2006. Photographer: Jeremy Rolfe

COMMON NAME
Manatu, ribbonwood, lowland ribbonwood

SYNONYMS
Philippodendrum regium Poiteau, Plagianthus betulinus A.Cunn., Plagianthus betulinus A.Cunn. var. betulinus, Plagianthus urticinus A.Cunn.

FAMILY
Malvaceae

AUTHORITY
Plagianthus regius (Poit.) Hochr. subsp. regius

FLORA CATEGORY
Vascular – Native

ENDEMIC TAXON
Yes

ENDEMIC GENUS
Yes

ENDEMIC FAMILY
No

STRUCTURAL CLASS
Trees & Shrubs - Dicotyledons

NVS CODE
PLARSR

CHROMOSOME NUMBER
2n = 42

CURRENT CONSERVATION STATUS
2012 | Not Threatened

PREVIOUS CONSERVATION STATUSES
2009 | Not Threatened
2004 | Not Threatened

BRIEF DESCRIPTION
Tall tree with soft jagged pointed leaves and long sprays of tiny yellowish flowers and small green fruit that fall as a unit. Wood soft. Leaves 3-7.5cm long, much wider at base. Juveniles with tangled twigs bearing shorter rounded leaves with blunt bases.

DISTRIBUTION
Endemic. New Zealand: North, South and Stewart Islands

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

SIMILAR TAXA
Plagainthus regius subsp. chathamicus is very similar. It is endemic to the Chatham Islands and differs only from subsp. regius by the complete lack of the filiramulate, divaricating juvenile growth habit typical of subsp. regius. Both subspecies are now present in New Zealand proper, and subsp. chathamicus is now often sold from garden centres as P. regius. So look for the divaricating growth habit if you want to ensure you have the appropriate plant for your area.

FLOWERING
September - November

FLOWER COLOURS
Green

PROPAGATION TECHNIQUE
Easily grown from fresh seed. However, seed is often difficult to obtain because it is usually damaged by insects. A very fast growing tree which is an excellent specimen tree for a large garden or park. Does well in most situations but prefers a fertile, moist but free draining soil.

ETYMOLOGY
plagianthus: Oblique or lop-sided flower (petals uneven at the base)
regius: Royal

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

MORE INFORMATION
https://www.nzpcn.org.nz/flora/species/plagianthus-regius-subsp-regius/

Hoheria angustifolia

At Carters bush, Carterton. January. Photographer: John Smith-Dodsworth

Hoheria angustifolia Dunedin. Photographer: John Barkla

COMMON NAME
Narrow-leaved Houhere

SYNONYMS
Hoheria populnea var. angustifolia (Raoul) Hook.f.

FAMILY
Malvaceae

AUTHORITY
Hoheria angustifolia Raoul

FLORA CATEGORY
Vascular – Native

ENDEMIC TAXON
Yes

ENDEMIC GENUS
Yes

ENDEMIC FAMILY
No

STRUCTURAL CLASS
Trees & Shrubs - Dicotyledons

NVS CODE
HOHANG

CHROMOSOME NUMBER
2n = 42

CURRENT CONSERVATION STATUS
2012 | Not Threatened

PREVIOUS CONSERVATION STATUSES
2009 | Not Threatened
2004 | Not Threatened

BRIEF DESCRIPTION
Tall soft-wooded grey-trunked tree bearing masses of narrow sharply-toothed leaves and small clusters of white flowers that develop into dry papery winged fruits. Leaves 20-48mm long by 5-10mm wide (juvenile leaves much shorter and rounder). Flowers in groups of 1-8, on stalks 10-12mm long.

DISTRIBUTION
Endemic. New Zealand: North and South Islands - mostly easterly from the Wairoa River Northland south to Southland. In the North Island scarce north of the Hawkes Bay, absent from Taranaki, Bay of Plenty and Auckland areas and from most of the Waikato. In the South Island absent from Westland and Fiordland.

HABITAT
A common mostly lowland forest species frequenting alluvial forest where it may at times be dominant. Hoheria angustifolia is often an important host for taapia (Tupeia antarctica).

FEATURES
Slender heteroblastic tree up to 18 m tall. Mature branches and branchlets ± glabrous; young branches and branchlets finely and densely covered in stellate-pubescence. Juvenile and sub-adults filiramulate-divaricate, branchlets slender, pliant, ± interlacing. Leaves distant, fascicled, on very slender petioles, 1.0-2.3 mm long; lamina (2.0-)4.0(-8.4) × 4.0-7.5 mm, grey-green to dark green, broad-obovate to suborbicular, cuneately narrowed to base, dentate along upper margin. Adult leaves, less widely spaced, fascicled. petioles 4.8-5.3 mm long; lamina (including teeth) 20-48 × 5-10 mm; narrow, obovate, oblanceolate, oblong, lanceolate, apex obtuse to acute; margins coarsely spinulose dentate-serrate; teeth up to 4 mm long. The different leaf-forms may all occur on the same plant, often as reversion shoots on damaged mature trees. Flowers solitary or in 2-8-flowered cymose fascicles on very slender stellate-pubescent pedicels 10-12 mm long. Calyx densely pubescent, campanulate, 3.0-4.2 mm long, (3-)5-fid; teeth broad-triangular. Petals (5-)7(-9) mm long, white, obliquely narrow-oblong, notched. Stigma capitate. Anthers reniform. Carpels and styles 5. Mericarp semicircular, winged, main body 2.5-3.5 mm long, pale brown; wing 3.0-6.0 mm long, light-orange yellow, densely covered with stellate hairs near base. Description adapted from Allan (1961) and Webb & Simpson (2011).

SIMILAR TAXA
Easily distinguished from all other Hoheria species by the heteroblastic growth habit in which the filiramulate-divaricating juvenile form is long persistent, being usually seen as reversion shoots on mature trees. The mature leaves of Hoheria angustifolia are also much narrowed and more deeply toothed than any other species. However, where the ranges of Hoheria angustifolia and H. sexstylosa overlap hybrids between both species are common (these have even been formally named as H. populnea var. lanceolata - a “variety” many New Zealand botanists seem to think equates with H. sexstylosa one of its parents! Another expression of this hybrid found occasionally in the Tararua Ranges, Eastern Wairarapa, South Wellington Coastline and in parts of the Marlborough Sounds has even been referred to as a “new species” Hoheria “Tararua”. These hybrids can be recognised by their shorter, broader canopy and variable leaf dimensions which are intermediate between both parents - unfortunately introgressive hybrid swarms are frequent, and at times the hybrid dominates where one or more parents have been eliminated. Detailed research into these hybrid swarms using modern molecular methods is sorely needed to determine the extent of gene-flow as well as to characterize the nature of this hybridism.

FLOWERING
December - February

FLOWER COLOURS
White

FRUITING
February - April

LIFE CYCLE
Winged mericarps are dispersed by wind (Thorsen et al., 2009).

PROPAGATION TECHNIQUE
Easy from fresh seed. Very fast growing and the diversity of foliage types exhibited by juvenile and adults can be very attractive. Due to its large size it is best for a big garden

THREATS
Not Threatened - though the northern North Island populations are small and few are on protected land

ETYMOLOGY
hoheria: Latin version of the Maori name houhere which refers to H. populnea and H. glabrata.
angustifolia: Narrow-leaved

WHERE TO BUY
Occasionally sold by garden centres and commonly available from specialist native plant nurseries

ATTRIBUTION
Fact Sheet Prepared for NZPCN by: P.J. de Lange 3 April 2011. Description adapted from Allan (1961) and Webb & Simpson (2011).

REFERENCES AND FURTHER READING

Allan, H.H. 1961: Flora of New Zealand. Vol. I, Wellington, Government Printer.
Webb, C.J.; Simpson, M.J.A. 2001: Seeds of New Zealand Gymnosperms and Dicotyledons. Christchurch, Manuka Press.
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

CITATION

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

MORE INFORMATION

https://www.nzpcn.org.nz/flora/species/hoheria-angustifolia/

Myrsine australis

Fruit. Photographer: Wayne Bennett

Mapou. Photographer: Wayne Bennett

COMMON NAME
Red mapou, red matipo, mapau, red maple

SYNONYMS
Suttonia australis Richard, Myrsine urvillei A.DC., Rapanea australis (Richard) W.R.B.Oliv.

FAMILY
Primulaceae

AUTHORITY
Myrsine australis (A.Rich.) Allan

FLORA CATEGORY
Vascular – Native

ENDEMIC TAXON
Yes

ENDEMIC GENUS
No

ENDEMIC FAMILY
No

STRUCTURAL CLASS
Trees & Shrubs - Dicotyledons

NVS CODE
MYRAUS

CHROMOSOME NUMBER
2n = 46

CURRENT CONSERVATION STATUS
2012 | Not Threatened

PREVIOUS CONSERVATION STATUSES
2009 | Not Threatened
2004 | Not Threatened

BRIEF DESCRIPTION
Common tall bushy shrub with bright red twigs bearing wavy yellow-green leaves. Leaves 3-6cm long, with an undulating edge. Flowers small, in clusters. Fruit almost black.

DISTRIBUTION
Endemic. Three Kings, North, South and Stewart Islands.

HABITAT
Common tree of regenerating and mature forest in coastal to montane situations. Often common on northern offshore islands.

FEATURES
Shrub or small tree up 6 m tall. Trunk stout, 0.2-0.6 m diam. Bark dark black or purple-black, red on younger branches. Branchlets numerous erect to spreading, very leafy. Petioles stout, fleshy, 5 mm long, often red or green mottled red. Leaves 30-60 x 15-25 mm, dark green to yellow-green variously mottled or blotched with red, or purple spots, leathery, glabrous except for finely pubescent mid vein, obovate-oblong to broad-elliptic, apex obtuse, margins entire, strongly undulate, rarely flat. Inflorescence a fascicle, usually numerous and crowded, produced along branchlets and in leaf axils. Fixed female and inconstant male flowers on different plants, 1.5-2.5 mm diam., white, cream or pale green. Pedicels short, stout, dark red or purple-black. Calyx-lobes 4, sometimes heavily reduced, long persistent. Petals 4, lanceolate, obtuse, free, revolute. Fruit a 1-seeded drupe, 2-3 mm diam., purple-black to black when mature.

SIMILAR TAXA
Distinguished from all other New Zealand Myrsine by the small, purple/wine-red blotched or spotted, strongly undulating obovate-oblong to broad-elliptic leaves.

FLOWERING
August - January

FLOWER COLOURS
Cream, White

FRUITING
September - May

PROPAGATION TECHNIQUE
Easy from fresh seed. Can be grown from semi-hardwood cuttings but tricky. Best results are obtained using a mist unit.

ETYMOLOGY
myrsine: Myrrh
australis: Southern

WHERE TO BUY
Occasionally cultivated. Easily grown in a wide range of habitats, making an ideal hedge or small specimen tree. Sometimes available from mainline commercial nurseries, and commonly sold by specialist native plant nurseries.

KEYSTONE IMPORTANCE
One of three known hosts for Adams mistletoe (*Trilepidea adamsii*).

ATTRIBUTION
Fact Sheet Prepared for NZPCN by: P.J. de Lange 28 October 2009. Description based on Allan (1961)

REFERENCES AND FURTHER READING
Allan, H.H. 1961: Flora of New Zealand. Vol. I. Wellington, Government Printer.

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

MORE INFORMATION
https://www.nzpcn.org.nz/flora/species/myrsine-australis/

Griselinia littoralis

Coromandel, October. Photographer: John Smith-Dodsworth

Coromandel, October. Photographer: John Smith-Dodsworth

COMMON NAME
Broadleaf, kapuka, papauma

FAMILY
Griseliniaceae

AUTHORITY
Griselinia littoralis Raoul

FLORA CATEGORY
Vascular – Native

ENDEMIC TAXON
Yes

ENDEMIC GENUS
No

ENDEMIC FAMILY
No

STRUCTURAL CLASS
Trees & Shrubs - Dicotyledons

NVS CODE
GRILIT

CHROMOSOME NUMBER
2n = 36

CURRENT CONSERVATION STATUS
2012 | Not Threatened

PREVIOUS CONSERVATION STATUSES
2009 | Not Threatened
2004 | Not Threatened

BRIEF DESCRIPTION
Bushy tree with a rough dark trunk bearing thick glossy green rounded leaves that are paler underneath on a yellowish stem. Leaves 5-10cm long by 2-5cm, base slightly uneven. Flowers small, yellowish or cream. Fruit dark purple, 6-7mm long, with a small ring at tip, arranged in a spike.

FLOWER COLOURS
Green, Yellow

LIFE CYCLE
Fleshy berries are dispersed by frugivory (Thorsen et al., 2009).

ETYMOLOGY
griselinia: After Griselini
littoralis: From the Latin littus ‘shore’, meaning shore-loving or growing on the shore

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

MORE INFORMATION
https://www.nzpcn.org.nz/flora/species/griselinia-littoralis/

Pseudopanax crassifolius

Makarora Valley. March. Photographer: John Sawyer

Rimutaka Rail Trail. Dec 2006. Photographer: Jeremy Rolfe

COMMON NAME
Horoeka, lancewood

SYNONYMS
Aralia crassifolia Sol. ex A.Cunn., Panax crassifolium (Sol.) Decne et Planchon, Panax longissimum Hook.f., Panax coriaceum Regel, Hedera crassifolia Gray

FAMILY
Araliaceae

AUTHORITY
Pseudopanax crassifolius (Sol. ex A.Cunn.) C.Koch

FLORA CATEGORY
Vascular – Native

ENDEMIC TAXON
Yes

ENDEMIC GENUS
No

ENDEMIC FAMILY
No

STRUCTURAL CLASS
Trees & Shrubs - Dicotyledons

NVS CODE
PSECRA

CHROMOSOME NUMBER
2n = 48

CURRENT CONSERVATION STATUS
2012 | Not Threatened

PREVIOUS CONSERVATION STATUSES
2009 | Not Threatened
2004 | Not Threatened

BRIEF DESCRIPTION
Small tree with distinctive draped thick long narrow toothed juvenile leaves

DISTRIBUTION
Endemic. North, South and Stewart Islands. Widespread and common

HABITAT
Lowland to montane forest. Sealevel to c. 750 m a.s.l.

FEATURES
Bushy topped tree to 15 m tall, branchlets fleshy, trunk us. unbranched in lower part, to 50 cm diam., distinctly ridged when young, bark dark becoming paler with age, wood tough. Leaves alternate; leaflets 1-3 in seedling, palmate, sessile or subsessile on very short petiolule, submembranous coarsely toothed, absent from juvenile and adult. Juvenile leaves dark green, narrow-linear, deflexed, to 1 m long, coriaceous, midrib pale cream-yellow, raised, margins distantly sharply toothed, distal margin of tooth perpendicular to midvein, not swollen. Adult leaves shorter, 10-20 x 2-3 cm, dark green, very occ. trifoliate (probably due to hybridisation with oither species), narrow elliptic-cuneate to lanceolate or linear-obovate, acute or obtuse, margins entire to sunuate or coarsely serrate, subsessile or on petioles to 10 mm long, petiole base expanded around stem. Inflorescence a terminal umbel, irregularly compound; primary rays (branchlets) 5-10, c. 6 cm long; umbellules sometimes racemosely arranged. Ovary 5-loculed, each containing 1 ovule; style branches 5, connate, tips sometimes free. Fruit fleshy, subglobose, 4-5 mm diam., style branches retained on an apical disc, dark purple when ripe. Seeds 4-5 per fruit, easily separated, broadly ovate, grooved, 2.2-3.5(-5.5) mm long.

SIMILAR TAXA
Usually only confused with the rarer Pseudopanax ferox which has rounded discoloured teeth on the juvenile leaves, and darker brown adult leaves. Pseudopanax ferox also has a larger fruit.

FLOWERING
January-April

FLOWER COLOURS
Green, Yellow

FRUITING
January-April

ETYMOLOGY
pseudopanax: False cure
crassifolius: From the Latin crassus' thick and folius 'leaf'

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

REFERENCES AND FURTHER READING
Allan, H.H. 1961. Flora of NZ, Vol. I. Government Printer, Wellington
Webb, C.J. & Simpson, M.J.A. 2001. Seeds of NZ gymnosperms and dicotyledons. Manuka Press, Christchurch.

MORE INFORMATION
https://www.nzpcn.org.nz/flora/species/pseudopanax-crassifolius/

Carpodetus serratus

Mikimiki, Tararua Forest Park. Jan 1994.
Photographer: Jeremy Rolfe

Mikimiki, Tararua Forest Park. Jan 1994.
Photographer: Jeremy Rolfe

COMMON NAME
Putaputaweta, marbleleaf

FAMILY
Rousseaceae

AUTHORITY
Carpodetus serratus J.R.Forst. et G.Forst.

FLORA CATEGORY
Vascular – Native

ENDEMIC TAXON
Yes

ENDEMIC GENUS
No

ENDEMIC FAMILY
No

STRUCTURAL CLASS
Trees & Shrubs - Dicotyledons

NVS CODE
CARSER

CHROMOSOME NUMBER
2n = 30

CURRENT CONSERVATION STATUS
2012 | Not Threatened

PREVIOUS CONSERVATION STATUSES
2009 | Not Threatened
2004 | Not Threatened

BRIEF DESCRIPTION
Small tree with smallish round or oval distinctively mottled (hence common name) toothed leaves; branchlets zig-zag (particularly when young)

DISTRIBUTION
Endemic. Widespread. North, South and Stewart Islands.

HABITAT
Coastal to montane (10-1000 m a.s.l.). Moist broadleaf forest, locally common in beech forest. A frequent component of secondary forest. Streamsides and forest margins.

FEATURES
Monoecious small tree up to 10 m tall. Trunk slender, bark rough, corky, mottled grey-white, often knobbled due to insect boring. Juvenile plants with distinctive zig-zag branching which is retained to a lesser degree in branchlets of adult. Leaves broad-elliptic to broad-ovate or suborbicular; dark green, marbled; membranous becoming thinly coriaceous; margin serrately toothed; tip acute to obtuse. Juvenile leaves 10-30 mm x 10-20 mm. Adult leaves 40-60 mm x 20-30mm. Petioles c. 10 mm; petioles, peduncles and pedicels pubescent; lenticels prominent. Flowers in panicles at branchlet tips; panicles to 50 x 50 mm; flowers 5-6 mm diam.; calyx lobes c. 1 mm long, triangular-attenuate; petals white, ovate, acute, 3-4 mm long. Stamens 5-6, alternating with petals; filaments short. Stigma capitate, tip dark; ovules many. Fruit an indehiscent subfleshy-fleshy capsule, 4-6 mm diam., black when mature; cupped in remains of calyx. Seeds many per capsule, in 3-5 locules, small, 1-2 mm long; testa reticulate.

SIMILAR TAXA
Not likely to be confused with any other NZ shrub or small tree. Perhaps most similar to juvenile kaikomako Pennatia corymbosa which does not have mottled leaves and the leaves are only toothed in the top half (reminiscent of a ducks foot).

FLOWERING
November-March

FLOWER COLOURS
White

FRUITING
January-February (though dried fruit present at any time)

LIFE CYCLE
Fleshy berries are dispersed by frugivory (Thorsen et al., 2009).

ETYMOLOGY
carpodetus: Fruit bound together (girdled)
serratus: Saw-toothed

NOTES
This species is damaged by the burrowing larvae of the native puriri moth (*Aenetus virescens*). Caterpillars create burrows in the trunk and feed on cambium at the burrow entrance, creating characteristic diamond-shaped feeding scars. The caterpillar hides the web entrance with a silken web. Heavy feeding can weaken trees, in particular those with thin trunks. For more information about the life-cycle of the puriri moth and a list of other host species follow this link. (Martin, 2010).

ATTRIBUTION
Description adapted from Allan (1961), puriri moth information modified from Martin (2010.

REFERENCES AND FURTHER READING
Allan, H.H. 1961. Flora of NZ I. Government Printer, Wellington.
Martin, N. A. (2010). Puriri moth - *Aenetus virescens* fact sheet, retrieved from the website Interesitng Insects and other Invertebrates.
http://nzacfactsheets.landcareresearch.co.nz/factsheet/OrganismProfile/Puriri_moth_-_Aenetus_virescens.html
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

MORE INFORMATION
https://www.nzpcn.org.nz/flora/species/carpodetus-serratus/

Glossary

abaxial	Facing away from the stem of a plant (especially denoting the lower surface of a leaf).
acerose	Narrow with a sharp stiff point.
achene	A simple, dry, one–seeded (one–celled) fruit.
acicular	Needle-shaped.
acidic	Having a low pH, opposite of basic or alkaline.
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	Flowering period from when the bud opens
apex	Tip; the point furthest from the point of attachment.
apices	Plural of apex. Tip, the point furthest from the point of attachment.
apiculate	Bearing a short slender and flexible point.
apiculus	A small, slender point.
apomixis	A form of reproduction whereby seed is formed without the usual mode of sexual fusion.
appressed	Pressed against another organ or surface.
aquatic	Growing, or living in, or frequenting water. Applied to plants and animals and their habitats. Opposite of terrestrial (land living).
archegonium	Female reproductive organ of a fern formed on the prothallus.
arcuate	Curved into an arch.
aril	An often fleshy appendage on the outside of a seed.
artificial thinning	Selectively removing vegetation to create gaps to facilitate natural invasion of native plants, or to plant later successional plants.
ascending	Growing obliquely upward.
asexual	Vegetative reproduction, lacking sexual involvement by sperm or egg cells.
attenuate	Narrowing gradually.
auricle	A small, ear-shaped appendage.
auriculate	Bearing a small, ear-shaped appendage.
autogamous	Self-fertilising flowers.
autotrophic	Of or relating to organisms (as green plants) that can make complex organic nutritive compounds from simple inorganic sources by photosynthesis.
awn	A stiff or bristle like projection often from the tip or back of an organ.

axil	The upper angle between the leaf and the stem.
axis	The longitudinal supporting structure around which organs are borne, e.g., a stem bearing leaves.
barbellate	Barbed, having or covered with protective barbs or quills or spines or thorns or setae.
basal	At the base.
basiscopic	Pointing towards the base.
beak	A prominent extension of an organ.
bifid	Deeply split into two lobes.
bifurcate	Divided into two.
biosecurity	Preventing, eradicating, controlling and managing risks posed by pests and diseases.
biotic	Pertaining to the living parts of the environment.
bipinnate	With each primary pinna divided to the midrib into a secondary pinna.
biserrate	Doubly serrate.
blade	The flattened part of a leaf.
blunt	Not pointed at the ends.
bog	A quagmire covered with specialised plants including sphagnum moss, grasses, sedges, rushes, sundews, umbrella ferns and other plants; has wet, spongy ground, a marsh-plant community on wet, very acid peat. Fed only by rainfall.
bottleneck	A genetic term; refers to the fact that in smaller populations there could be lower genetic variability.
brachyblasts	Short shoots.
bract	A reduced leaf or leaf-like structure at the base of a flower.
bracteate	Bearing bracts: leaves or leaf-like structure reduced at the base of a flower.
bracteolate	With small bracts.
bracteole	A small bract.
bracteoles	Bracts directly below the flower.
brevideciduous	Brief (1 month or less) loss of most leaves from the canopy just before flowering or during flushing of a new cohort of leaves.
bryophyte	Plant group including mosses, liverworts and hornworts.
bryophytes	Plant group including mosses, liverworts and hornworts.
bulbil	A bud produced vegetatively on the stem or frond that is capable of breaking 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.
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.
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.
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.

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.
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).
papilla	A short rounded projection.
papillae	A soft, fleshy projection, usually small and nipple–like.
papillate	With short rounded projections.
papillose	Warty, with short rounded projections or gland-dotted.
parallel venation	Veins are parallel along leaf.
parasite	An organism that derives all its nourishment from its host.
patent	Spreading or expanded, e.g., spreading petals.
peat	A mass of partially carbonised plant tissue formed by partial decomposition in water of various plants and especially of mosses of the genus Sphagnum, widely found in many parts of the world, varying in consistency from a turf to a slime used as a fertiliser, as stable litter, as a fuel, and for making charcoal. Partially carbonized vegetable matter saturated with water; can be used as a fuel when dried. A type of soil deriving from dead organic material situated in a wet area, where the reduced amount of [[oxygen available in the wet conditions results in the organic material not decomposing as much as it usually would do so in the presence of more oxygen. Used in growing media. Represents an important carbon sink –drainage of peat releases large amounts of carbon (CO_2) to the atmosphere.
pedicel	The stalk of a single flower in an inflorescence or fruit (either in a cluster or existing singularly).
peduncle	The stalk of a solitary flower or the main stalk of an inflorescence or flower cluster.
pedunculate	Describing fruits, which are borne on a stalk (a peduncle).
pellucid	Transparent.
peltate	Shield-like, with the stalk attached well inside the margin.
pendent	Hanging down from its support.
pendulous	Hanging or drooping.
penicillate	With a tuft of hairs at the end, like a brush.
perennial	A plant lasting for three seasons or more.
perianth	A collective term for the calyx (sepals or tepals) and corolla (petals) of the flower, especially when these are indistinguishable.
petal	Part of flower inside the sepals; usually coloured.
petiolate	Having a petiole.

petiole	Leaf stalk.
phloem	The vascular tissue in land plants that is primarily responsible for the distribution of sugars and nutrients manufactured in a shoot.
photopoint	A monitoring technique where repeat photos are taken of the same scene from the same point over a period of time in order to quantify changes.
pilose	Bearing long, soft hairs.
pinna	A segment of a divided lamina that is classified as primary, secondary or tertiary according to the degree of dissection of the lamina.
pinnae	Divisions of a pinnate leaf.
pinnate	With leaflets arranged regularly in two rows on either side of a stalk as in a feather; the lamina on a fern is divided into separate pinnae.
pinnatifid	Pinnately lobed, cleft more than halfway to the midrib. Not cleft all the way to the rachis.
pinnatisect	Pinnately divided almost to midrib but segments still confluent.
pioneer	Plant species are hardy species that should be planted first to establish a good canopy cover that restricts weed growth and promotes natural regeneration. In natural ecosystems these are the first plants to arrive and grow on a site.
pistil	The female reproductive organ of a flower, consisting of an ovary, style, and stigma.
pistillate	A flower with one or more pistils, but no stamens.
plano-convex	Flat on one side, convex on the other.
plumose	Feathery.
podzol	Infertile, acidic soil, strongly leached to form a whitish-grey subsoil underlain by a layer enriched in iron, aluminium and organic matter; usually under forest in a wet temperate climate.
pole	A subcanopy size individual with a long thin trunk and foliage tuft of a potential canopy tree.
pollinia	Compact masses of orchid pollen.
population enhancement	Increasing a population for a specific biological purpose, e.g., when a species is already present in an area but extra individuals are added to address a sex imbalance.
porrect	Extending forward.
procumbent	Lying and flat along the ground but not rooting.
propagate	To reproduce a plant by sexual (i.e., from seed) or asexual (e.g., from cuttings) means.
prostrate	A general term for lying flat along the ground. This includes procumbent (that is lying and flat along the ground but not rooting) and decumbent (with a prostrate or curved base and an erect or ascending tip).
provenance	The place of origin (of a plant that is in cultivation).
proximal	Toward the base or point of attachment (cf. distal).
pseudobulb	Thickened surface stem; usually looking like a bulb.
pseudoterminal	Falsely terminal – as in a bud which appears to occupy a terminal position but does not.
puberulent	Minutely clad in short, soft hairs.
pubescence	Covering of soft, fine hairs.
pubescent	Covered in short, soft hairs.
pungent	Ending in a stiff sharp point.
pustule	Small blister-like elevation.
quadrate	Square, rectangular.
raceme	An unbranched, elongated inflorescence with pedicellate flowers maturing from the bottom upward i.e., flowers attached to the main stem by short stalks.
rachis	The axis of an inflorescence or of a compound leaf.
ray	An outer ring of strap-like florets in the head of Asteraceae (daisy) flowers.
re-introduction	Translocating wild or cultivated individuals to sites where the taxon has been known to occur in the past, but from which it has disappeared.
recurved	Curved backward.
reflexed	Bent back on itself.
reniform	Kidney shaped.
repand	With a slightly wavy margin.
replum	The outer structure of a pod in which the valves have dehisced (persists after the opening of the fruit).

restiad	Area dominated by rush-like plants (collectively known as restiads) of the family Restionaceae. Includes Chatham Island and North Island Sporodanthus and oioi (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”.
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.
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.
whipcord	A shrub in which the leaves are reduced to scales that are close-set and pressed against the stem.
whorl	A ring of branches or leaves arising at the same level around the stem of a plant.
whorled	Aranged in a ring around the stem.