Emergent flora of Lake Rototoa - Part 2

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

Emergent sedges and reeds of Lake Rototoa- Part 2

References

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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/

Machaerina articulata

Pauanui, February. Photographer: John Smith-Dodsworth

Pauanui, February. Photographer: John Smith-Dodsworth

COMMON NAME
Jointed Baumea, jointed twig rush

SYNONYMS
Cladium articulatum R.Br.; Baumea articulata (R.Br.) Blake

FAMILY
Cyperaceae

AUTHORITY
Machaerina articulata (R.Br.) Koyama

FLORA CATEGORY
Vascular – Native

ENDEMIC TAXON
No

ENDEMIC GENUS
No

ENDEMIC FAMILY
No

STRUCTURAL CLASS
Sedges

NVS CODE
MACATC

CHROMOSOME NUMBER
2n = 24

CURRENT CONSERVATION STATUS
2012 | Not Threatened

PREVIOUS CONSERVATION STATUSES
2009 | Not Threatened
2004 | Not Threatened

DISTRIBUTION
Indigenous. Australia, New Zealand, New Caledonia and the New Hebrides. In New Zealand confined to the North Island where it is known from Te Paki south to the Manawatu River.

HABITAT
Coastal to lowland (up to 380 m a.s.l.). A common emergent species of swampy lakes, ponds, stream and river margins. Also colonising the lag zone of peat bogs.

FEATURES
Stout, perennial sedge of semi-aquatic and aquatic habitats. Rhizome 5-7 mm diameter, usually long and widely creeping and covered with numerous tightly imbricating bracts. Culms 0.8-2.0 m tall, 4-6 mm diameter, cylindrical, smooth; hollow except for transverse septa more less distinct externally in lower part of culm. leaves more or less equal in length to culms; lamina terete, with distinct transverse septa; apex subacute, pungent; sheaths very long; lowermost leaves reduced to long, chartaceous, grey or light brown, mucronate bracts. Panicle 120-300 mm long, pendulous, heavily branched; branchlets in fascicles from sheathing bracts;, lowermost bract 60-200 mm long, with lamina septate like the leaves. Spikelets exceedingly numerous, 4-6 mm long, deep red-brown, 1-3-flowered, 1-2 flowers fertile, usually not necessarily the lowest. Glumes 4-7, ovate or ovate-lanceolate, acute or acuminate, scabrid at the back and on the keel, margins scabrid or with short cilia; lowermost 1-2 glumes empty. Nut 2.0 x 1.5 mm, trigonous, elliptical to obovoid, red-brown with paler thickened angles, very shortly stipitate, crowned by the cushion-like pyramidal style-base.

SIMILAR TAXA
Easily distinguished from all other Machaerina species by the terete, externally septate leaves. It has a superficial similarity to Eleocharis sphacelata from which it differs by the taller, dark green leaves and taller, many-branched drooping paniculate rather than spicate inflorescence.

FLOWERING
September - December

FRUITING
November - May (but fruits may be present throughout the year)

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

PROPAGATION TECHNIQUE
Easily grown from fresh seed and by the division of whole plants. Best grown on the margin of a pond, lake or slow flowing stream. An attractive though rather large sedge which is best grown in a place where there is suitable space for it. Prefers full sun and does best when planted into water. However, it is also tolerant of dry soils and can be grown in most garden situations.

ETYMOLOGY
articulata: Having joints, jointed

ATTRIBUTION
Fact sheet prepared for NZPCN by P.J. de Lange (8 September 2006). Description adapted from Moore & Edgar (1970)

REFERENCES AND FURTHER READING
Moore, L.B.; Edgar, E. 1970: Flora of New Zealand. Vol. II. Government Printer, Wellington.
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): Machaerina articulata Fact Sheet (content continuously updated). New Zealand Plant Conservation Network.
https://www.nzpcn.org.nz/flora/species/machaerina-articulata/ (Date website was queried)

MORE INFORMATION
https://www.nzpcn.org.nz/flora/species/machaerina-articulata/

Machaerina arthrophylla

SYNONYMS
Baumea huttonii (Kirk) Blake; Baumea arthrophylla (Nees) Boeck.

FAMILY
Cyperaceae

AUTHORITY
Machaerina arthrophylla (Nees) Koyama

FLORA CATEGORY
Vascular – Native

ENDEMIC TAXON
No

ENDEMIC GENUS
No

ENDEMIC FAMILY
No

STRUCTURAL CLASS
Sedges

NVS CODE
MACART

CURRENT CONSERVATION STATUS
2012 | Not Threatened

PREVIOUS CONSERVATION STATUSES
2009 | Not Threatened
2004 | Not Threatened

DISTRIBUTION
Indigenous. New Zealand: North (Waikato south to Waiouru), South (D'urville Island, Westland, Southland), and Chatham Island. Also in Australia.

HABITAT
Coastal to subalpine (up to 1200 m a.s.l.) in freshwater wetlands, especially on the margins of lakes, tarns and slow-flowing streams; also within burn pools in restiad bogs, and in low moor, acidic wetlands.

Baumea arthrophylla. Photographer: Wayne Bennett

FEATURES

Dark green, rhizomatous sedge. Rhizome c.3 mm diameter, horizontal, shortly creeping, hard, lignaceous, covered with very loose bracts. Culms 0.5–1.3 m tall, 1–2 mm diameter, terete. Lowermost leaves reduced to sheathing bracts, light brown; upper leaves 1–3, terete like the stems, internally septate, tips acute. Inflorescence a panicle, 100–400 mm long, rounded at the tip, interrupted, branchlets drooping, in distant fascicles, the lowermost often remote, the stoutest lateral branchlet arising from lowest spathaceous bract < 1 mm diameter, usually only c.0.5 mm diameter; bracts large, membranous, acuminate, spathaceous, light greenish brown. Spikelets, 3.0–4.5 mm long, approximate and rather evenly distributed along the branchlets, brown, 2–4-flowered, usually only 2 lowest flowers fertile. Glumes 4–7, ovate, acute, or acuminate, membranous, pale brown below, red towards the apex and scabrid; margins ciliate. Nut 2.0–2.5 x c.1 mm, oblong, trigonous, smooth, whitish, beak small.

SIMILAR TAXA

Machaerina arthrophylla is recognised by the terete, dark green, internally septate leaves; red-brown inflorescences which are rounded at the apices, and whose branches are arranged in distant fascicles (and whose stoutest lateral branchlet of inflorescence arises from the lower most spathaceous bract, and which is

FLOWERING

October - December

FRUITING

December - May

LIFE CYCLE

Nuts are wind dispersed (Thorsen et al., 2009).

PROPAGATION TECHNIQUE

Difficult. Can be grown from fresh seed but slow to establish. Resents root disturbance.

ATTRIBUTION

Fact sheet prepared for NZPCN by P.J. de Lange (8 September 2006). Description adapted from Moore & Edgar (1970).

REFERENCES AND FURTHER READING

Moore, L.B.; Edgar, E. 1970: Flora of New Zealand. Vol. II. Government Printer, Wellington.
Wilcox, M. 2002. *Baumea arthrophylla* at Mahurangi. Auckland Botanical Society, 57: 51
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): Machaerina arthrophylla Fact Sheet (content continuously updated). New Zealand Plant Conservation Network. https://www.nzpcn.org.nz/flora/species/machaerina-arthrophylla/ (Date website was queried)

MORE INFORMATION

https://www.nzpcn.org.nz/flora/species/machaerina-arthrophylla/

Machaerina juncea

COMMON NAME
Sedge, tussock swamp twig rush

SYNONYMS
Cladium junceum R.Br.; Lepidosperma colensoi Boeck.; Baumea juncea (R.Br.) Palla

FAMILY
Cyperaceae

AUTHORITY
Machaerina juncea (R.Br.) Koyama

FLORA CATEGORY
Vascular – Native

ENDEMIC TAXON
No

ENDEMIC GENUS
No

ENDEMIC FAMILY
No

STRUCTURAL CLASS
Sedges

NVS CODE
MACJUN

CURRENT CONSERVATION STATUS
2012 | Not Threatened

PREVIOUS CONSERVATION STATUSES
2009 | Not Threatened
2004 | Not Threatened

DISTRIBUTION
Indigenous. New Zealand: Three Kings, North and South Islands but scarce south of the Bay of Plenty and Waikato, and very uncommon in the South Island where it known mostly from Nelson, Marlborough and North Westland, though it extends south into Otago.

HABITAT
Coastal to lower montane. Locally common in damp sites in gum land, swamps, salt marshes, and also along lake margins and river estuaries.

Whangapoua harbour, October. Photographer: John Smith-Dodsworth

Waikumete, Auckland. Sickle-shaped tip of bract. Oct 2007. Photographer: Jeremy Rolfe

FEATURES

Tufted, rush-like, rhizomatous perennial. Rhizome 3–10 mm diameter, woody, usually shortly creeping, sometimes greatly elongated, covered with loose, papery, imbricate, light brown bracts. Culms 0.2–1.35 tall, 1.0–3.5 mm wide, arising in mostly short- spaced (crowded) tufts along rhizome, terete, rigid, erect, smooth, glaucous to glaucescent, with 1–2 distant nodes. Leaves all reduced to light brown or reddish sheathing bracts, the lowermost smaller, mucronate, the upper 1–3 longer, distant along the culm, usually dark brown at the orifice, with a small, sickle-shaped, laterally flattened mucro-like lamina up to 5 mm long. Inflorescence 25–100 mm long, stiff, erect, spike-like, sparingly branched, subtended by a much shorter sheathing bract. Spikelets not fascicled, 4–5 mm long, red-brown, 1–2-flowered, only the lowest flowers fertile. Glumes 4–5, oblong-lanceolate, acute, membranous, streaked with brown, scabrid on the keel and towards the tip. Nut 2.5–3.0 × c. 1.5 mm, oblong-ovoid, obscurely trigonous, dark brown to black, orange near the base, surface pitted, surmounted by the small, tumid, pubescent style-base.

SIMILAR TAXA

Easily distinguished from other New Zealand species of Machaerina by the leaves which are reduced to sheathing bracts and from M. tenax by the uppermost sheathing bracts distant along culm (rather than clustered at the stem base), each surmounted by a short, falcate lamina and also by the glumes not spreading (rather than spreading in M. tenax) as the fruit matures. Machaerina is superficially similar to Apodasmia similis with which it often grows, and from which it is distinguished by the grey-green, red-green to orange-yellow stems bearing regularly spaced bract-like, sheathing dark brown or maroon-black leaves, and by the terminal, many-flowered, paniculate to fascicled male and female spikelets.

FLOWERING

October - December

FRUITING

Fruits may be found throughout the year

PROPAGATION TECHNIQUE

Easily grown from rooted pieces and fresh seed. Rooted pieces establish best if first healed in within a potting medium of mostly untreated saw dust. Once established remarkably tolerant of drought. Does best when planted in full sun, in a permanently damp soil. Machaerina juncea is not fussy about soil fertility but does best in a slightly acidic soil. Machaerina juncea is also tolerant of saline conditions and can be planted into salt marshes and along estuarine creeks and lagoons.

ETYMOLOGY

juncea: Rush-like

ATTRIBUTION

Fact sheet prepared for NZPCN by P.J. de Lange (16 February 2012). Description adapted from Moore & Edgar (1970)

REFERENCES AND FURTHER READING

Moore, L.B.; Edgar, E. 1970: Flora of New Zealand. Vol. II. Government Printer, Wellington.
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): Machaerina juncea Fact Sheet (content continuously updated). New Zealand Plant Conservation Network. https://www.nzpcn.org.nz/flora/species/machaerina-juncea/ (Date website was queried)

MORE INFORMATION

https://www.nzpcn.org.nz/flora/species/machaerina-juncea/

Eleocharis sphacelata

Whangapoua, January. Photographer: John Smith-Dodsworth

Eleocharis sphacelata. Photographer: Wayne Bennett

COMMON NAME
Kutakuta, spikes of doom, bamboo spike sedge, tall spike sedge

SYNONYMS
None

FAMILY
Cyperaceae

AUTHORITY
Eleocharis sphacelata R.Br.

FLORA CATEGORY
Vascular – Native

ENDEMIC TAXON
No

ENDEMIC GENUS
No

ENDEMIC FAMILY
No

STRUCTURAL CLASS
Sedges

NVS CODE
ELESPH

CHROMOSOME NUMBER
2n = 100

CURRENT CONSERVATION STATUS
2012 | Not Threatened

PREVIOUS CONSERVATION STATUSES
2009 | Not Threatened
2004 | Not Threatened

DISTRIBUTION
Indigenous

HABITAT
Coastal to lower montane (but mainly in lowland areas). Preferring sunny situations where it usually grows in still deep water such as along lake and pond margins often amongst Raupo (Typha orientalis C.B.Presl), Baumea articulata (R.Br.) Blake. Rarely bordering slowly flowing streams and rivers, or in burn pools and damp depressions within peat bogs.

FEATURES
Rhizome 10-15 mm diameter, stout and lignaceous, creeping. Culms 0.3-1.2 m long, 4-12 mm diameter, usually close-packed, linear with obvious internal transverse septa set at regular intervals of 10-100 mm, apices blunted-ended unless fertile. Basal sheaths grey. chartaceous with an oblique orifice; roots 2 mm diameter, red-brown, in a group of up to 5 from the base of each culm. Spikelet 20-70 x 5-10 mm, cylindrical with an acute apex. Lowest glume sterile, almost completely surrounding base of spikelet, very short; upper glumes numerous, imbricate, 6-8 mm long, obovate-oblong, obtuse, not keeled but with a strong median nerve and numerous fine lateral nerves. Hypogynous bristles 6-10, usually greater than nut, with rather large, sparse, retrorse teeth. Stamens 3, Style 3-fid, occasionally stigmas 2, or all connate to the apex. Nut 2.0-2.5 mm long (excluding persistent style-base), orbicular, biconvex, the surface covered with hexagonal reticulations, pale brown, surmounted by the persistent, dark brown, conic, swollen base of the style.

SIMILAR TAXA
None. Easily distinguished from other species of Eleocharis by the much large soft, hollow, transversely septate culms. Could be confused with sterile species of Baumea articulata but that species has much longer (up to 2 m), dark green to almost brown green, rigidly firm culms with acute rather than blunt-ended apices

FLOWERING
August - December

FRUITING
November - May

LIFE CYCLE
Bristly nuts are dispersed by water and possibly wind and attachment (Thorsen et al., 2009).

PROPAGATION TECHNIQUE
Can be tricky. Fresh seed germinates best if allowed to float on water overlying potting mix, gradually reduce the water level so that the germinating plants can naturally “float” on to the underlying soil. Plants do best if their rootstock is submerged.

ETYMOLOGY
eleocharis: Charm of the swamp
sphacelata: Diseased (appearance of the spike)

CULTURAL USE
The long culms, when dried, were sometimes used by Maori for their tukutuku panels.

ATTRIBUTION
Description adapted from Moore and Edgar (1970)

REFERENCES AND FURTHER READING
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 11: 285-309

MORE INFORMATION
https://www.nzpcn.org.nz/flora/species/eleocharis-sphacelata/

Eleocharis acuta

Coromandel, February. Photographer: John Smith-Dodsworth

Upper leaf sheath. Wairarapa. Apr 2007. Photographer: Jeremy Rolfe

COMMON NAME
Sharp spike sedge

SYNONYMS
Eleocharis acuta R.Br. var. platylepis Hook.f.; Eleocharis acuta R.Br. var. tenuis Carse

FAMILY
Cyperaceae

AUTHORITY
Eleocharis acuta R.Br.

FLORA CATEGORY
Vascular – Native

ENDEMIC TAXON
No

ENDEMIC GENUS
No

ENDEMIC FAMILY
No

STRUCTURAL CLASS
Sedges

NVS CODE
ELEACU

CHROMOSOME NUMBER
2n = 20

CURRENT CONSERVATION STATUS
2012 | Not Threatened

PREVIOUS CONSERVATION STATUSES
2009 | Not Threatened
2004 | Not Threatened

DISTRIBUTION
Indigenous. In New Zealand found on the Kermadec, North, South, Stewart and Chatham Islands. Also in Australia and on Norfolk Island.

HABITAT
Coastal to montane. Common in open to partially shaded permanently damp ground. Usually in swamps, and on stream, river, pond, and lake margins. Sometimes present in seepages within pasture.

FEATURES
Terrestrial or semi-aquatic sedge forming yellow-green to green somewhat distinct, crowded tufts. Rhizomes, lignaceous, widely creeping, 1-2 mm diameter. Culms more or less crowded in distant tufts, 15.0-900.0 x 0.5-2.5 mm, more or less erect, terete, distinctly striated; lower sheath dark red to maroon with an oblique orifice, upper sheath paler, closely appressed to culm, orifice usually truncate or rarely slightly oblique, with dark thickened edge and distinct mucro at back. Spikelet 5-25 x 2-5 mm, cylindrical, acute at apex. Glumes numerous, basal 2 sterile, shorter, broader and paler than rest, upper glumes ovate-lanceolate with hyaline apices. Hypogynous bristles 6-8, some =, some > nut. stamens 3. Style 3-fid. Nut 1.5 x 1.0 mm, obovoid, biconvex or plano-convex, pale brown, smooth or faintly reticulate; the small persistent style-base triangular, compressed, white or very pale brown.

SIMILAR TAXA
Distinguished from the somewhat similar E. pusilla R.Br. and E. gracilis R.Br. by the much larger size, and by the usually truncate (only rarely slightly oblique), distinctly mucronate uppermost leaf-sheath which has a thickened orifice. In the other two species the uppermost leaf-sheath has a consistently oblique orifice and is without a mucro.

FLOWERING
September - January

FRUITING
October - May

LIFE CYCLE
Bristly nuts are dispersed by water and possibly wind and attachment (Thorsen et al., 2009).

PROPAGATION TECHNIQUE
Easy from fresh seed and the division of whole plants. Does best partially submerged but will also grow in damp soil. Needs full sun to flower

ETYMOLOGY
eleocharis: Charm of the swamp
acuta: Sharp (sheath mucronate)

WHERE TO BUY
Occasionally sold by specialist native plant nurseries**.**

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.
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/eleocharis-acuta/

Schoenoplectus tabernaemontani

Raglan harbour, March. Photographer: John Smith-Dodsworth

Schoenoplectus tabernaemontanii. Photographer: John Barkla

COMMON NAME
Kuawa

SYNONYMS
Schoenoplectus validus (Vahl) Á.Löve & D.Löve. In the past New Zealand plants have been erroneously referred to Scirpus lacustris L. and Schoenoplectus lacustris (L) Palla.

FAMILY
Cyperaceae

AUTHORITY
Schoenoplectus tabernaemontani (C.C.Gmel.) Palla

FLORA CATEGORY
Vascular – Native

ENDEMIC TAXON
No

ENDEMIC GENUS
No

ENDEMIC FAMILY
No

STRUCTURAL CLASS
Sedges

NVS CODE
SCHTAB

CHROMOSOME NUMBER
2n = 42

CURRENT CONSERVATION STATUS
2012 | Not Threatened

PREVIOUS CONSERVATION STATUSES
2009 | Not Threatened
2004 | Not Threatened

DISTRIBUTION
Indigenous. North, South and Chatham Islands. Throughout the North Island, In the South Island present in Nelson, Marlborough, Westland otherwise only around Christchurch and Lake Ellesmere. On the Chatham Islands known from one place - where it is possibly introduced. Otherwise found throughout the world.

HABITAT
Coastal to montane (up to 300 m a.s.l.). Mostly in standing water, growing in brackish or freshwater systems such as lakes, ponds, lagoons, river and stream margins. Also found well inland around geothermal systems.

FEATURES
Rhizome 3-8 mm diameter, horizontal, hard and woody, red-brown, with loose papery, grey, well spaced, scales, 20 mm long; roots numerous, fibrous, reddish. Culms 0.6-3.0 m, 3-10 mm diameter, crowded or distant on rhizome, terete with spongy pith. Leaves reduced to loose, grey-brown, papery sheaths at base of culms, the uppermost to 350 mm long. Inflorescence seemingly lateral, comprised of numerous spikelets in a cymose irregular umbel, primary rays 10-60 mm long, scabrid; subtending terete bract

SIMILAR TAXA
Schoenoplectus californicus (C.A.Mey.) Palla is an aggressive weedy species that is somewhat similar. It reaches 4 m in height, and differs by the culm being triangular in the upper third rather the terete (in cross-section) for its entire length, by the pendulous rather than spreading spikelets and plumose rather than scabrid hypogynous bristles. Schoenoplectus pungens (Vahl) Palla differs by its consistently triangular (in cross section) culms, and sessile 1-3 spikelets. Overall it is a much smaller plant than either of the other two species.

FLOWERING
November - January

FRUITING
January - May

PROPAGATION TECHNIQUE
Easily grown from fresh seed and the division of whole plants. An important and valuable plant for treating effluent and other polluted water, and so now widely used in artifical wetlands for this purpose.

CULTURAL USE/IMPORTANCE
The culms were occasionally used by Maori along with the korari of the flax (Phormium tenax J.R.Forst. et G.Forst) to make rafts, and at a flooring in waka.

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-tabernaemontani/

Isolepis inundata

Isolepis inundata. Photographer: John Smith-Dodsworth

Isolepis inundata. Photographer: John Smith-Dodsworth

SYNONYMS
Scirpus inundatus (R.Br.) Spreng.; Scirpus inundatus var. major Cheeseman; Isolepis propinuqua R.Br.; Scirpus cartilagineus var. propinqua (Nees) Benth.; Isolepis conspersa Nees in Endl.; Scirpus conspersus (Nees) Boeck.; Isolepis gunnii Steud.; Isolepis urvillei Steud.; Scirpus urvillei (Steud.) Boeck.; Isolepis multinervosa Boeck.

FAMILY
Cyperaceae

AUTHORITY
Isolepis inundata R.Br.

FLORA CATEGORY
Vascular – Native

ENDEMIC TAXON
No

ENDEMIC GENUS
No

ENDEMIC FAMILY
No

STRUCTURAL CLASS
Sedges

NVS CODE
ISOINU

CURRENT CONSERVATION STATUS
2012 | Not Threatened

PREVIOUS CONSERVATION STATUSES
2009 | Not Threatened
2004 | Not Threatened

DISTRIBUTION
Indigenous. New Zealand: North, South and Chatham Islands. Also Australia, Malaysia, South America and Norfolk Island

HABITAT
Coastal to montane in fresh water wetlands (eutrophic to oligotrophic). Often forming a floating sud around lake, pond and stream margins. Sometimes colonising old water troughs and damp pasture.

FEATURES
Initially tufted, with culms soon arching and spreading. Culms 60.0–500.0 × 0.4–1.8 mm, tufted, numerous, erect, often rather rigid (especially in lower third), terete, bright green. Leaves 1, or rarely 2–3 at the base of the culm, < 1 mm. wide; frequently reduced to a single, mucronate, red basal bract, mucro usually short. Inflorescence an apparently lateral, solitary head of (1–)3–6(-10) crowded spikelets, often proliferous with 1–3 slender branchlets each terminated by a smaller head of spikelets, subtending bract usually slightly > spikelets. Spikelets 2.0–5.0 × 1.5–3.0 mm, ovate or oblong-ovate, often dark red-purple. Glumes 1.5–2.0 mm. long, oblong-obovate, obtuse or ± acute, with a large dark red to black patch on either side of the pale green keel, with numerous distinct, light brown nerves, margins entire, white and membranous, flattened at the tip beside the keel. Hypogynous bristles 0. Stamen 1, very rarely 2. Style-branches 3, or rarely 2–3. Nut c.1.0 × 0.5 mm, slightly > ½ length of glume, conspicuously trigonous (very occasionally biconvex), distinctly mucronate, pale straw-coloured, almost white, occasionally grey-brown, surface distinctly reticulate.

SIMILAR TAXA
Close to I. distigmatosa (C.B.Clarke) Edgar and I.prolifer (Rottb.) R.Br. in often having no true leaves but only sheathing bracts. It is distinguished from these species by its usually pale green basally blotched dark red or purple glumes, mostly 3 rather than 2 style-branches, and trigonous (rarely biconvex) nuts. It is usually a much finer plant than either of these species.

FLOWERING
September - January

FRUITING
October - June

LIFE CYCLE
Nuts are dispersed by water and possibly granivory and attachment (Thorsen et al., 2009).

PROPAGATION TECHNIQUE
Easily grown from fresh seed and by division of whole plants. Once established rather tolerant of a range of conditions but flourishes best in full sun in a permanently damp soil. An attractive pot plant but can become invasive in some situations.

ETYMOLOGY
isolepis: From the Greek isos (equal) and lepis (scale)
inundata: Growing in places that are periodically flooded

WHERE TO BUY
Not commercially available

ATTRIBUTION
Description adapted from Moore and Edgar (1970)

REFERENCES AND FURTHER READING
Johnson, A. T. and Smith, H. A (1986). Plant Names Simplified: Their pronunciation, derivation and meaning. Landsman Bookshop Ltd: Buckenhill, UK.
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 11: 285-309

MORE INFORMATION
https://www.nzpcn.org.nz/flora/species/isolepis-inundata/

Juncus planifolius

Pauanui, February. Photographer: John Smith-Dodsworth

Fruit. Te Marua. Apr 2007. Photographer: Jeremy Rolfe

COMMON NAME
grass-leaved rush

SYNONYMS
Juncus planifolius var. chathamicus Buch.

FAMILY
Juncaceae

AUTHORITY
Juncus planifolius R.Br.

FLORA CATEGORY
Vascular – Native

ENDEMIC TAXON
No

ENDEMIC GENUS
No

ENDEMIC FAMILY
No

STRUCTURAL CLASS
Rushes & Allied Plants

NVS CODE
JUNPLA

CURRENT CONSERVATION STATUS
2012 | Not Threatened

PREVIOUS CONSERVATION STATUSES
2009 | Not Threatened
2004 | Not Threatened

DISTRIBUTION
Indigenous. North, South, Stewart and Chatham Islands. Also Australia, Hawaii and South America.

HABITAT
Coastal to montane (up to 1000 m a.s.l.) in open, moist ground. Often found on fresh exposed damp clay, or along track sides or on the margins of drains. A common urban weed which has naturalised in the northern Hemisphere.

FEATURES
Bright green, yellow-green to wine-red, tufted, grass-like perennial herb of rather variable stature. Stems 20.0-900.0 x 0.5-1.5 mm. Leaves numerous, all basal, up to 100 mm x 8 mm, usually less than stem, solid, flat, non-septate, lanceolate to linear-lanceolate, tapered gradually from base to the slightly dilated, acute, usually mucronate apex; sheaths broad without auricles, mostly pink-coloured, rarely cream. Inflorescence terminal, umbel-like and irregularly branched. Flowers numerous, 1.5-2.0 mm long, crowded in globose or hemispherical clusters at the ends of the numerous branchlets; tepals more or less equal, the outer acuminate, inner acute, all with light green centres and red-brown to wine-red margins. Stamens 3(-6). Capsule equal to or very slightly > tepals, lustrous brown to brownish-black, ovoid, mucronate.

SIMILAR TAXA
Easily recognised by the usually many-flowered, umbel-like inflorescence and flat leaves; flower clusters up to 5 mm diameter and 2 mm long capsules. In a sterile state it could be mistaken for Luzula (wood rushes) but the leaves lack the characteristic sparse to densely villous margins typical of that genus. Juncus planifolius has a superficial similarity to J. caespiticius E.Meyer in Lehm., with which it occasionally grows. It differs from that species by its flat, not channelled leaves, and open umbellate rather than compact globose inflorescence. The flower heads of J. planifolius are often proliferous or infected by the powdery grey or bluish smut (Sorosporium piluliformis (Berkeley) McAlpine).

FLOWERING
August - April

FLOWER COLOURS
Green, Red/Pink

FRUITING
October - June

LIFE CYCLE
Mucilaginous seeds are dispersed by attachment, wind and water (Thorsen et al., 2009).

PROPAGATION TECHNIQUE
Easy from fresh seed. Inclined to be invasive, and indeed occasionally seen as an urban weed of roadside blocked gutters.

ETYMOLOGY
juncus: From the Latin jungere 'to tie or bind', the stems of some species being used to make cord (Johnson and Smith)
planifolius: From the Latin planum 'flat surface' and folius 'leaf, meaning a flat leaf

WHERE TO BUY
Not commercially available

ATTRIBUTION
Fact Sheet prepared for NZPCN by P.J. de Lange (1 September 2006). Description based on Moore & Edgar (1970).

REFERENCES AND FURTHER READING
Johnson, A. T. and Smith, H. A (1986). Plant Names Simplified: Their pronunciation, derivation and meaning. Landsman Bookshop Ltd: Buckenhill, UK.
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 11: 285-309

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

MORE INFORMATION
https://www.nzpcn.org.nz/flora/species/juncus-planifolius/

Centella uniflora

Coromandel, February. Photographer: John Smith-Dodsworth

Aramoana. Photographer: John Barkla

COMMON NAME
centella

FAMILY
Apiaceae

AUTHORITY
Centella uniflora (Colenso) Nannf.

FLORA CATEGORY
Vascular – Native

ENDEMIC TAXON
No

ENDEMIC GENUS
No

ENDEMIC FAMILY
No

STRUCTURAL CLASS
Herbs - Dicotyledons other than Composites

NVS CODE
CENUNI

CHROMOSOME NUMBER
2n = 76

CURRENT CONSERVATION STATUS
2012 | Not Threatened

PREVIOUS CONSERVATION STATUSES
2009 | Not Threatened
2004 | Not Threatened

LIFE CYCLE
Seed dispersed by water and wind (Thorsen et al., 2009).

ETYMOLOGY
centella: Little spike
uniflora: Single-flowered

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/centella-uniflora/

Triglochin striata

COMMON NAME
triglochin

SYNONYMS
Triglochin flaccidum A.Cunn., Triglochin striatum Ruiz et Pav.

FAMILY
Juncaginaceae

AUTHORITY
Triglochin striata Ruiz et Pav.

FLORA CATEGORY
Vascular – Native

ENDEMIC TAXON
No

ENDEMIC GENUS
No

ENDEMIC FAMILY
No

STRUCTURAL CLASS
Herbs - Monocots

NVS CODE
TRISTA

CHROMOSOME NUMBER
2n = 24

CURRENT CONSERVATION STATUS
2012 | Not Threatened

PREVIOUS CONSERVATION STATUSES
2009 | Not Threatened
2004 | Not Threatened

DISTRIBUTION
Indigenous to New Zealand. Three Kings, North, South, Stewart, and Chatham Islands. Also present in South America, America, Africa, Australia and south Portugal.

HABITAT
Mainly coastal in damp muddy ground, salt marsh, estuaries, and damp seepages on coastal cliffs, boulder beaches and within damp coastal turf. Also found inland around lake margins (in marginal turf communities) and in other suitable damp places. Sometimes even in tall forest.

Pauanui, February. Photographer: John Smith-Dodsworth

Fruit. North Otago. Photographer: John Barkla

FEATURES
Fleshy, grass-like tufted or sward forming perennial herb. Bases not bulbous, roots distinctly fibrous. Leaves 10-400x 0.3-2.0 mm, dark green, reddish green or brown-green, ligule rounded to subacute; lamina linear, linear-filiform, flattened toward subacute apex. Inflorescence racemose, 10-200 mm long; pedicels 1-3 mm long, set at a rather wide angle to axis. Flowers(1-)2 mm long; stylar apices green or reddish-green, slightly spreading. fruit 2-3 mm long, dark green, reddish green to brown, subglobose, comprising 3 keeled fertile follicles and 3 narrower sterile carpels, all rather loosely attached to carpophore.

SIMILAR TAXA
Triglochin palustris L. is superficially similar. However, this is a taller (up to 800 mm), bulbous, plant with narrow-linear fruits with follicles that are not keeled and narrow to an acutely pointed base, and which separate from the base first, splitting widely such that they resemble a small arrow head. The leaves are distinctly semi cylindric rather than flattened toward their apices.

FLOWERING
September - January

FLOWER COLOURS
Green, Red/Pink

FRUITING
October - May

PROPAGATION TECHNIQUE
Easily grown in a pot partially submerged in water, or in a sunny permanently damp or water logged soil.

ETYMOLOGY
triglochin: Three-pointed
striata: Striated

ATTRIBUTION
Description adapted from Moore and Edgar (1970).

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

MORE INFORMATION
https://www.nzpcn.org.nz/flora/species/triglochin-striata/

Lilaeopsis novae-zelandiae

SYNONYMS
Lilaeopsis lacustris A.W.Hill; Lilaeopsis orbicularis A.W.Hill

FAMILY
Apiaceae

AUTHORITY
Lilaeopsis novae-zelandiae (Gand.) A.W.Hill

FLORA CATEGORY
Vascular – Native

ENDEMIC TAXON
Yes

ENDEMIC GENUS
No

ENDEMIC FAMILY
No

STRUCTURAL CLASS
Herbs - Dicotyledons other than Composites

NVS CODE
LILNOV

CHROMOSOME NUMBER
2n = 44

CURRENT CONSERVATION STATUS
2012 | Not Threatened

PREVIOUS CONSERVATION STATUSES
2009 | Not Threatened
2004 | Not Threatened

ETYMOLOGY
lilaeopsis: Charming the eye
novae-zelandiae: Of New Zealand

MORE INFORMATION
https://www.nzpcn.org.nz/flora/species/lilaeopsis-novae-zelandiae/

90 mile beach, September. Photographer: John Smith-Dodsworth

Falls Dam Central Otago. Photographer: John Barkla

Carex maorica

Taken in Coromandel, January. Photographer: John Smith-Dodsworth

Atiwhakatu Valley, Wairarapa. Feb 2008. Photographer: Jeremy Rolfe

COMMON NAME
Māori sedge

SYNONYMS
Carex fascicularis Boott var. minor Boott; Carex forsteri Wahl. var. minor (Boott) Hook.f.

FAMILY
Cyperaceae

AUTHORITY
Carex maorica Hamlin

FLORA CATEGORY
Vascular – Native

ENDEMIC TAXON
Yes

ENDEMIC GENUS
No

ENDEMIC FAMILY
No

STRUCTURAL CLASS
Sedges

NVS CODE
CARMAO

CHROMOSOME NUMBER
2n = c.72-76

CURRENT CONSERVATION STATUS
2012 | Not Threatened

PREVIOUS CONSERVATION STATUSES
2009 | Not Threatened
2004 | Not Threatened

DISTRIBUTION
Endemic. New Zealand: North and South Islands. In the North Island uncommon in the east from East Cape to the Wairarapa otherwise widespread. In the South Island apparently absent from Southland and Fiordland

HABITAT
Coastal to lowland in freshwater wetlands, under willow in gully systems, along river and stream banks, lake margins, and in damp seepages, pond margins and clearings within forest. Preferring fertile to mid-fertile wetlands.

FEATURES
Light green to yellow-green tufted sedge. Culms 150.0-700.0 × 1.0–2.5 mm., trigonous, smooth or faintly scabrid below inflorescence; basal sheaths light to dark grey, often red-tinged. Leaves > culms, to 1 m long, 2-7 mm wide, double-folded, cross-veinlets ± prominent, keel and margins minutely scabrid. Inflorescence of 2-5 close-set, sessile, usually erect, occasionally spreading spikes, or the lowest 1-2 rather distant and shortly pedunculate; terminal spike male; remaining spikes female, usually > and overtopping male spike, 20–60 × 7–12 mm, crowded at same level round base of male spike. Glumes usually much < utricles, 1-2 mm long, narrowly ovate-lanceolate, margin of upper part fimbriate or lacerate, hyaline with a green midrib produced to a scabrid awn 1-3 mm long, up to 6 mm long in lowermost glumes. Utricles 4.0-5.5(-6.0) × 1.0–1.5 mm., plano-convex or biconvex, turgid, ovate or lanceolate, spreading when ripe, shining light green to light brown with numerous distinct white nerves, very slightly tapered above to a beak 1.5–2.0 mm long, with bifid, glabrous orifice, crura c. 1/3 length of entire beak; stipe narrow, c.0.5 mm long. Stigmas 3. Nut c. 1.5 mm. long, triquetrous, ellipsoid, cream or light brown

SIMILAR TAXA
Carex maorica is easily recognised by its slender culms; pale green to yellow green wide leaves; prominent cross-veinlets on sheaths and leaves; and mostly clustered spikelets, and short glumes with lacerate or fimbriate margins; and by the submembranous, strongly nerved, glabrous, spreading utricles. There are only two other carices in New Zealand with cross-veinlets, the indigenous C. fascicularis Boott and naturalised C. lurida Wahlenberg. Carex fascicularis differs from C. maorica by the female spikes mostly distant to ± approximate (but then never clustered at one level round base of male spike). Carex lurida is a much larger sedge than either species (up to 2.5 m tall) and has utricles 6-9 × 2-4 rather than 4.0-6.0 × 1.0-1.5 mm

FLOWERING
October - December

FRUITING
November - 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. Although a wetland species C. maorica will grow well in most soils and moisture regimes. Does best in full sun.

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

ATTRIBUTION
Fact sheet prepared by P.J. de Lange (12 August 2006). Description adapted from Moore and Edgar (1970).

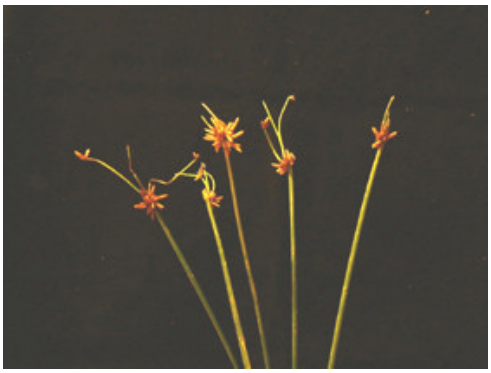
REFERENCES AND FURTHER READING
Moore, L.B.; Edgar, E. 1970: Flora of New Zealand. Vol. II. Government Printer, Wellington.
Thorsen, M. J.; Dickinson, K. J. M.; Seddon, P. J. 2009. Seed dispersal systems in the New Zealand flora. Perspectives in Plant Ecology, Evolution and Systematics 2009 Vol. 11 No.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

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

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

Isolepis prolifera

Duck creek, Pauanui, February. Photographer: John Smith-Dodsworth



Duck creek, Pauanui, February. Photographer: John Smith-Dodsworth

SYNONYMS
Schoenoplectus prolifer (Rottb.) Palla; Scirpus prolifer Rottb.; Cyperus punctatus Lam., Isolepis erythronegma Steud.; Isolepis globosa Buchanan;

FAMILY
Cyperaceae

AUTHORITY
Isolepis prolifera (Rottb.) R.Br.

FLORA CATEGORY
Vascular – Native

ENDEMIC TAXON
No

ENDEMIC GENUS
No

ENDEMIC FAMILY
No

STRUCTURAL CLASS
Sedges

NVS CODE
ISOPRO

CURRENT CONSERVATION STATUS
2012 | Not Threatened

PREVIOUS CONSERVATION STATUSES
2009 | Not Threatened
2004 | Not Threatened

DISTRIBUTION
Indigenous. New Zealand: North, South and Chatham Islands. Also Australia, South Africa

HABITAT
Coastal to lower montane. Mostly in open, freshwater wetland systems - eutrophic or oligotrophic. Sometimes an aggressive weed in farm dams. Often invading poorly drained pasture and old cattle troughs. It is highly palatable to livestock which often wade out into wetlands seeking it.

FEATURES
Culms 60–900 mm × 0.7–4.0 mm, in tufts, ± compressed, lax and soft, or narrower, terete and erect, leafless, bearing a single reddish basal sheath with dilated oblique orifice. Inflorescence an apparently lateral cluster of numerous spikelets, often proliferous with 1–4(-10) branchlets, 20–70 mm long, each sheathed at the base and bearing a further small head of spikelets; bract subtending inflorescence obtuse, < spikelets. Spikelets 2–10 × 1–2 mm, narrow-linear, cylindrical, green to light red-brown. Glumes 2.0–2.5 × c.1.0 mm, ovate- to oblong-lanceolate, subacute to very shortly apiculate, membranous, flecked with small, light red-brown striae, margins entire and keel pale brown or green, lateral nerves conspicuous. Hypogynous bristles 0. Stamens 3. Style-branches 3. Nut c.1.0 × 0.5 mm, c.½ length of glume, trigonous, sides convex between the slightly thickened angles, minutely apiculate and stipitate, creamy yellow, surface minutely reticulate.

SIMILAR TAXA
Similar to I. inundata R.Br. and I. distigmatosa (C.B.Clarke) Edgar. It is distinguished from these species by its usually hyaline yellow-green glumes flecked with minute red-brown stripes, and complete absence of leaves. From I. distigmatosa it also differs by the 3 rather than 2 style-branches, and trigonous nuts,and from I. inundatus differs by the shorter, broader spikelets and 1(-2) instead of 3 stamens. Most forms of I. inundatus have at least some true leaves, I. prolifer is always leafless.

FLOWERING
October - January

FRUITING
December - April

LIFE CYCLE
Nuts are dispersed by water and possibly granivory and attachment (Thorsen et al., 2009).

PROPAGATION TECHNIQUE
Easily grown from fresh seed and by division of whole plants. Once established rather tolerant of a range of conditions but flourishes best in full sun in a permanently damp soil. An attractive pot plant but can become invasive in some situations.

ETYMOLOGY
isolepis: From the Greek isos (equal) and lepis (scale)

ATTRIBUTION
Description adapted from Moore and Edgar (1970).

REFERENCES AND FURTHER READING
Johnson, A. T. and Smith, H. A (1986). Plant Names Simplified: Their pronunciation, derivation and meaning. Landsman Bookshop Ltd: Buckenhill, UK.
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 11: 285-309

MORE INFORMATION
https://www.nzpcn.org.nz/flora/species/isolepis-prolifera/

Cyperus congestus

Cyperus congestus. Photographer: John Smith-Dodsworth

Cyperus congestus. Photographer: John Smith-Dodsworth

COMMON NAME
purple umbrella sedge

FAMILY
Cyperaceae

AUTHORITY
Cyperus congestus M. Vahl

FLORA CATEGORY
Vascular – Exotic

STRUCTURAL CLASS
Sedges

NVS CODE
CYPCON

BRIEF DESCRIPTION
Tufted leafy sedge, with triangular stems with a swollen base, up to 80 cm tall, leaves arranged in threes, with a single or group of up to 7 red-purple round flowerheads, each made up of narrow flattened flower spikes, with 3 to 6 long grass-like leaves immediately under this, at the end of flower stalk.

DISTRIBUTION
Scattered throughout the North Island and Nelson, Marlborough and Canterbury, locally common in many areas.

HABITAT
Wet areas such as the banks of rivers and streams, swamps, ditches and also a weed of drier sites such as roadsides and cropping land.

FEATURES
Thickly tufted perennial. Stems 15-40- (80) cm high, rather robust, 3-angled, smooth, leafy and somewhat bulbous and woody at base. Leaves usually < stems, to 7 mm wide, flat, margins smooth below, scabrid towards tip; sheaths purple-brown, minute transverse septa evident. Involucral bracts 3-6, leaf-like, the lowest > inflorescence. Inflorescence a simple or compound umbel or reduced to a single head; rays 2-4, rather rigid, to 6 cm long. Spikelets numerous, 10-20 × 2 mm, narrow-linear, acute, in dense ovate or hemispherical reddish-purple spikes; rhachilla with membranous wings. Glumes ± 3 mm long, not closely imbricate, usually tightly appressed to rhachilla, oblong-elliptic, acute, many-nerved, keel green, margins deep red-purple. Stamens 3. Style-branches 3. Nut ± ½ length of glume, obovoid-oblong, trigonous, dark brown, apiculate.

SIMILAR TAXA
Similar to other Cyperus species, distinguished from the only other species with red-purple flowers (C. rotundus) by the lack of rhizomes and tubers and much taller growth habit.

FLOWERING
Summer to autumn

FLOWER COLOURS
Green, Red/Pink

FRUITING
Summer to autumn

LIFE CYCLE
Seed dispersed by contaminated machinery.

YEAR NATURALISED
1878

ORIGIN
South Africa

REASON FOR INTRODUCTION
Unknown, possibly ornamental plant, seed or soil contaminant.

CONTROL TECHNIQUES
Can be controlled manually, mechanically or herbicidally depending on situation.

ETYMOLOGY
cyperus: From the ancient Greek name for sedge, kypeiros

ATTRIBUTION
Facthsheet prepared by Paul Champion and Deborah Hofstra (NIWA).

REFERENCES AND FURTHER READING
Healy, A.J.; Edgar, E. (1980). Flora of New Zealand, Volume III. Adventive Cyperaceous, Petalous and Spathaceous Monocotyledons. Government Printer, Wellington. 220pp.
Champion et al (2012). Freshwater Pests of New Zealand. NIWA publication. http://www.niwa.co.nz/freshwater-and-estuaries/management-tools/identification-guides-and-fact-sheets/freshwater-pest-species
Johnson PN, Brooke PA (1989). Wetland plants in New Zealand. DSIR Field Guide, DSIR Publishing, Wellington. 319pp.

MORE INFORMATION
https://www.nzpcn.org.nz/flora/species/cyperus-congestus/

Paspalum distichum

Paspalum distichum. Photographer: John Smith-Dodsworth

Paspalum distichum. Photographer: John Smith-Dodsworth

COMMON NAME
Mercer grass

SYNONYMS
Paspalum paspalodes

FAMILY
Poaceae

AUTHORITY
Paspalum distichum L.

FLORA CATEGORY
Vascular – Exotic

STRUCTURAL CLASS
Grasses

NVS CODE
PASDIS

BRIEF DESCRIPTION
Floating grass forming dense mats, with typical two-pronged lowerheads produced in summer

DISTRIBUTION
Locally common in the North Island but also in the South Island as far south as Canterbury.

HABITAT
Still and slow flowing water bodies and wetland margins.

FEATURES
Creeping, perennial, mat-forming grass, the stems sprawl along the ground and then grow to 60 cm tall. Stolons long, rooting frequently, with rhizomes. Leaves are distantly alternate, the lamina is 4-10 cm long and 2-6mm wide, tip pointed, bluish-green, soft and lax, slightly hairy above and below, rolled and hairy at base. Ligule up to 4 mm, membrane-like, whitish-translucent, often torn. Auricle absent. Sheath with reddish-purple tinge. Seedhead of 2 (sometimes 1 or 3) diverging, erect racemes, 25-50 mm long; with softly hairy spikelets.

SIMILAR TAXA
Kikuyu grass (Pennisetum clandestinum). Differs from Mercer grass in that Kikuyu grass lacks a membranous ligule and has a short flowering head that is almost enclosed within the leaves. In contrast, Mercer grass has a very distinctive forked flowering head.

FLOWERING
November, December, January, February

FLOWER COLOURS
Green

FRUITING
Late summer

LIFE CYCLE
Perennial. Reproduces by seed and stem fragmentation. Seeds freely, seed viability unknown. Dispersed by water, livestock pelts and hooves (possibly seed in dung). Contaminated diggers and dumped vegetation.

YEAR NATURALISED
1887

ORIGIN
Europe

REASON FOR INTRODUCTION
Forage grass for wet areas

CONTROL TECHNIQUES
Not usually controlled in New Zealand, but may be controlled by mowing or herbicidally.

TOLERANCES
Tolerates wet, hot to mod-cool, wind, damage and grazing, most soils. Intolerant of frost, deep shade and dry conditions.

ETYMOLOGY
paspalum: The Greek name for millet

ATTRIBUTION
Factsheet prepared by Paul Champion and Deborah Hofstra (NIWA).

REFERENCES AND FURTHER READING
Champion et al (2012). Freshwater Pests of New Zealand. NIWA publication. http://www.niwa.co.nz/freshwater-and-estuaries/management-tools/identification-guides-and-fact-sheets/freshwater-pest-species.

MORE INFORMATION
https://www.nzpcn.org.nz/flora/species/paspalum-distichum/

Calystegia tuguriorum

Kuaotunu, November. Photographer: John Smith-Dodsworth

Seed capsule. Otakaha Stream, Palliser Bay. Photographer: Jeremy Rolfe

COMMON NAME
climbing convolvulus, NZ bindweed

SYNONYMS
Convolvulus tuguriorum G.Forst.

FAMILY
Convolvulaceae

AUTHORITY
Calystegia tuguriorum (G.Forst.) Hook.f.

FLORA CATEGORY
Vascular – Native

ENDEMIC TAXON
No

ENDEMIC GENUS
No

ENDEMIC FAMILY
No

STRUCTURAL CLASS
Lianes & Related Trailing Plants - Dicotyledons

NVS CODE
CALTUG

CHROMOSOME NUMBER
2n = 22

CURRENT CONSERVATION STATUS
2012 | Not Threatened

PREVIOUS CONSERVATION STATUSES
2009 | Not Threatened
2004 | Not Threatened

DISTRIBUTION
Indigenous. North, South, Stewart and Chatham Islands. Present in Chile and on the Juan Fernandez islands

HABITAT
Coastal to lowland. Usually in shrubland and along forest margins. occasional found on the margins of wetlands. It often favours grey scrub and bare lava or open rock strewn ground.

FEATURES
Perennial vine or scrambling plant producing numerous, slender, much-branched puberulent twinning stems. Often forming dense patches. Petioles up to 40 mm, slender. Leaves (10-)40(-50) x (15-)30(-40) mm broad-ovate to deltoid or reniform, entire or sinuate; base cordate, sinus shallow and broad; apex acute to acuminate. Peduncules terete to slightly winged, (30-)110 mm long, > leaves. Bracts broadly ovate to suborbicular; base cordate, apex apiculate. Sepals similar to and < or = bracts. Corolla (25-)50 x (30-)60 mm diam., funnelform, white. Capsule 8-12 mm, broad-ovoid. Seeds orange, smooth.

SIMILAR TAXA
Could be confused with the only other consistently white-flowered Calystegia in New Zealand, C. marginata, which differs by its sagittate, fish-tailed leaves, shorter conspicuously winged peduncles, smaller flowers and black seeds which are ribbed and finely covered in protuberances. C. tuguriorum hybridises freely with C. soldanella (see under that species).

FLOWERING
September - March

FLOWER COLOURS
White

FRUITING
Present throughout the year.

LIFE CYCLE
Capsules are water and possibly also wind dispersed (Thorsen et al., 2009).

PROPAGATION TECHNIQUE
Easy from seed and rooted pieces. Once established can be rather invasive and difficult to eradicate! Excellent growing through a hedge where the large white flowers can be seen to full effect and the creeping stems are more easily contained.

ETYMOLOGY
calystegia: Name is derived from the Greek words kalyx ‘cup’, and stege ‘a covering’, meaning ‘a covered cup’, the calyx of some bindweeds being enclosed in two bracts.
tuguriorum: Growing around huts

TAXONOMIC NOTES
Putative wild hybrids between this species and C. soldanella are common. Some collections suggest that it may also hybridise with C. sepium subsp. roseata.

ATTRIBUTION
Fact sheet prepared for NZPCN by P.J. de Lange 1 November 2005. Description adapted from Allan (1961) and Webb et al. (1988), supplemented with observations made from fresh and dried material.

REFERENCES AND FURTHER READING
Allan, H.H. 1961: Flora of New Zealand. Vol. I. Wellington, Government Printer.
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.
Wilcox, M.D. 2002. *Calystegia tuguriorum* in Auckland. *Auckland Botanical Society Journal 57*: 25
Webb, C.J.; Sykes, W.R.; Garnock-Jones, P.J. 1988: Flora of New Zealand. Vol. IV. Naturalised Pteridophytes, Gymnosperms, Dicotyledons.Christchurch, New Zealand, Botany Division, D.S.I.R..

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

MORE INFORMATION
https://www.nzpcn.org.nz/flora/species/calystegia-tuguriorum/

Typha orientalis

Whangapoua, January. Photographer: John Smith-Dodsworth

Pauatahanui. Photographer: Jeremy Rolfe

COMMON NAME
raupō, bullrush

SYNONYMS
Typha muelleri Rohrb.

FAMILY
Typhaceae

AUTHORITY
Typha orientalis C.Presl

FLORA CATEGORY
Vascular – Native

ENDEMIC TAXON
No

ENDEMIC GENUS
No

ENDEMIC FAMILY
No

STRUCTURAL CLASS
Herbs - Monocots

NVS CODE
TYPORI

CHROMOSOME NUMBER
2n = 60

CURRENT CONSERVATION STATUS
2012 | Not Threatened

PREVIOUS CONSERVATION STATUSES
2009 | Not Threatened
2004 | Not Threatened

DISTRIBUTION
Indigenous. Kermadec Islands group (Raoul Island only), North and South Islands. Deliberately naturalised on the Chatham Islands by Maori. Present also in Australia, Malaysia, Indonesia and the wider western Pacific

HABITAT
Coastal to lowland in fertile wetlands, on the margins of ponds, lakes, slow flowing streams, and rivers. Less frequently found on the margins of low moor bogs. Occasionally found in muddy ground within industrial areas.

FEATURES

Stout summer green, rhizomatous, colonial, usually emergent perennial herb up to 3 m tall. Rhizome to 40 mm diameter, fleshy, covered in numerous scale leaves, usually submerged in water or mud. Leaf-sheath often > 300 mm long; 1-3 m long, 10-30 mm diameter, dull green to grey-green, lamina linear-lanceolate to lanceolate, more or less plano-convex at base, pith spongy. Peduncle usually < leaves, up to 15 mm diameter. Inflorescence 300-500 mm long, the female part up to 25 mm diameter, the male portion narrower, and either continuous with or more or less separated from the female. Bracteoles in male portion more numerous than stamens, more or less equal to anthers, proximally narrow-linear, broader at tip and there variously laciniate, arising directly on axis and remaining more or less curled up after flowers fall. Male flower sessile to subsessile filaments at first shorter than anther-width, elongating later; anthers 1-3, tipped with blunt extension of connective; pollen clear yellow, grains single. Bracteoles in female part very few, absent from many flowers, more or less equal to gynophore hairs, filiform except for a few-celled expansion at apex. Female flowers much smaller than male, several grouped on proximal part of a short compound pedicel. Ovary at flower almost sessile, narrow-elliptic; style long, slender; stigma broader, spathulate, more or less concave; gynophore hairs extremely numerous, barely reaching base of stigma, stiff, filiform, very narrowly clavate at apex. Gynophore elongating at fruit 1-2 times style-length, hairs becoming confined to proximal third of gynophore and in groups or more or less whorled; persistent stigmas brown. Carpodia oblong-obovate, apices just projecting between the hairs. Seed 1.2 mm long, cuneate at base, truncate at apex, yellow.

SIMILAR TAXA

Typha latifolia L. has been found in cultivation in New Zealand it differs from T. orientalis by its somewhat wider, flat, pale greyish-green leaves, very dark brown to black erect flower spikes, and one-seeded fruits up to 10 mm long, each with hairs rising near the base, and chromosome number (2n = 30 cf. 2n = 60). Typha domingensis Pers. has also been reported from New Zealand. It differs from T. orientalis by its narrower leaves and much narrower inflorescences and by its chromosome number (2n = 30 cf. 2n = 60).

FLOWERING

December - February

FLOWER COLOURS

Yellow

FRUITING

March - June

PROPAGATION TECHNIQUE

Easily grown from fresh seed and division of established plants. Excellent in large ponds and dams but regarded by some as an aggressive weed.

ETYMOLOGY

typha: From the Greek name for this plant
orientalis: From the Latin orientale, meaning ‘eastern’ but sometimes also translated as ‘from the Orient’.

ATTRIBUTION

Description adapted from Moore and Edgar (1970).

REFERENCES AND FURTHER READING

Mason, R., Moar, N.T. 1951. Typha in N.Z. Wellington Botanical Society Bulletin, 24: 6-9
Moore, L.B.; Edgar, E. 1970: Flora of New Zealand. Vol. II. Government Printer, Wellington.

MORE INFORMATION

https://www.nzpcn.org.nz/flora/species/typha-orientalis/

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.